

# TRAFFIC IMPACT STUDY

Edgepoint Phase 3

(Revised October 2019)

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## TABLE OF CONTENTS

	<u>Page</u>
<b>I. INTRODUCTION.....</b>	<b>1</b>
<b>II. EXISTING CONDITIONS.....</b>	<b>4</b>
II.A. Roadways .....	4
II.B. Traffic Volumes.....	4
II.C. Traffic Operations.....	4
<b>III. PROPOSED CONDITIONS .....</b>	<b>6</b>
III.A. Trip Generation.....	6
III.B. Site Trip Distribution and Traffic Assignment.....	7
III.C. Existing Plus Site Generated Traffic Conditions.....	7
<b>IV. FUTURE CONDITIONS.....</b>	<b>10</b>
IV.A. 2040 Background Traffic Conditions.....	10
IV.B. 2040 Total Traffic Conditions.....	10
<b>V. EVALUATION.....</b>	<b>13</b>
V.A. Level of Service.....	13
V.B. Queuing.....	15
V.C. Auxiliary Lanes.....	16
V.D. Pedestrians.....	16
V.E. Safety.....	17
<b>VI. SUMMARY AND RECOMMENDATIONS.....</b>	<b>19</b>

## Appendices

Appendix A.	Traffic Counts
Appendix B.	Existing Conditions LOS
Appendix C.	Previous Site Plan
Appendix D.	2020 Total Traffic Conditions LOS
Appendix E.	2040 Background Conditions LOS
Appendix F.	2040 Total Traffic Conditions LOS
Appendix G.	Pedestrian LOS

**List of Figures**

	<u>Page</u>
Figure 1. Vicinity Map.....	2
Figure 2. Current Site Plan .....	3
Figure 3. Existing Traffic Conditions .....	5
Figure 4. Trip Distribution and Site Generated Traffic.....	8
Figure 5. 2020 Total Traffic Conditions .....	9
Figure 6. 2040 Background Traffic Conditions .....	11
Figure 7. 2040 Total Traffic Conditions .....	12
Figure 8. Recommended Safety Improvements .....	18

**List of Tables**

	<u>Page</u>
Table 1. Edgepoint Phase 3 – Trip Generation Comparison .....	6
Table 2. LOS Summary – Short Range Future.....	13
Table 3. LOS Summary – Long Range Future.....	14
Table 4. 95% Maximum Probable Queue Lengths (in feet) .....	15
Table 5. Pedestrian Trip Generation - Clubhouse.....	16

## I. INTRODUCTION

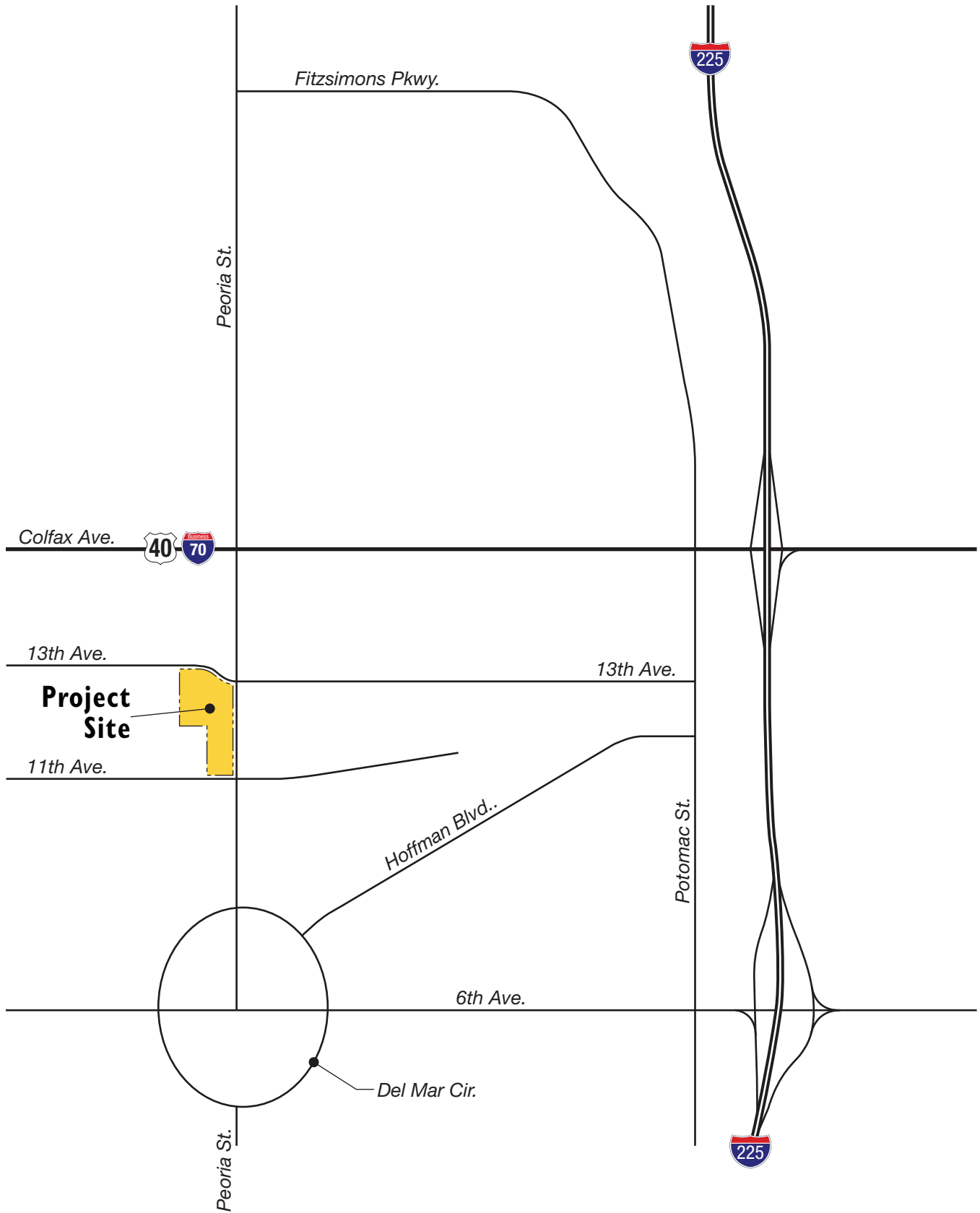
Planning for Edgepoint Phase 3 is now in the development process. The site, located along the west side of Peoria Street between 11<sup>th</sup> and 13<sup>th</sup> Avenues, was the subject of the report entitled *Mount Nebo Redevelopment Traffic Impact Analysis*, Felsburg Holt & Ullevig, November 2006. Since 2006, the portion of Edgepoint north of 13<sup>th</sup> Avenue has been constructed with primarily multifamily residential uses. Phase 3, located south of 13<sup>th</sup> Avenue, is planned to consist of 340 residential apartment units. A 10,400-square foot clubhouse, intended for Edgepoint residents only, is also included. **Figure 1** is a map of the project vicinity.

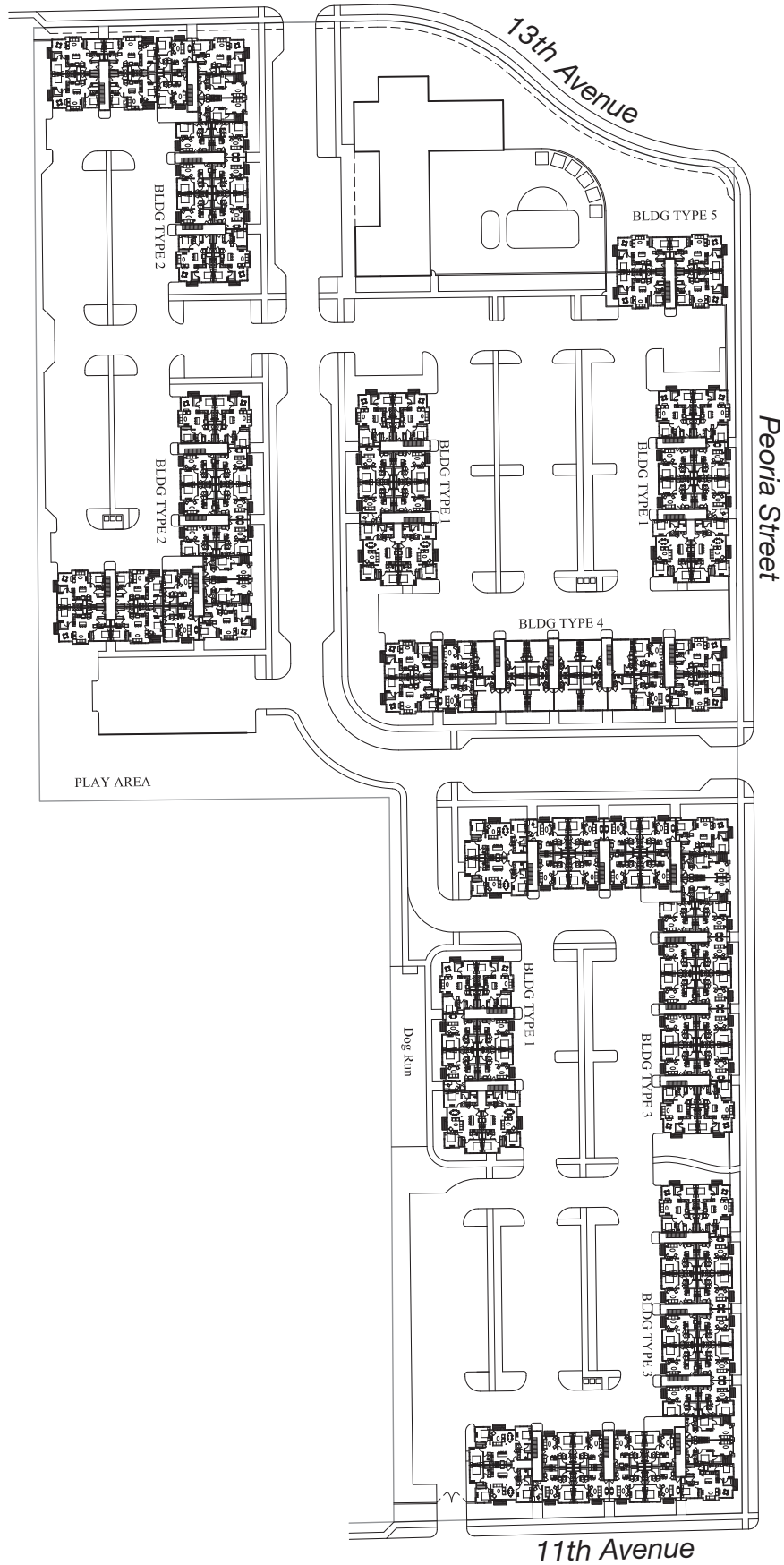
Due to the age of our previous report, and because the proposed land uses have changed, this updated Traffic Impact Study addresses the impacts associated with the current concept for Edgepoint Phase 3. The current site plan concept, depicted on **Figure 2**, indicates vehicular site access to be provided by the following proposed accesses:

- One full-movement intersection on 13<sup>th</sup> Avenue, aligning with the existing Paris Street intersection, which serves Edgepoint Phases 1 and 2.
- One right-in/right-out (RIRO) access along Peoria Street, to be located about 500 feet south of 13<sup>th</sup> Avenue.
- One emergency-only access on 11<sup>th</sup> Avenue.

The purpose of this traffic study is to estimate the potential impacts of the proposed Edgepoint Phase 3 development on the adjacent roadway system, and to identify any resultant roadway or traffic control improvements required. Two future scenarios are considered:

- **2020.** This scenario evaluates the anticipated impacts on completion of the project in the near-term future.
- **2040.** This scenario evaluates the traffic impacts of the proposed development at an approximate 20-year horizon.





## II. EXISTING CONDITIONS

### II.A. Roadways

The primary roadways in the vicinity of the site include:

- **Peoria Street.** Within Aurora, this arterial roadway provides connection from Parker Road north to 56<sup>th</sup> Avenue. Continuity around Del Mar Park, located to the south of the site, is provided by Del Mar Circle. Adjacent to the Mount Nebo site, Peoria Street consists of a basic five-lane cross section, including two through-lanes per direction and a center left-turn lane. The speed limit is posted 35 miles per hour (MPH).
- **11<sup>th</sup> Avenue.** This two-lane collector roadway serves primarily residential land uses in the vicinity of the site, as well as Aurora Central High School, located opposite the site. The speed limit is posted 25 MPH. The intersection of Peoria Street and 11<sup>th</sup> Avenue is currently signalized.
- **13<sup>th</sup> Avenue.** This two-lane collector roadway bisects Edgepoint, serving primarily nearby residential land uses. The speed limit is posted 30 MPH. The intersection of Peoria Street and 13<sup>th</sup> Avenue has been recently signalized. Separate left-turn lanes have been striped eastbound and westbound at the intersection.

### II.B. Traffic Volumes

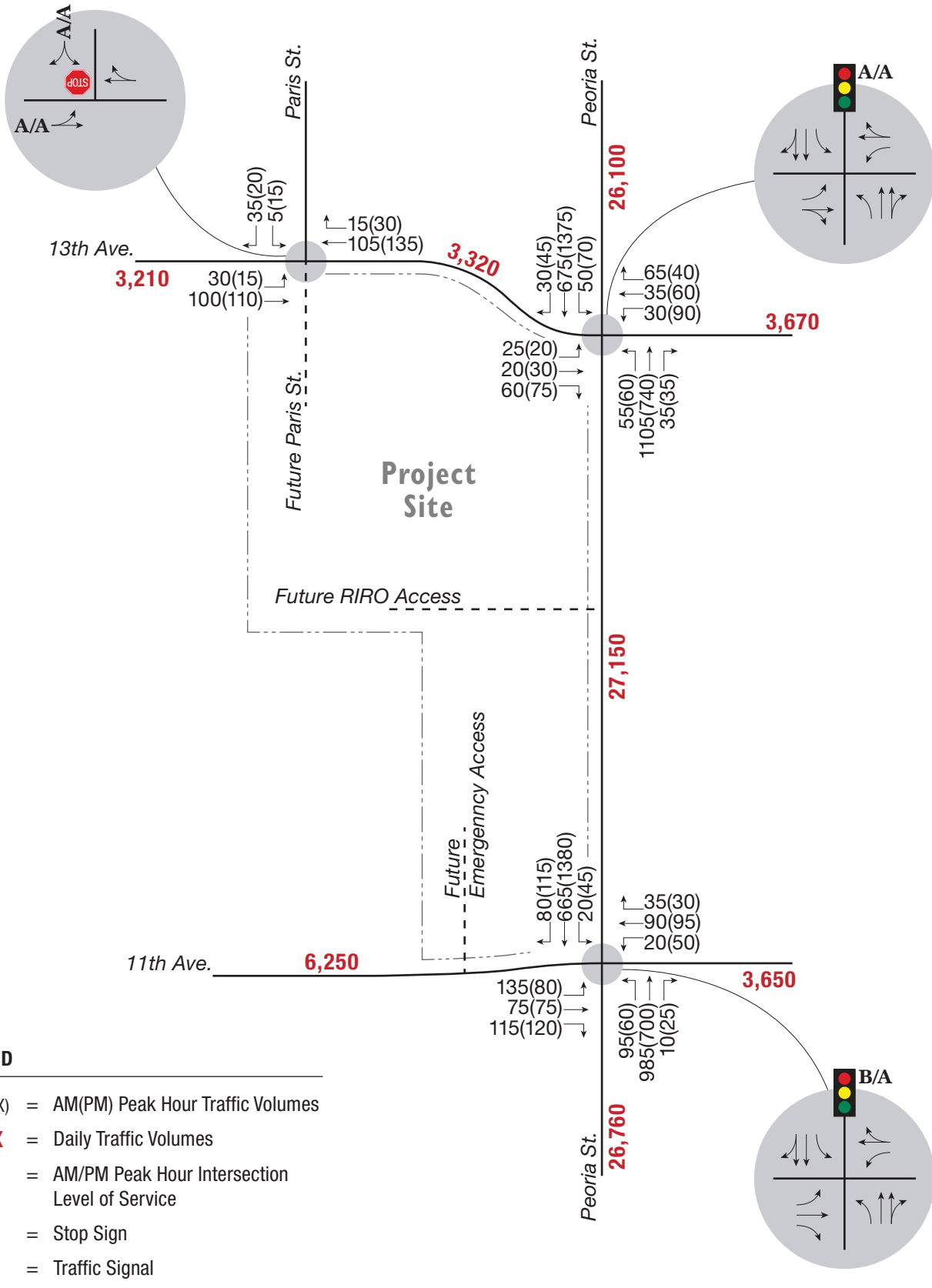
Weekday AM and PM peak hour traffic counts were recently conducted at the Peoria Street intersections at 11<sup>th</sup> and 13<sup>th</sup> Avenues, and at 13<sup>th</sup> Avenue/Paris Street, the primary access for Edgepoint Phases 1 and 2. In addition, a 24-hour automated traffic count was conducted on 13<sup>th</sup> Avenue adjacent to the site (count data sheets are included in the appendix).

**Figure 3** depicts the existing traffic volumes. Daily traffic on 11<sup>th</sup> and 13<sup>th</sup> Avenues have been estimated using the daily to PM peak hour factor from the Peoria Street 24-hour count. As indicated on the figure, Peoria Street currently carries about 26,100 to 27,150 vehicles per day (VPD) within the study area. 13<sup>th</sup> Avenue carries between about 3,210 and 3,320 VPD. 11<sup>th</sup> Avenue carries approximately 6,250 VPD adjacent to the site, with about 3,650 VPD east of Peoria Street.

### II.C. Traffic Operations

The existing AM and PM peak hour traffic volumes were used as the basis for intersection Level of Service (LOS) analyses, the results of which are also depicted on **Figure 3** (SYNCHRO LOS worksheets are included in the **Appendix**). LOS is a qualitative measure of traffic operational conditions, based on roadway capacity and motorist delay. The *Highway Capacity Manual*, 6<sup>th</sup> Edition, Federal Highway Administration (FHWA), defines six levels of service, ranging from A to F, with LOS A representing the best possible operating conditions and LOS F representing over-capacity, or congested conditions. In urbanized areas, LOS C is typically considered to be acceptable for peak hour traffic operations. All LOS analyses in this report use signal timing data provided by City of Aurora traffic engineering staff.

As indicated on the figure, signalized traffic operations at the Peoria Street intersections at 11<sup>th</sup> and 13<sup>th</sup> Avenues are currently acceptable, at LOS A or B during the peak hours. STOP sign controlled movements at the Paris Street/13<sup>th</sup> Avenue intersection operate at LOS A during peak times (**Appendix B** contains the existing conditions LOS worksheets).



NORTH

FIGURE 3

Existing  
Traffic Conditions

Edgepoint Phase 3 TIS 19-235-01 9/27/19

### III. PROPOSED CONDITIONS

#### III.A. Trip Generation

As mentioned above, the proposed development program for Edgepoint Phase 3 consists of 340 multifamily dwelling units and a clubhouse. Because the clubhouse would be used by Edgepoint residents only, it is assumed that it would generate primarily pedestrian trips with only minimal vehicular traffic. Trip generation estimates were calculated using data contained in *Trip Generation*, 10<sup>th</sup> Edition, Institute of Transportation Engineers (ITE), 2017. Average rates for Land Use Code 221, Multi-Family Housing, Mid-Rise (three to ten stories) were deemed the best fit for the 3-story apartment buildings currently proposed.

The previous development concept, as analyzed in our 2006 report, included 496 multifamily residential units and 19,200 square feet of commercial uses for the Phase 3 portion of Edgepoint. The trip generation estimates, extracted from the 2006 report, were calculated using data from *Trip Generation*, 7<sup>th</sup> Edition, Institute of Transportation Engineers (ITE), 2003. Average rates for Land Use Code 220, Apartment, and Land Use Code 820, Shopping Center, were applied. The 2006 site plan concept for Edgepoint is included in **Appendix C** for reference. **Table I** summarizes the results of the trip generation analysis.

**Table I. Edgepoint Phase 3 – Trip Generation Comparison**

Land Use	Quantity	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Current Phase 3 Development Plan								
Multi-Family Housing (1)	340 DU	1,850	30	90	120	90	60	150
Previous (2006) Development Plan								
Multi-Family Housing (2)	496 DU	3,330	50	205	255	200	105	305
Commercial (3)	19,200 KSF	820	10	10	20	35	35	70
Previous Total		4,150	60	215	275	235	140	375
Percent Change from Previous Plan		-55%			-72%			-60%
1. ITE Land Use Code 221 Multi-Family Housing, Mid-Rise (10 <sup>th</sup> Edition) 2. ITE Land Use Code 220 Apartment (7 <sup>th</sup> Edition) 3. ITE Land Use Cone 820 Shopping Center (7 <sup>th</sup> Edition)								

As can be seen, the current Edgepoint Phase 3 development proposal would represent a substantial decrease in the number of trips generated by the site, as compared to the previous concept. On a daily basis, the reduction would be about 55 percent, with peak hour reductions ranging from 60 to 72 percent.

As indicated, Edgepoint Phase 3 would have the potential to generate approximately 1,850 daily vehicle trips, with approximately 120 trips in the AM peak hour and about 150 trips in the PM peak hour.

### **III.B. Site Trip Distribution and Traffic Assignment**

The Edgepoint Phase 3 trip generation estimates were assigned to the adjacent roadway system based on the trip distribution percentages illustrated on **Figure 4**. This distribution is based on the location of the site relative to the metro area and nearby regional transportation facilities. The resultant site generated traffic assignment is depicted on **Figure 5**.

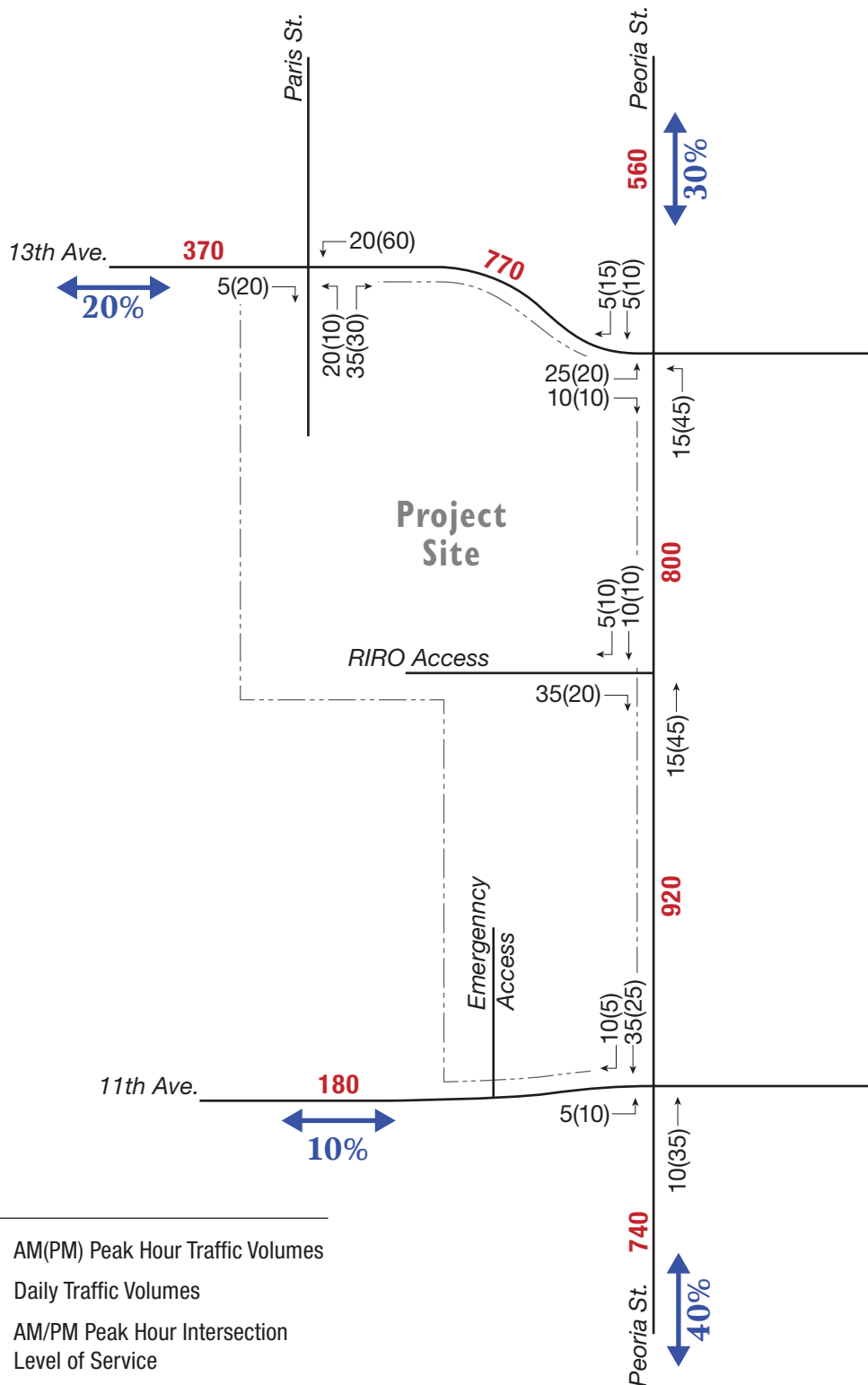
As shown, Edgepoint Phase 3 is expected to contribute between about 560 and 920 VPD to Peoria Street. Site traffic along 13<sup>th</sup> Avenue would range between about 370 VPD and 77 VPD west of Peoria Street. 11<sup>th</sup> Avenue would experience about 180 VPD of site related traffic.

### **III.C. Existing Plus Site Generated Traffic Conditions**

The site generated traffic volumes (**Figure 4**) were added to the existing traffic volumes (**Figure 3**) to produce the 2020 total traffic volumes illustrated on **Figure 5**. It can be seen that total traffic volumes along Peoria Street are projected to range between approximately 26,660 and 28,070 VPD in the vicinity of the site. Total short-term volumes along 11<sup>th</sup> Avenue would be about 6,430 VPD adjacent to the site, and 13<sup>th</sup> Avenue would experience about 3,580 to 4,090 VPD. 14<sup>th</sup> Avenue would carry about 1,200 VPD.

As summarized on **Figure 5**, signalized traffic operations at the Peoria Street intersections at 11<sup>th</sup> and 13<sup>th</sup> Avenues would remain acceptable, at LOS A or B during the peak hours.

At the Paris Street/13<sup>th</sup> Avenue intersection, unsignalized operations would also be acceptable, at LOS A or B under two-way STOP sign control. Unsignalized traffic operations at the proposed RIRO site access would be at LOS B or C during the peak hours. **Appendix D** contains the LOS worksheets.



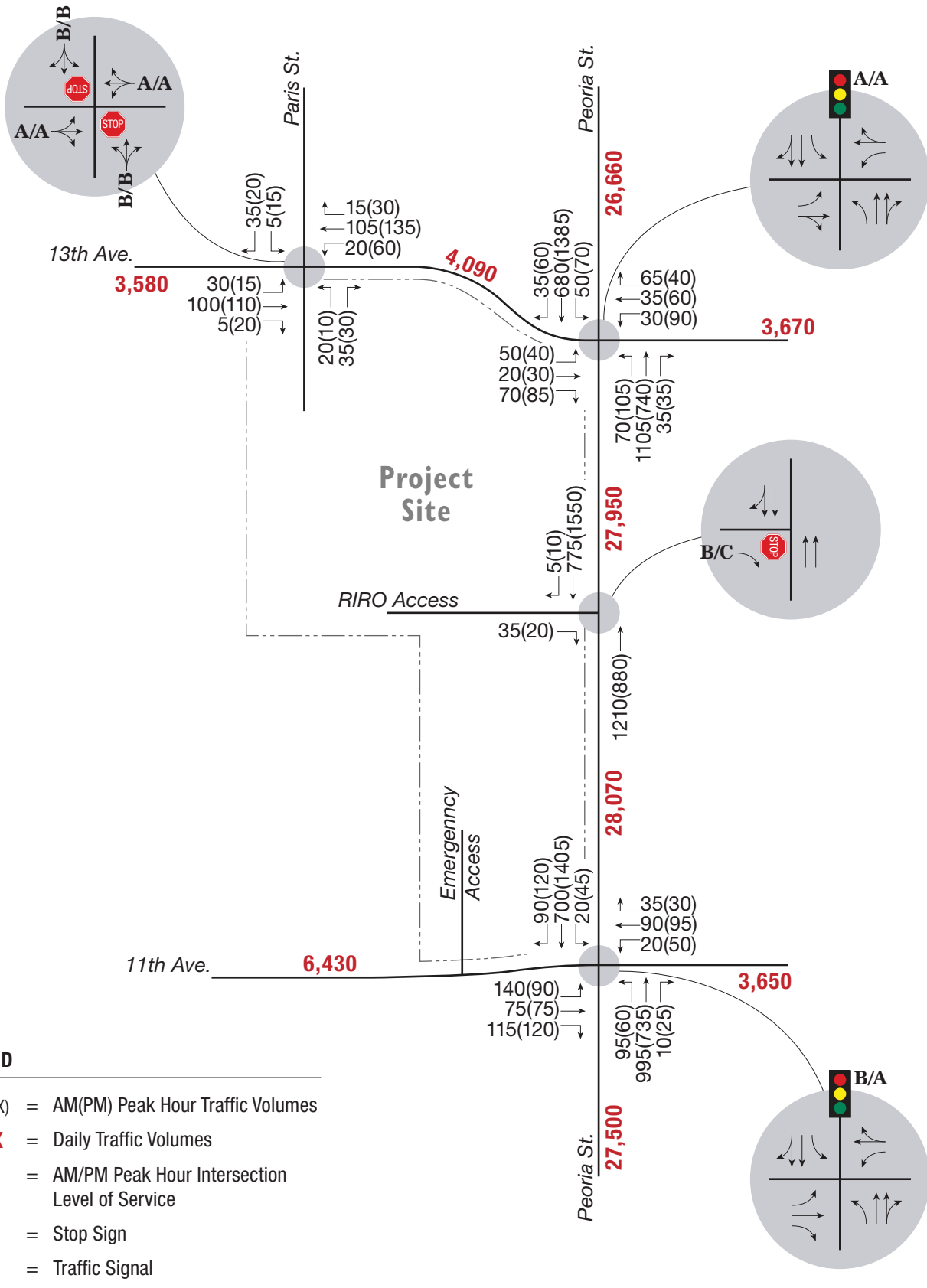
#### LEGEND

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

**XXXX** = Daily Traffic Volumes

**X/X** = AM/PM Peak Hour Intersection Level of Service

**XX%** = Site Trip Distribution



NORTH

FIGURE 5

2020 Total  
Traffic Conditions

Edgepoint Phase 3 TIS 19-235-01 9/27/19

## IV. FUTURE CONDITIONS

### IV.A. 2040 Background Traffic Conditions

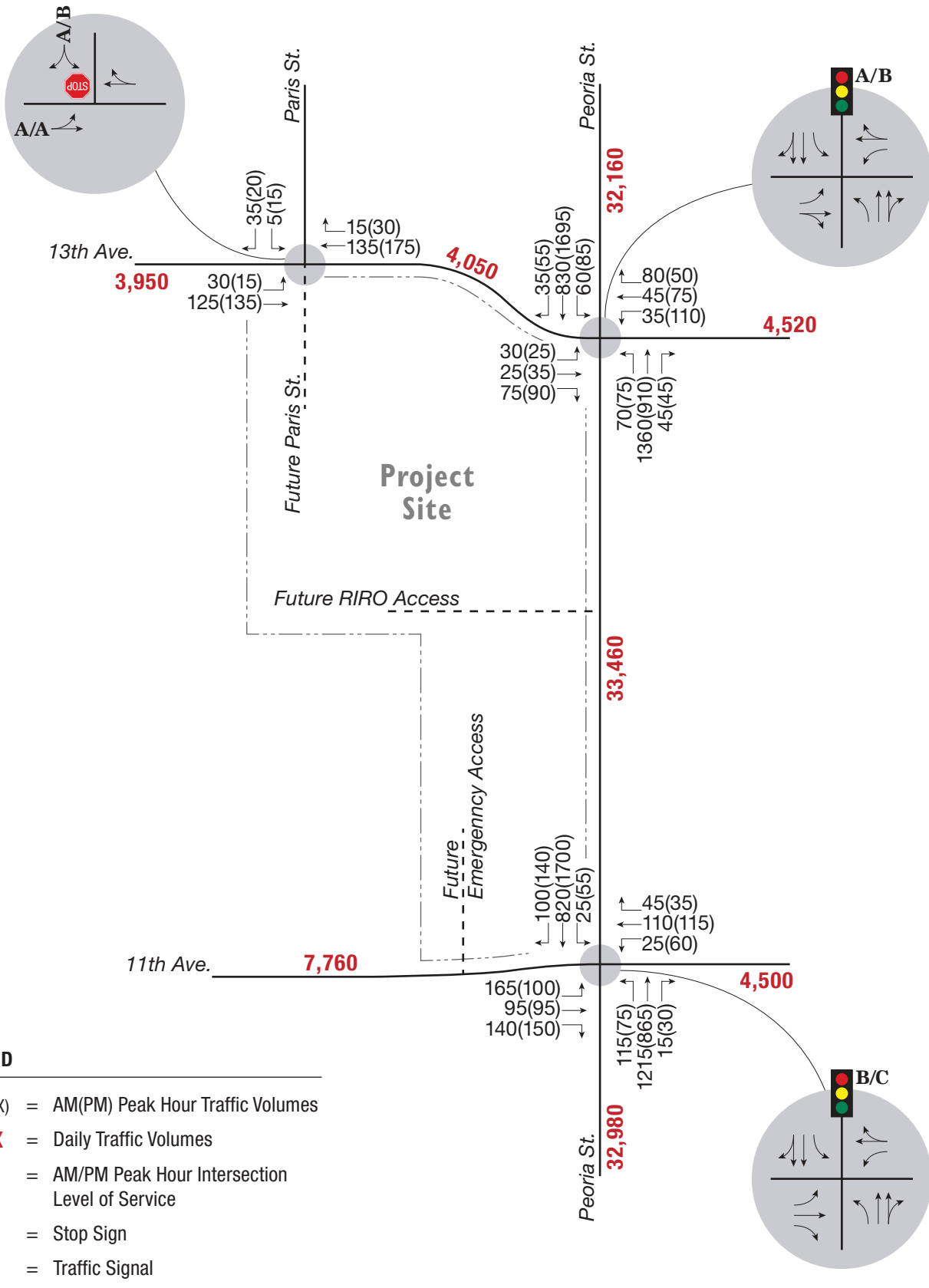
Background traffic represents the level of traffic activity that would be present on area roadways regardless of the proposed development at Edgepoint Phase 3. **Figure 6** depicts the projected year 2040 background traffic conditions. The traffic volumes shown on this figure were developed based on an estimated average annual growth rate of 1.0 percent, reflecting the primarily built-out conditions of surrounding developments. As shown, long-term background traffic volumes along Peoria Street are projected to range from approximately 32,160 to 33,460 VPD within the study area. 2040 background volumes along 11<sup>th</sup> Avenue would be about 7,760 VPD adjacent to the site. 13<sup>th</sup> Avenue would experience about 3,950 to 4,050 VPD adjacent to the site.

The 2040 background peak hour volumes were used as the basis for LOS calculations, also summarized on **Figure 6**. As indicated, signalized traffic operations at the Peoria Street/11<sup>th</sup> Avenue intersection would remain acceptable, at LOS A or B during the peak hours. Background traffic operations at the Peoria Street/13<sup>th</sup> Avenue signalized intersection would also remain acceptable, at LOS B during the peak hours. Unsignalized operations at 13<sup>th</sup> Avenue/Paris Street would be at LOS A or B.

### IV.B. 2040 Total Traffic Conditions

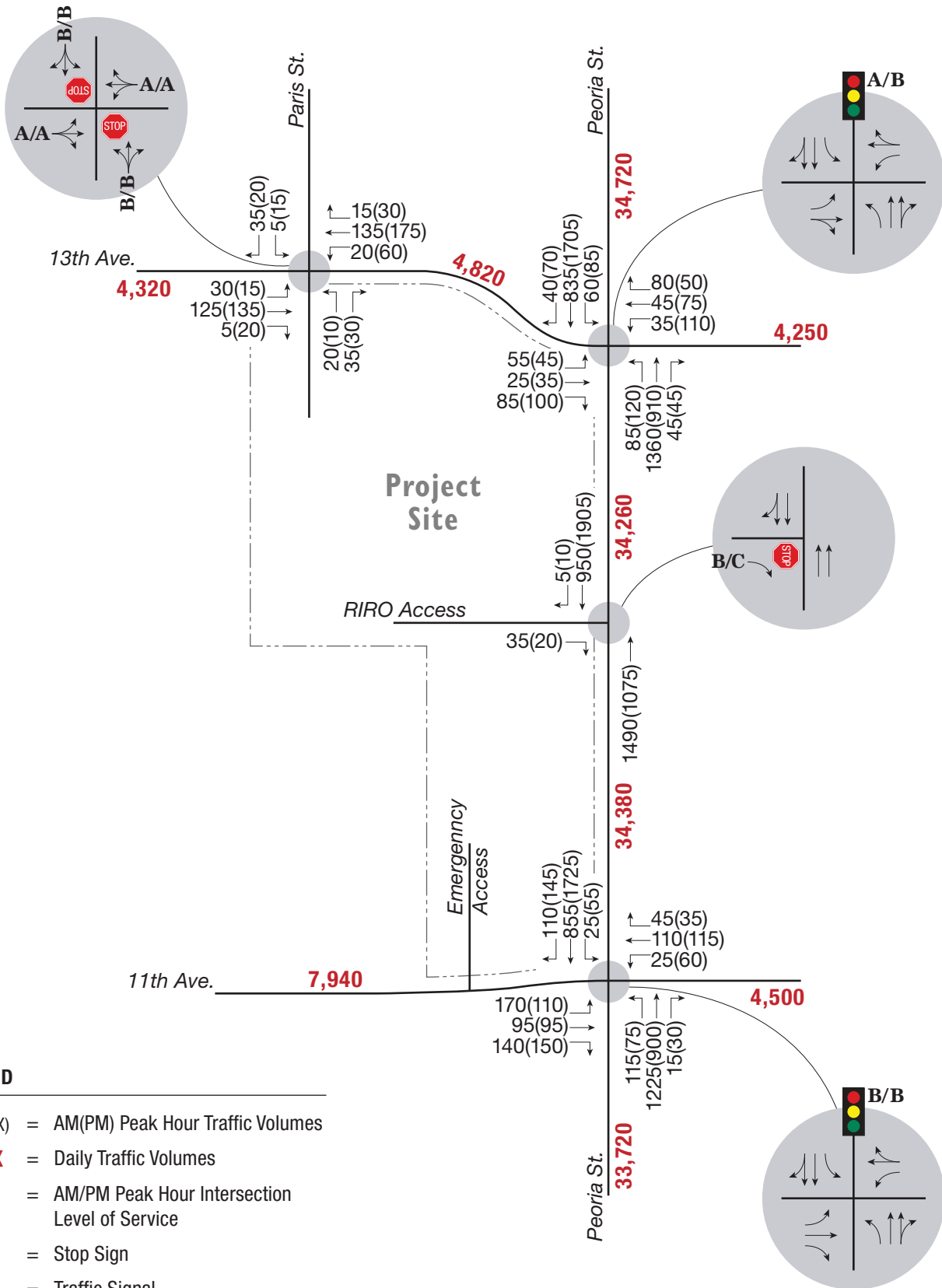
The site generated traffic volumes (**Figure 4**) were added to the 2040 background volumes (**Figure 6**) to produce the total traffic volumes shown on **Figure 7**. In 2040, Peoria Street is projected to experience between approximately 32,720 and 34,380 VPD. Total volumes along 11<sup>th</sup> Avenue would be about 7,940 VPD adjacent to the site, and 13<sup>th</sup> Avenue would experience about 4,320 to 4,820 VPD.

**Figure 7** also depicts the 2040 total traffic LOS analysis results. It can be seen that signalized traffic operations at the 11<sup>th</sup> Avenue and 13<sup>th</sup> Avenue intersections along Peoria Street would continue to be acceptable, at LOS A or B during the peak hours. Traffic operations at the RIRO access on Peoria Street would be at LOS C or better for the outbound right-turn movement. Unsignalized traffic operations at the 13<sup>th</sup> Avenue/Paris intersection would also remain within acceptable limits, at LOS A or B in 2040.



**FIGURE 6**

**2040 Background Traffic Conditions**



NORTH

FIGURE 7

2040 Total  
Traffic Conditions

## V. EVALUATION

### V.A. Level of Service

**Table 2** and **Table 3** summarize the Level of Service results, along with average delay (in seconds per vehicle) for each scenario.

**Table 2. LOS Summary – Short Range Future**

Intersection/Movement	Existing Conditions				2020 Total Traffic				
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
Peoria St/11 <sup>th</sup> Ave	Traffic Signal								
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
	Northbound Left	A	6.0	A	4.3	A	6.1	A	0.2
	Northbound Thru-Right	A	7.9	A	4.8	A	8.1	A	0.2
	Southbound Left	A	0.4	A	0.3	A	0.5	A	0.2
	Southbound Thru-Right	A	0.9	A	2.5	A	1.0	A	0.8
	Eastbound Left	D	47.2	D	41.8	D	47.4	D	42.1
	Eastbound Thru	D	35.4	C	34.3	D	35.1	C	33.9
	Eastbound Right	C	32.9	C	32.4	C	32.6	C	32.2
	Westbound Left	D	37.5	D	37.4	D	37.2	D	37.1
Westbound Thru-Right	D	37.0	D	36.1	D	36.6	D	35.8	
Peoria St/13 <sup>th</sup> Ave	Traffic Signal								
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
	Northbound Left	A	0.5	A	5.5	A	0.7	B	10.9
	Northbound Thru-Right	A	0.8	A	0.6	A	0.9	A	0.7
	Southbound Left	A	3.1	A	4.6	A	3.6	A	4.8
	Southbound Thru-Right	A	3.3	A	8.2	A	3.9	B	10.9
	Eastbound Left	D	48.8	D	40.5	D	47.1	D	40.5
	Eastbound Thru-Right	D	46.7	C	34.7	D	44.5	C	34.5
	Westbound Left	D	48.8	D	40.5	D	47.1	D	40.5
	Westbound Thru-Right	D	48.4	C	34.3	D	45.0	C	33.7
13 <sup>th</sup> Ave/Paris St	Two-Way STOP Sign Control (NB & SB)								
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
	Eastbound Left	A	7.6	A	7.6	A	7.6	A	7.6
	Westbound Left					A	7.5	A	7.6
	Northbound Left-Thru-Right					B	10.8	B	10.6
	Southbound Left-Thru-Right	A	9.4	A	9.9	B	10.0	B	11.5
Peoria St/RIRO Access	STOP Sign Control (EB Right)								
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	
	Eastbound Right					B	11.5	C	17.3

**Table 3. LOS Summary – Long Range Future**

Intersection/Movement	2040 Background				2040 Total Traffic			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Peoria St/11 <sup>th</sup> Ave	Traffic Signal							
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Northbound Left	A	7.3	A	4.7	A	7.3	A	4.7
Northbound Thru-Right	B	10.9	A	5.4	B	10.9	A	5.5
Southbound Left	A	1.8	A	0.3	A	1.9	A	0.6
Southbound Thru-Right	A	1.5	A	5.1	A	1.7	A	8.5
Eastbound Left	D	52.7	D	47.3	D	54.2	D	50.6
Eastbound Thru	C	33.3	C	34.5	C	33.3	C	34.5
Eastbound Right	C	30.9	C	32.8	C	30.9	C	32.8
Westbound Left	D	35.9	D	38.7	D	35.9	D	38.7
Westbound Thru-Right	D	35.1	D	38.7	D	35.1	D	37.5
Peoria St/13 <sup>th</sup> Ave	Traffic Signal							
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Northbound Left	A	0.9	C	21.4	A	1.5	D	51.7
Northbound Thru-Right	A	1.1	A	0.9	A	1.5	A	1.0
Southbound Left	A	4.3	A	6.3	A	5.0	A	6.5
Southbound Thru-Right	A	4.2	B	13.2	A	5.0	B	14.2
Eastbound Left	D	49.6	D	39.0	D	48.8	D	39.6
Eastbound Thru-Right	D	45.2	C	32.7	D	43.1	C	32.4
Westbound Left	D	48.2	D	39.7	D	46.6	D	39.6
Westbound Thru-Right	D	46.9	C	32.4	D	43.7	C	31.9
13 <sup>th</sup> Ave/Paris St	Two-Way STOP Sign Control (NB & SB)							
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Eastbound Left	A	7.7	A	7.7	A	7.7	A	7.7
Westbound Left					A	7.6	A	7.7
Northbound Left-Thru-Right					B	11.4	B	11.1
Southbound Left-Thru-Right	A	9.7	B	10.3	B	10.3	B	12.2
Peoria St/RIRO Access	STOP Sign Control (EB Right)							
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Eastbound Right					B	12.5	C	21.8

By comparing the LOS results, it can be seen that the addition of traffic generated by Edgepoint Phase 3 would have generally minimal impact on intersection operations. As previously discussed, traffic operations are projected to remain at very acceptable levels through the projected year 2040, either with or without the addition of site traffic.

## V.B. Queuing

The 95<sup>th</sup> percentile maximum probable queue lengths were extracted from the SYNCHRO LOS worksheets for 2040 conditions, both background and total traffic scenarios. The queue lengths are converted into feet (assuming a typical length of 25 feet per vehicle) and are summarized in **Table 4** for comparison purposes.

**Table 4. 95% Maximum Probable Queue Lengths (in feet)**

Intersection/Movement	2040 Background		2040 Total	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
<b>Peoria St/11<sup>th</sup> Ave</b>	Traffic Signal			
Northbound Left	50	25	50	25
Northbound Thru-Right	300	125	325	150
Southbound Left	25	25	25	25
Southbound Thru-Right	25	125	25	125
Eastbound Left	225	125	250	150
Eastbound Right	150	150	150	150
Westbound Left	50	75	50	75
Westbound Thru-Right	175	150	175	150
<b>Peoria St/13<sup>th</sup> Ave</b>	Traffic Signal			
Northbound Left	25	75	25	200
Northbound Thru-Right	25	25	25	25
Southbound Left	25	50	25	50
Southbound Thru-Right	125	425	125	450
Eastbound Left	50	25	75	50
Eastbound Thru-Right	150	125	150	125
Westbound Left	50	125	50	125
Westbound Thru-Right	150	125	150	125
<b>Peoria St/Site RIRO</b>	STOP sign Control (EB)			
Eastbound Right			25	25
<b>13<sup>th</sup> Avenue/Paris St</b>	Two-way STOP sign Control (NB & SB)			
Eastbound Left	25	0	25	0
Westbound Left			25	25
Northbound Left-Thru-Right			25	25
Southbound Left-Thru-Right	25	25	25	25

As indicated above, the addition of site traffic would generally have minimal impact on intersection queues. The projected queues would remain within the existing auxiliary storage where provided. Queuing at the site accesses would be minimal, at one vehicle or less.

### V.C. Auxiliary Lanes

As previously noted, left-turn storage lanes are currently provided along Peoria Street at the 11<sup>th</sup> and 13<sup>th</sup> Avenue intersections. Right-turns from Peoria Street are made from the curbside through-lane; separate right-turn lanes are not currently provided.

The proposed RIRO access was evaluated relative to criteria contained in the *State Highway Access Code* to determine the need for a southbound right-turn lane on Peoria at the proposed access. The projected inbound right-turn movement at this access is 10 vehicles per hour (VPH), which is well below the threshold criterion of 50 VPH (based on access category NRB at 40 MPH posted speed limit). Therefore, a right-turn lane is not warranted at this access.

### V.D. Pedestrians

Both signalized intersections on Peoria Street have existing pedestrian actuation, signal heads, and crosswalk pavement markings. Pedestrian crossing data were included in the traffic counts (see **Appendix A**). The pedestrian activity at the two signalized intersections was evaluated using The City of Aurora's pedestrian LOS methodology (spreadsheets are included in **Appendix G**). It was determined that pedestrian LOS at the two signalized study area intersections would be acceptable, at an average LOS D through the projected year 2040.

Due to the proposed clubhouse, increased pedestrian crossings of 13<sup>th</sup> Avenue at Paris Street are anticipated. To estimate the number of pedestrians generated by the clubhouse, a trip generation analysis was conducted based on ITE rates; ITE code 495, Recreational Community Center was deemed the best fit for this use. **Table 5** summarizes the trip generation analysis.

**Table 5. Pedestrian Trip Generation - Clubhouse**

Land Use	Quantity	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Clubhouse (1)	10,400 SF	300	15	5	20	10	15	25
I. ITE Land Use Code 495 Recreational Community Center (10 <sup>th</sup> Edition)								

As indicated above, the clubhouse is estimated to generate approximately 20 to 25 trips per hour. Almost all of these trips would be pedestrian trips, as residents of Edgepoint would most likely walk to and from the clubhouse. Not all residents would, however, need to cross 13<sup>th</sup> Avenue. Based on the number of apartments located north of 13<sup>th</sup> Avenue (227) as compared to those located south (340), approximately 40 percent of the clubhouse trips would cross 13<sup>th</sup> Avenue. Thus, the number of pedestrian crossings is estimated to be about 8 to 10 crossings per hour.

Pedestrian LOS at the 13<sup>th</sup> Avenue/Paris Street crossing was evaluated using the HCM pedestrian methodology for unsignalized intersections for both existing and 2040 total conditions (worksheets are included in **Appendix G**). Pedestrian LOS at this crossing would be at LOS B or C during peak times through 2040.

Pedestrians crossing 13<sup>th</sup> Avenue could cause vehicular delays to through-movements. City staff have expressed the concern that westbound traffic on 13<sup>th</sup> Avenue might queue back to the intersection at Peoria Street. However, the potential for queues is minimal, based on the following:

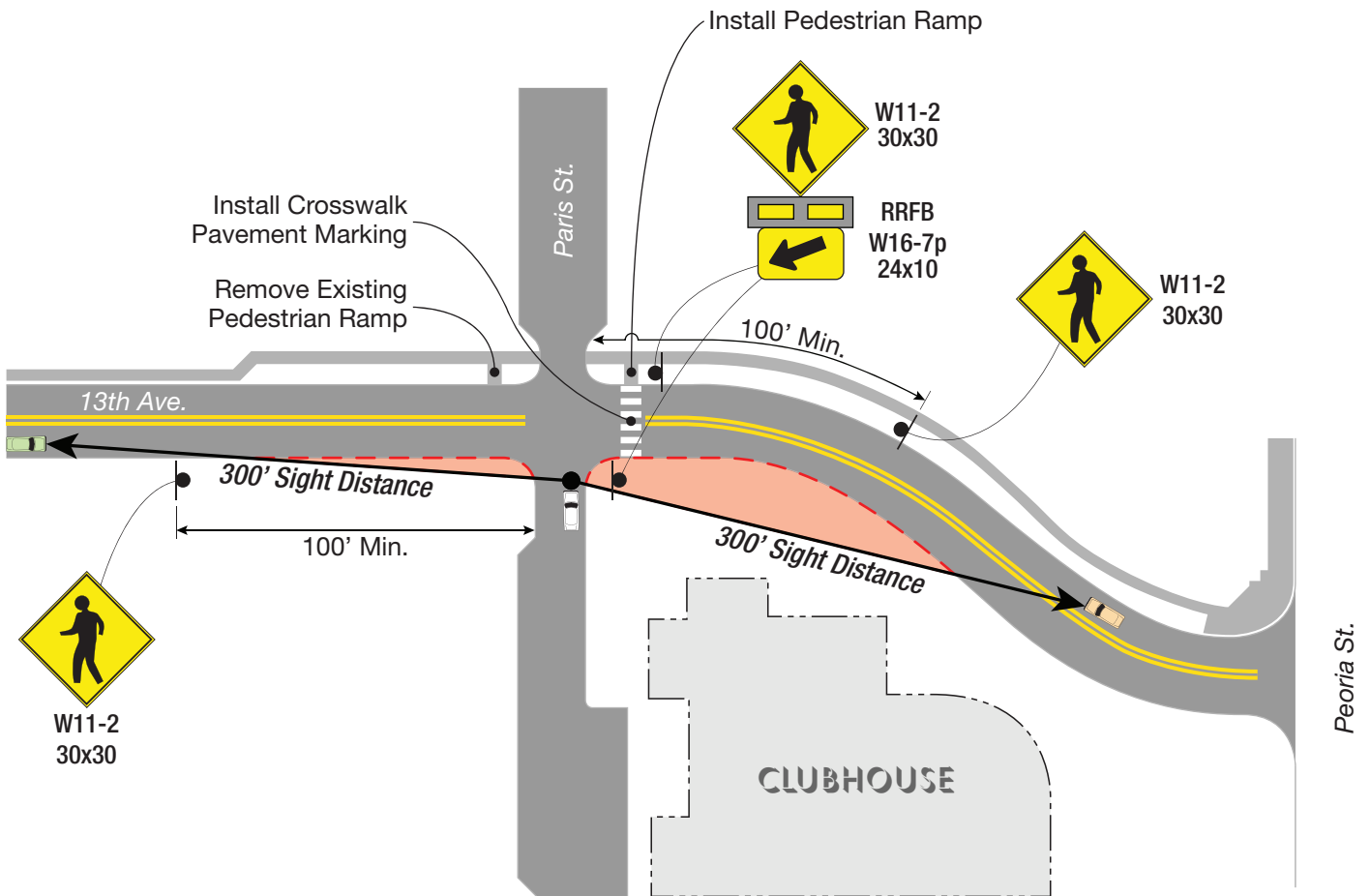
- An estimated 8 to 10 crossings per hour (one crossing every 7 to 8 minutes on average).
- A pedestrian crossing time of about 6 seconds (assuming a pedestrian speed of 3.5 feet per second and a westbound crossing distance of about 20 feet (half the flowline to flowline dimension)).
- A projected westbound traffic volume of 265 in the critical PM peak hour (one vehicle every 14 seconds on average).

On average, only one westbound vehicle is likely to arrive at the crossing while it is occupied. The six second delay incurred while the pedestrian is in the crosswalk equates to LOS A for the motorist, and the resultant queue would be one vehicle (25 feet). As the spacing between Paris and Peoria Streets is about 365 feet, this minor projected queuing would not impact traffic operations at Peoria Street.

## V.E. Safety

The proposed site plan concept for Edgepoint Phase 3 was evaluated relative to traffic and pedestrian safety aspects, as follows:

- **Pedestrian Crossing.** As discussed above, the pedestrian crossing at 13<sup>th</sup> Avenue/Paris Street would experience increased pedestrian activity due to the proposed clubhouse within Edgepoint Phase 3. This location would require a pedestrian crossing to be established on 13<sup>th</sup> Avenue. As depicted on **Figure 8**, the crossing should be located on the east side of the intersection, based on the location of the clubhouse relative to the center of mass of the residential uses on the north side. This will require relocating the existing pedestrian ramp on the west side of the intersection. Appropriate pedestrian crossing signs should be installed at the crosswalk and on both approaches on 13<sup>th</sup> Avenue, per the *Manual on Uniform Traffic Control*, FHWA, 2009. Rectangular Rapid Flashing Beacons (RRFBs) would enhance pedestrian safety of the crossing.
- **Sight Distance.** Due to the horizontal alignment of 13<sup>th</sup> Avenue at Paris Street, the provision of adequate sight distance for northbound left-turns will require an area larger than the typical sight triangle, as illustrated on **Figure 8**. As shown, the area along the north side of the clubhouse will need to be free of visual obstructions to provide 300 feet of clear sight distance, based on the 30 MPH posted speed limit.



**NOTE:**  
Projected pedestrian crossings are  
8 to 10 crossings per hour.

Project Site

#### LEGEND

- = Unobstructed Sight Distance
- RRFB = Rectangular Rapid Flashing Beacon

Drawing Not to Scale



**FIGURE 8**

**Recommended  
Safety Improvements**

Edgepoint Phase 3 TIS 19-235-01 10/119

## VI. SUMMARY AND RECOMMENDATIONS

Edgepoint Phase 3, located along the west side of Peoria Street between 11<sup>th</sup> and 13<sup>th</sup> Avenues, is planned to consist of 340 residential apartment units. A 10,400-square foot clubhouse, intended for Edgepoint residents only, is also included. Access to the adjacent roadway system would be provided via one access on 13<sup>th</sup> Avenue (at Paris Street), one RIRO access on Peoria Street, and one emergency-only access on 11<sup>th</sup> Avenue. The proposed development would have the potential to generate approximately 1,850 daily vehicle trips, with about 120 trips in the AM peak hour and about 150 trips in the PM peak hour.

The traffic impacts of this proposed development were evaluated under two design horizons: 2020 and 2040. The analyses documented in this report indicate that the existing roadway system would have sufficient reserve capacity to accommodate the projected traffic increases due to Edgepoint Phase 3. Relative to this, the following summarizes the findings and recommendations:

- The current Edgepoint Phase 3 development proposal would represent a substantial decrease in the number of trips generated by the site, as compared to the previous concept. Daily, the reduction would be about 55 percent, with peak hour reductions ranging from 60 to 72 percent.
- The addition of traffic generated by Edgepoint Phase 3 would have minimal impact to intersection traffic operations. LOS would remain acceptable through the projected year 2040, either with or without the addition of site traffic.
- The addition of site traffic would generally have minimal impact on intersection queues. The projected queues would remain within the existing auxiliary storage where provided. Queuing at the proposed site accesses would be minimal, at one vehicle or less.
- A right-turn deceleration lane is not warranted on southbound Peoria Street at the proposed RIRO site access.
- Pedestrian LOS at the two signalized study area intersections would be acceptable, at an average LOS D through the projected year 2040.
- Pedestrian LOS at the unsignalized 13<sup>th</sup> Avenue/Paris Street crossing would be at LOS B through 2040. The crossing should be located on the east side of the intersection, with appropriate pedestrian crossing signs and pavement markings per MUTCD criteria. RRFBs would enhance pedestrian safety of the crossing.
- The intersection at 13<sup>th</sup> Avenue/Paris Street will need 300 feet of clear sight distance in either direction along 13<sup>th</sup> Avenue.

## APPENDIX A. TRAFFIC COUNTS

**All Traffic Data Seviles**  
www.alltrafficdata.net

Page 1

Site Code: 4  
Station ID: 4  
PEORIA ST S/O 13TH AVE

Start Time	21-May-19 Tue	NB	SB							Total
12:00 AM		79	159							238
01:00		58	100							158
02:00		29	55							84
03:00		54	54							108
04:00		119	55							174
05:00		309	156							465
06:00		738	291							1029
07:00		1115	725							1840
08:00		1049	753							1802
09:00		698	629							1327
10:00		598	564							1162
11:00		608	738							1346
12:00 PM		726	875							1601
01:00		812	846							1658
02:00		778	949							1727
03:00		776	1391							2167
04:00		803	1474							2277
05:00		809	1452							2261
06:00		772	1022							1794
07:00		507	703							1210
08:00		444	485							929
09:00		374	442							816
10:00		293	320							613
11:00		123	239							362
Total		12671	14477							27148
Percent		46.7%	53.3%							
AM Peak	-	07:00	08:00	-	-	-	-	-	-	07:00
Vol.	-	1115	753	-	-	-	-	-	-	1840
PM Peak	-	13:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	812	1474	-	-	-	-	-	-	2277
Grand Total		12671	14477							27148
Percent		46.7%	53.3%							
ADT		ADT 27,148	AADT 27,148							



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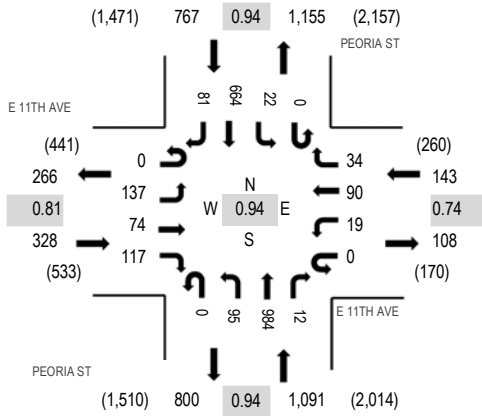
**Location:** 1 PEORIA ST & E 11TH AVE AM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 07:15 AM - 08:15 AM

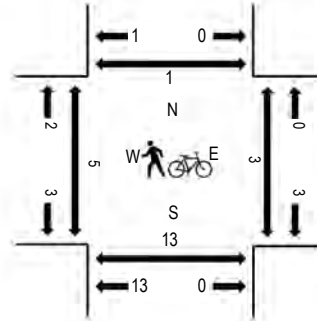
**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	E 11TH AVE Eastbound				E 11TH AVE Westbound				PEORIA ST Northbound				PEORIA ST Southbound				Total	Rolling Hour	Pedestrian 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	24	12	21	0	4	17	10	0	22	197	1	0	4	133	22	467	2,257	0	1	4	0
7:15 AM	0	26	16	35	0	3	38	10	0	34	249	2	0	7	134	26	580	2,329	0	2	7	0
7:30 AM	0	43	32	26	0	8	20	6	0	26	260	3	0	6	167	25	622	2,249	2	0	3	0
7:45 AM	0	36	19	25	0	4	23	7	0	14	257	2	0	6	181	14	588	2,141	1	0	1	0
8:00 AM	0	32	7	31	0	4	9	11	0	21	218	5	0	3	182	16	539	2,021	2	1	2	1
8:15 AM	0	26	7	18	0	8	14	11	0	9	234	7	0	9	135	22	500		0	1	1	0
8:30 AM	0	32	5	13	1	6	11	10	0	11	218	1	0	2	193	11	514		0	0	0	0
8:45 AM	0	24	6	17	0	1	16	8	0	13	208	2	0	5	161	7	468		1	0	0	0
Count Total	0	243	104	186	1	38	148	73	0	150	1,841	23	0	42	1,286	143	4,278		6	5	18	1
Peak Hour	0	137	74	117	0	19	90	34	0	95	984	12	0	22	664	81	2,329		5	3	13	1



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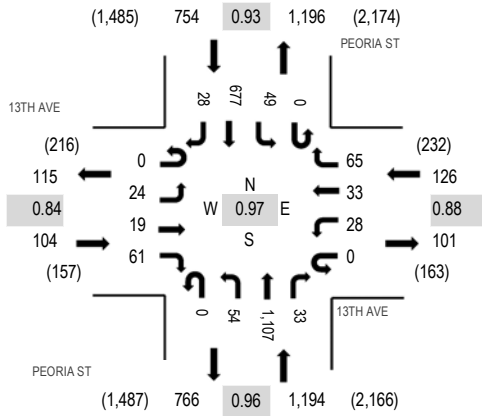
**Location:** 2 PEORIA ST & 13TH AVE AM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 07:15 AM - 08:15 AM

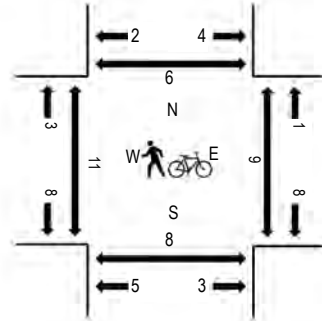
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	13TH AVE Eastbound				13TH AVE Westbound				PEORIA ST Northbound				PEORIA ST Southbound				Total	Rolling Hour	Pedestrian 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	1	2	11	0	4	8	24	0	13	204	2	0	5	131	8	413	2,058	2	2	0	1
7:15 AM	0	8	5	12	0	9	9	11	0	4	290	6	0	7	186	7	554	2,178	2	3	2	0
7:30 AM	0	3	5	11	0	5	8	16	0	17	276	11	0	15	159	6	532	2,119	3	4	4	0
7:45 AM	0	7	4	18	0	9	11	13	0	17	283	10	0	11	164	12	559	2,100	3	0	0	2
8:00 AM	0	6	5	20	0	5	5	25	0	16	258	6	0	16	168	3	533	1,982	3	2	1	2
8:15 AM	0	7	2	9	0	1	6	16	0	18	227	5	0	13	187	4	495		0	1	0	0
8:30 AM	0	2	2	3	0	5	10	15	0	12	247	5	0	10	194	8	513		2	0	0	1
8:45 AM	0	2	5	7	0	5	2	10	0	10	223	6	0	5	164	2	441		2	1	1	0
Count Total	0	36	30	91	0	43	59	130	0	107	2,008	51	0	82	1,353	50	4,040		17	13	8	6
Peak Hour	0	24	19	61	0	28	33	65	0	54	1,107	33	0	49	677	28	2,178		11	9	7	4



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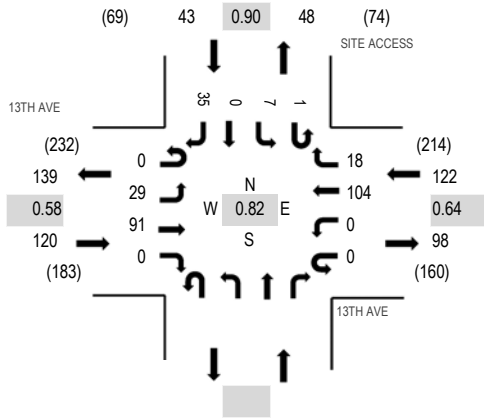
**Location:** 3 SITE ACCESS & 13TH AVE AM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 07:30 AM - 08:30 AM

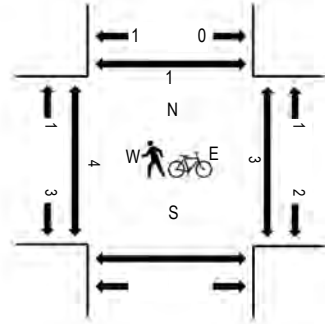
**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	13TH AVE Eastbound				13TH AVE Westbound				Northbound				SITE ACCESS Southbound				Total	Rolling Hour	Pedestrian 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	0	0	0	0	23	0				0	1	0	3	41	237	0	4		0
7:15 AM	1	4	18	0	0	0	0	23	2				0	2	0	3	53	283	0	2		0
7:30 AM	0	3	19	0	0	0	0	22	3				0	1	0	11	59	285	0	0		0
7:45 AM	0	6	20	0	0	0	0	42	6				0	2	0	8	84	275	4	3		1
8:00 AM	0	13	40	0	0	0	0	20	4				0	2	0	8	87	229	0	0		0
8:15 AM	0	7	12	0	0	0	0	20	5				1	2	0	8	55		0	0		0
8:30 AM	0	4	15	0	0	0	0	13	8				0	4	0	5	49		0	0		0
8:45 AM	1	1	5	0	0	0	0	16	7				0	3	0	5	38		0	0		1
Count Total	2	38	143	0	0	0	0	179	35				1	17	0	51	466		4	9		2
Peak Hour	0	29	91	0	0	0	0	104	18				1	7	0	35	285		4	3		1



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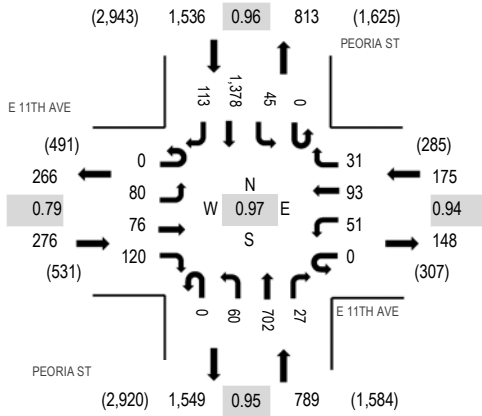
**Location:** 1 PEORIA ST & E 11TH AVE PM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 04:30 PM - 05:30 PM

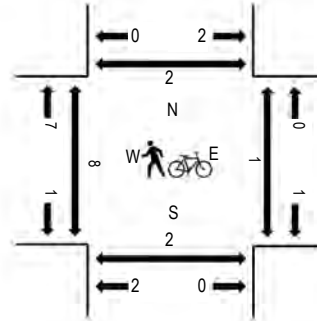
**Peak 15-Minutes:** 04:45 PM - 05:00 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	E 11TH AVE Eastbound				E 11TH AVE Westbound				PEORIA ST Northbound				PEORIA ST Southbound				Total	Rolling Hour	Pedestrian 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	21	26	24	0	5	13	3	0	16	173	3	0	11	325	19	639	2,687	0	2	1	0
4:15 PM	0	18	27	25	0	7	18	5	0	13	177	4	0	13	314	30	651	2,740	0	0	1	0
4:30 PM	0	23	29	40	0	8	21	7	0	18	176	4	0	11	332	16	685	2,776	4	1	1	0
4:45 PM	0	20	12	26	0	9	28	8	0	11	190	8	0	10	360	30	712	2,751	3	0	0	2
5:00 PM	0	18	17	20	0	18	20	10	0	18	166	7	0	11	357	30	692	2,656	1	0	0	0
5:15 PM	0	19	18	34	0	16	24	6	0	13	170	8	0	13	329	37	687		0	0	0	0
5:30 PM	0	17	19	28	0	7	24	10	0	12	185	3	1	10	317	27	660		0	0	0	0
5:45 PM	0	12	22	16	0	5	10	3	0	20	187	2	0	19	298	23	617		0	1	0	0
Count Total	0	148	170	213	0	75	158	52	0	121	1,424	39	1	98	2,632	212	5,343		8	4	3	2
Peak Hour	0	80	76	120	0	51	93	31	0	60	702	27	0	45	1,378	113	2,776		8	1	1	2



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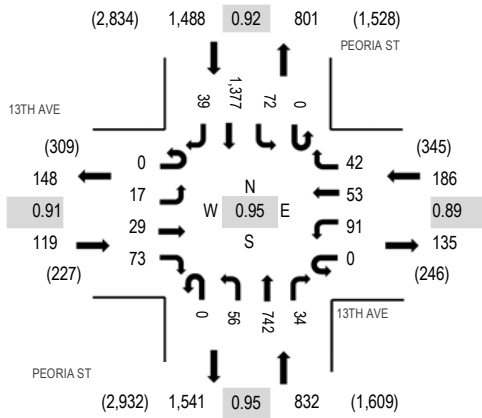
**Location:** 2 PEORIA ST & 13TH AVE PM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 04:30 PM - 05:30 PM

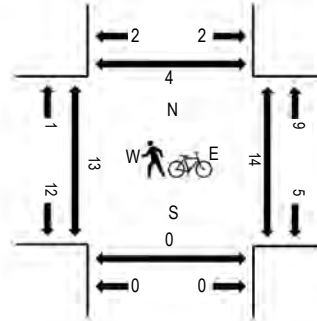
**Peak 15-Minutes:** 04:45 PM - 05:00 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	13TH AVE Eastbound				13TH AVE Westbound				PEORIA ST Northbound				PEORIA ST Southbound				Total	Rolling Hour	Pedestrian 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	6	5	25	0	24	7	24	0	29	164	10	0	20	300	10	624	2,616	2	2	0	0
4:15 PM	0	2	10	25	0	21	16	6	0	17	169	5	0	13	348	9	641	2,600	1	6	0	3
4:30 PM	0	1	4	23	0	23	15	7	0	17	196	6	0	18	336	13	659	2,625	1	2	0	2
4:45 PM	0	5	6	22	0	28	15	9	0	17	190	12	0	20	359	9	692	2,540	5	4	0	1
5:00 PM	0	4	7	16	0	27	11	17	0	15	178	5	0	17	300	11	608	2,399	2	8	0	1
5:15 PM	0	7	12	12	0	13	12	9	0	7	178	11	0	17	382	6	666		5	0	0	0
5:30 PM	0	5	5	8	0	10	9	12	0	24	150	5	0	16	325	5	574		2	1	0	1
5:45 PM	0	4	5	8	0	13	10	7	0	19	178	7	0	10	284	6	551		2	3	0	3
Count Total	0	34	54	139	0	159	95	91	0	145	1,403	61	0	131	2,634	69	5,015		20	26	0	11
Peak Hour	0	17	29	73	0	91	53	42	0	56	742	34	0	72	1,377	39	2,625		13	14	0	4



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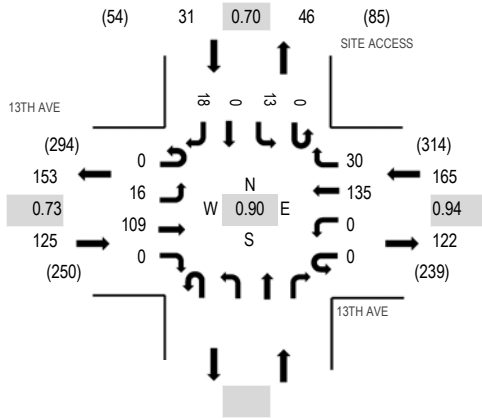
**Location:** 3 SITE ACCESS & 13TH AVE PM

**Date:** Tuesday, May 21, 2019

**Peak Hour:** 05:00 PM - 06:00 PM

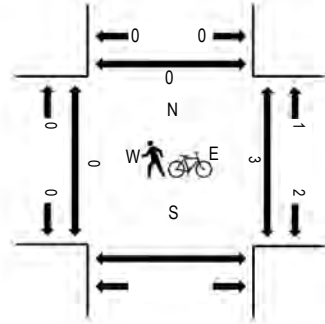
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles on Crosswalk



### Traffic Counts

Interval Start Time	13TH AVE Eastbound				13TH AVE Westbound				Northbound				SITE ACCESS Southbound				Total	Rolling Hour	Pedestrian 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	7	35	0	0	0	33	4					0	6	0	2	88	297	0	0		2
4:15 PM	0	2	27	0	0	0	25	6					0	1	0	3	64	298	0	0		0
4:30 PM	0	5	25	0	0	0	34	3					0	1	0	4	72	313	0	0		0
4:45 PM	0	3	20	0	0	0	35	9					0	2	0	4	73	319	0	0		0
5:00 PM	0	4	36	0	0	0	34	8					0	2	0	5	89	321	0	0		0
5:15 PM	0	3	25	0	0	0	32	8					0	4	0	7	79		0	1		0
5:30 PM	0	6	28	0	0	0	31	9					0	3	0	1	78		0	0		0
5:45 PM	0	3	20	0	0	0	38	5					0	4	0	5	75		0	2		0
Count Total	1	33	216	0	0	0	262	52					0	23	0	31	618		0	3		2
Peak Hour	0	16	109	0	0	0	135	30					0	13	0	18	321		0	3		0






















## APPENDIX B. EXISTING CONDITIONS LOS

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

Existing Conditions AM Peak Hour

09/27/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	20	60	30	35	65	55	1105	35	50	675	30
Future Volume (veh/h)	25	20	60	30	35	65	55	1105	35	50	675	30
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	26	21	62	31	36	67	57	1139	36	52	696	31
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	43	126	141	60	112	607	2787	88	447	2747	122
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	1.00	1.00	1.00	0.79	0.79	0.79
Sat Flow, veh/h	1291	417	1232	1315	585	1089	728	3516	111	477	3465	154
Grp Volume(v), veh/h	26	0	83	31	0	103	57	575	600	52	357	370
Grp Sat Flow(s),veh/h/ln	1291	0	1649	1315	0	1674	728	1777	1850	477	1777	1843
Q Serve(g_s), s	2.1	0.0	5.0	2.4	0.0	6.2	0.6	0.0	0.0	2.7	5.5	5.5
Cycle Q Clear(g_c), s	8.2	0.0	5.0	7.4	0.0	6.2	6.1	0.0	0.0	2.7	5.5	5.5
Prop In Lane	1.00		0.75	1.00		0.65	1.00		0.06	1.00		0.08
Lane Grp Cap(c), veh/h	125	0	169	141	0	172	607	1408	1467	447	1408	1461
V/C Ratio(X)	0.21	0.00	0.49	0.22	0.00	0.60	0.09	0.41	0.41	0.12	0.25	0.25
Avail Cap(c_a), veh/h	485	0	628	507	0	638	607	1408	1467	447	1408	1461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	0.0	44.5	48.0	0.0	45.1	0.2	0.0	0.0	2.5	2.8	2.8
Incr Delay (d2), s/veh	0.8	0.0	2.2	0.8	0.0	3.3	0.3	0.8	0.8	0.5	0.4	0.4
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	1.2	0.0	3.9	1.5	0.0	4.9	0.1	0.6	0.6	0.4	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	0.0	46.7	48.8	0.0	48.4	0.5	0.8	0.8	3.1	3.3	3.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	109			134			1232			779		
Approach Delay, s/veh	47.5			48.5			0.8			3.2		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	89.2			15.8			89.2			15.8		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	54.0			40.0			54.0			40.0		
Max Q Clear Time (g_c+I1), s	8.1			10.2			7.5			9.4		
Green Ext Time (p_c), s	11.4			0.5			6.3			0.7		
Intersection Summary												
HCM 6th Ctrl Delay	6.7											
HCM 6th LOS	A											

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

Existing Conditions AM Peak Hour

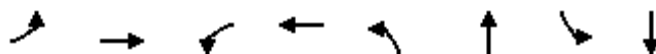
09/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	75	115	20	90	35	95	985	10	20	665	80
Future Volume (veh/h)	135	75	115	20	90	35	95	985	10	20	665	80
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	144	80	122	21	96	37	101	1048	11	21	707	85
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	374	388	262	257	99	568	2505	26	372	1955	235
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.05	0.70	0.70	1.00	1.00	1.00
Sat Flow, veh/h	1257	1870	1585	1180	1286	496	1781	3603	38	533	3194	384
Grp Volume(v), veh/h	144	80	122	21	0	133	101	517	542	21	393	399
Grp Sat Flow(s),veh/h/ln	1257	1870	1585	1180	0	1781	1781	1777	1864	533	1777	1801
Q Serve(g_s), s	11.7	3.8	6.6	1.6	0.0	6.8	2.0	13.1	13.1	0.3	0.0	0.0
Cycle Q Clear(g_c), s	18.5	3.8	6.6	5.3	0.0	6.8	2.0	13.1	13.1	4.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.02	1.00		0.21
Lane Grp Cap(c), veh/h	239	374	388	262	0	356	568	1236	1296	372	1088	1103
V/C Ratio(X)	0.60	0.21	0.31	0.08	0.00	0.37	0.18	0.42	0.42	0.06	0.36	0.36
Avail Cap(c_a), veh/h	275	428	434	296	0	407	623	1236	1296	372	1088	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	44.3	35.1	32.4	37.3	0.0	36.3	5.9	6.9	6.9	0.2	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.3	0.5	0.1	0.0	0.6	0.1	1.0	1.0	0.3	0.9	0.9
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	6.9	3.1	4.6	0.8	0.0	5.4	1.3	8.3	8.6	0.1	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	35.4	32.9	37.5	0.0	37.0	6.0	7.9	7.9	0.4	0.9	0.9
LnGrp LOS	D	D	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	346			154			1160			813		
Approach Delay, s/veh	39.4			37.0			7.7			0.9		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4		5	6		8			
Phs Duration (G+Y+Rc), s	79.0			26.0		8.7	70.3		26.0			
Change Period (Y+Rc), s	6.0			5.0		4.0	6.0		5.0			
Max Green Setting (Gmax), s	70.0			24.0		8.0	58.0		24.0			
Max Q Clear Time (g_c+I1), s	15.1			20.5		4.0	6.7		8.8			
Green Ext Time (p_c), s	9.1			0.5		0.1	6.4		0.6			
Intersection Summary												
HCM 6th Ctrl Delay				11.7								
HCM 6th LOS				B								

Timings  
2: Peoria St & 13th Ave

Existing Conditions AM Peak Hour

09/27/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	20	30	35	55	1105	50	675
Future Volume (vph)	25	20	30	35	55	1105	50	675
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	8.8	8.8	8.8	8.8	85.2	85.2	85.2	85.2
Actuated g/C Ratio	0.08	0.08	0.08	0.08	0.81	0.81	0.81	0.81
v/c Ratio	0.27	0.42	0.28	0.54	0.10	0.41	0.15	0.25
Control Delay	50.3	23.2	50.1	33.0	2.5	2.8	3.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	23.2	50.1	33.0	2.5	2.8	3.8	2.8
LOS	D	C	D	C	A	A	A	A
Approach Delay		29.6		37.0		2.8		2.9
Approach LOS		C		D		A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

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

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 6.2

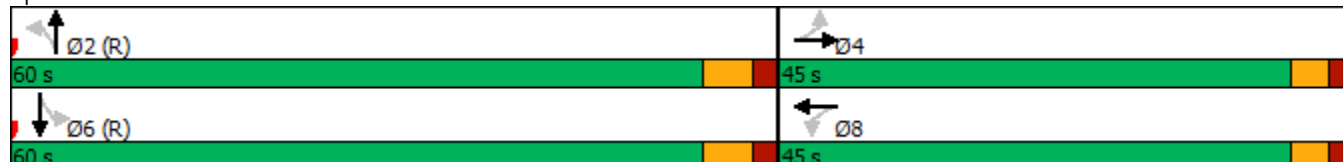
Intersection LOS: A

Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

Existing Conditions AM Peak Hour

09/27/2019




									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	135	75	115	20	90	95	985	20	665
Future Volume (vph)	135	75	115	20	90	95	985	20	665
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	10.0	23.0	23.0	10.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	12.0	29.0	29.0	12.0	76.0	64.0	64.0
Total Split (%)	27.6%	27.6%	11.4%	27.6%	27.6%	11.4%	72.4%	61.0%	61.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	17.7	17.7	29.7	17.7	17.7	78.3	76.3	65.3	65.3
Actuated g/C Ratio	0.17	0.17	0.28	0.17	0.17	0.75	0.73	0.62	0.62
v/c Ratio	0.77	0.26	0.23	0.10	0.42	0.20	0.41	0.07	0.36
Control Delay	66.8	38.1	5.5	35.0	36.7	5.4	6.7	8.8	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	38.1	5.5	35.0	36.7	5.4	6.7	8.8	9.4
LOS	E	D	A	C	D	A	A	A	A
Approach Delay		38.5			36.5		6.6		9.4
Approach LOS		D			D		A		A

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 105
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 13.8
Intersection Capacity Utilization 64.4%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service C

Splits and Phases: 5: Peoria St & 11th Ave























Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	100	105	15	5	35
Future Vol, veh/h	30	100	105	15	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	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	122	128	18	6	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	146	0	-	0	333	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	196	-
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	1436	-	-	-	662	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1436	-	-	-	643	911
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	837	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.7	0		9.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1436	-	-	-	866	
HCM Lane V/C Ratio	0.025	-	-	-	0.056	
HCM Control Delay (s)	7.6	0	-	-	9.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

Existing Conditions PM Peak Hour

09/26/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	30	75	90	60	40	60	740	35	70	1375	45
Future Volume (veh/h)	20	30	75	90	60	40	60	740	35	70	1375	45
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	21	32	79	95	63	42	63	779	37	74	1447	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	78	193	213	171	114	261	2466	117	558	2508	81
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	1.00	1.00	1.00	0.71	0.71	0.71
Sat Flow, veh/h	1289	478	1180	1282	1047	698	352	3454	164	670	3513	114
Grp Volume(v), veh/h	21	0	111	95	0	105	63	401	415	74	731	763
Grp Sat Flow(s),veh/h/ln	1289	0	1658	1282	0	1745	352	1777	1841	670	1777	1850
Q Serve(g_s), s	1.3	0.0	5.4	6.5	0.0	4.8	6.0	0.0	0.0	3.2	18.0	18.1
Cycle Q Clear(g_c), s	6.1	0.0	5.4	11.9	0.0	4.8	24.1	0.0	0.0	3.2	18.0	18.1
Prop In Lane	1.00		0.71	1.00		0.40	1.00		0.09	1.00		0.06
Lane Grp Cap(c), veh/h	222	0	271	213	0	286	261	1269	1314	558	1269	1321
V/C Ratio(X)	0.09	0.00	0.41	0.45	0.00	0.37	0.24	0.32	0.32	0.13	0.58	0.58
Avail Cap(c_a), veh/h	584	0	737	573	0	775	261	1269	1314	558	1269	1321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	0.0	33.7	39.0	0.0	33.5	3.4	0.0	0.0	4.1	6.2	6.3
Incr Delay (d2), s/veh	0.2	0.0	1.0	1.5	0.0	0.8	2.1	0.6	0.6	0.5	1.9	1.8
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	0.8	0.0	4.0	3.8	0.0	3.7	0.7	0.4	0.4	0.8	10.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	0.0	34.7	40.5	0.0	34.3	5.5	0.6	0.6	4.6	8.2	8.1
LnGrp LOS	D	A	C	D	A	C	A	A	A	A	A	A
Approach Vol, veh/h	132			200			879			1568		
Approach Delay, s/veh	35.0			37.2			1.0			8.0		
Approach LOS	C			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	70.3			19.7			70.3			19.7		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	39.0			40.0			39.0			40.0		
Max Q Clear Time (g_c+I1), s	26.1			8.1			20.1			13.9		
Green Ext Time (p_c), s	5.1			0.7			11.2			0.9		
Intersection Summary												
HCM 6th Ctrl Delay	9.1											
HCM 6th LOS	A											

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

Existing Conditions PM Peak Hour

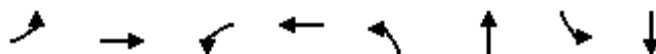
09/26/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	75	120	50	95	30	60	700	25	45	1380	115
Future Volume (veh/h)	80	75	120	50	95	30	60	700	25	45	1380	115
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	82	77	124	52	98	31	62	722	26	46	1423	119
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	284	310	217	207	65	372	2539	91	535	2117	176
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.04	0.73	0.73	1.00	1.00	1.00
Sat Flow, veh/h	1261	1870	1585	1181	1362	431	1781	3499	126	713	3321	276
Grp Volume(v), veh/h	82	77	124	52	0	129	62	367	381	46	758	784
Grp Sat Flow(s),veh/h/ln	1261	1870	1585	1181	0	1793	1781	1777	1848	713	1777	1821
Q Serve(g_s), s	5.7	3.3	6.1	3.7	0.0	5.9	1.0	6.4	6.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.6	3.3	6.1	6.9	0.0	5.9	1.0	6.4	6.4	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	189	284	310	217	0	272	372	1290	1341	535	1133	1161
V/C Ratio(X)	0.43	0.27	0.40	0.24	0.00	0.47	0.17	0.28	0.28	0.09	0.67	0.68
Avail Cap(c_a), veh/h	193	291	316	221	0	279	453	1290	1341	535	1133	1161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	40.2	33.7	31.6	36.8	0.0	34.9	4.1	4.3	4.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.5	0.8	0.6	0.0	1.3	0.2	0.6	0.5	0.3	2.5	2.5
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	3.3	2.7	0.1	1.9	0.0	4.8	0.6	3.7	3.8	0.1	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	34.3	32.4	37.4	0.0	36.1	4.3	4.8	4.8	0.3	2.5	2.5
LnGrp LOS	D	C	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		283			181			810			1588	
Approach Delay, s/veh		35.6			36.5			4.8			2.5	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		71.3		18.7	7.9	63.4		18.7				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		65.0		14.0	8.0	53.0		14.0				
Max Q Clear Time (g_c+I1), s		8.4		13.6	3.0	2.0		8.9				
Green Ext Time (p_c), s		5.5		0.0	0.0	18.5		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			8.5									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Timings  
2: Peoria St & 13th Ave

Existing Conditions PM Peak Hour

09/26/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	20	30	90	60	60	740	70	1375
Future Volume (vph)	20	30	90	60	60	740	70	1375
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	12.1	12.1	12.1	12.1	66.9	66.9	66.9	66.9
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.74	0.74	0.74	0.74
v/c Ratio	0.12	0.48	0.56	0.39	0.32	0.31	0.16	0.57
Control Delay	33.4	37.9	47.8	25.3	9.4	3.9	5.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	37.9	47.8	25.3	9.4	3.9	5.3	6.8
LOS	C	D	D	C	A	A	A	A
Approach Delay		37.2		36.0		4.3		6.7
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 9.5

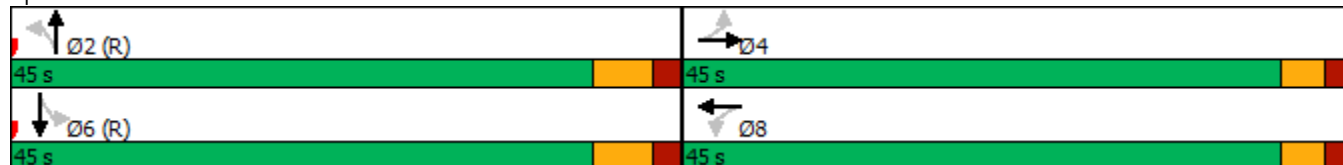
Intersection LOS: A

Intersection Capacity Utilization 69.4%

ICU Level of Service C

Analysis Period (min) 15



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

Existing Conditions PM Peak Hour

09/26/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	80	75	120	50	95	60	700	45	1380
Future Volume (vph)	80	75	120	50	95	60	700	45	1380
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	10.0	23.0	23.0	10.0	24.0	24.0	24.0
Total Split (s)	19.0	19.0	12.0	19.0	19.0	12.0	71.0	59.0	59.0
Total Split (%)	21.1%	21.1%	13.3%	21.1%	21.1%	13.3%	78.9%	65.6%	65.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	11.0	11.0	22.3	11.0	11.0	70.0	68.0	57.7	57.7
Actuated g/C Ratio	0.12	0.12	0.25	0.12	0.12	0.78	0.76	0.64	0.64
v/c Ratio	0.59	0.34	0.29	0.32	0.56	0.24	0.28	0.10	0.69
Control Delay	54.5	39.2	19.2	40.4	41.4	5.1	3.9	5.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	39.2	19.2	40.4	41.4	5.1	3.9	5.4	9.2
LOS	D	D	B	D	D	A	A	A	A
Approach Delay		34.9			41.1		4.0		9.1
Approach LOS		C			D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.2

Intersection LOS: B




Intersection Capacity Utilization 73.9%

ICU Level of Service D

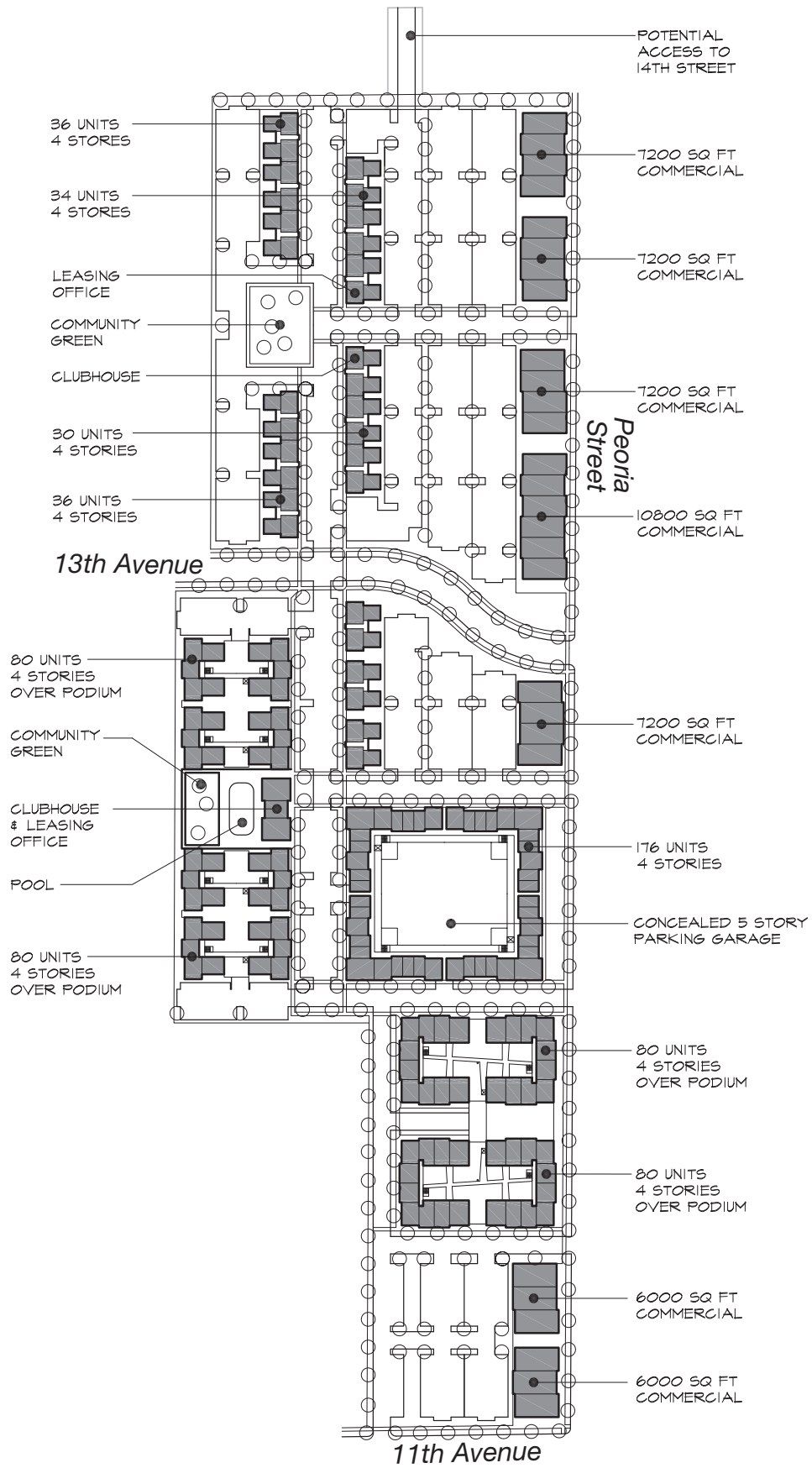
Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	110	135	30	15	20
Future Vol, veh/h	15	110	135	30	15	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	122	150	33	17	22
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	183	0	-	0	323	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	156	-
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	1392	-	-	-	671	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1392	-	-	-	662	877
Mov Cap-2 Maneuver	-	-	-	-	662	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	872	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1392	-	-	-	770	
HCM Lane V/C Ratio	0.012	-	-	-	0.051	
HCM Control Delay (s)	7.6	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

## APPENDIX C. PREVIOUS SITE PLAN
























## APPENDIX D. 2020 TOTAL TRAFFIC CONDITIONS LOS

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

2020 Total AM Peak Hour

09/26/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	20	70	30	35	65	70	1105	35	50	680	35
Future Volume (veh/h)	50	20	70	30	35	65	70	1105	35	50	680	35
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	52	21	72	31	36	67	72	1139	36	52	701	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	45	155	159	72	133	584	2718	86	438	2658	136
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	1.00	1.00	1.00	0.77	0.77	0.77
Sat Flow, veh/h	1291	371	1271	1303	585	1089	721	3516	111	477	3439	177
Grp Volume(v), veh/h	52	0	93	31	0	103	72	575	600	52	362	375
Grp Sat Flow(s),veh/h/ln	1291	0	1642	1303	0	1674	721	1777	1850	477	1777	1839
Q Serve(g_s), s	4.1	0.0	5.5	2.4	0.0	6.0	0.9	0.0	0.0	2.9	6.1	6.1
Cycle Q Clear(g_c), s	10.2	0.0	5.5	7.9	0.0	6.0	7.0	0.0	0.0	2.9	6.1	6.1
Prop In Lane	1.00		0.77	1.00		0.65	1.00		0.06	1.00		0.10
Lane Grp Cap(c), veh/h	152	0	201	159	0	205	584	1373	1430	438	1373	1421
V/C Ratio(X)	0.34	0.00	0.46	0.19	0.00	0.50	0.12	0.42	0.42	0.12	0.26	0.26
Avail Cap(c_a), veh/h	486	0	625	496	0	638	584	1373	1430	438	1373	1421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	0.0	42.9	46.6	0.0	43.1	0.3	0.0	0.0	3.0	3.4	3.4
Incr Delay (d2), s/veh	1.3	0.0	1.7	0.6	0.0	1.9	0.4	0.9	0.9	0.6	0.5	0.5
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	2.5	0.0	4.2	1.4	0.0	4.7	0.1	0.6	0.6	0.5	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	0.0	44.5	47.1	0.0	45.0	0.7	0.9	0.9	3.6	3.9	3.9
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	145				134				1247		789	
Approach Delay, s/veh	46.2				45.5				0.9		3.8	
Approach LOS	D				D				A		A	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	87.2			17.8			87.2			17.8		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	54.0			40.0			54.0			40.0		
Max Q Clear Time (g_c+I1), s	9.0			12.2			8.1			9.9		
Green Ext Time (p_c), s	11.5			0.7			6.4			0.7		
Intersection Summary												
HCM 6th Ctrl Delay	7.3											
HCM 6th LOS	A											

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

2020 Total AM Peak Hour

















09/26/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	75	115	20	90	35	95	995	10	20	700	90
Future Volume (veh/h)	140	75	115	20	90	35	95	995	10	20	700	90
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	149	80	122	21	96	37	101	1059	11	21	745	96
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	380	394	266	261	101	547	2493	26	366	1928	248
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.05	0.69	0.69	1.00	1.00	1.00
Sat Flow, veh/h	1257	1870	1585	1180	1286	496	1781	3603	37	527	3166	408
Grp Volume(v), veh/h	149	80	122	21	0	133	101	522	548	21	418	423
Grp Sat Flow(s),veh/h/ln	1257	1870	1585	1180	0	1781	1781	1777	1864	527	1777	1797
Q Serve(g_s), s	12.2	3.7	6.6	1.6	0.0	6.8	2.1	13.5	13.5	0.3	0.0	0.0
Cycle Q Clear(g_c), s	18.9	3.7	6.6	5.3	0.0	6.8	2.1	13.5	13.5	5.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	243	380	394	266	0	362	547	1230	1290	366	1082	1094
V/C Ratio(X)	0.61	0.21	0.31	0.08	0.00	0.37	0.18	0.42	0.42	0.06	0.39	0.39
Avail Cap(c_a), veh/h	275	428	434	296	0	407	603	1230	1290	366	1082	1094
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	34.8	32.1	37.0	0.0	36.0	6.0	7.1	7.1	0.2	0.0	0.0
Incr Delay (d2), s/veh	3.2	0.3	0.4	0.1	0.0	0.6	0.2	1.1	1.0	0.3	1.0	1.0
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	7.2	3.1	4.6	0.8	0.0	5.4	1.3	8.5	8.8	0.1	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	35.1	32.6	37.2	0.0	36.6	6.1	8.1	8.1	0.5	1.0	1.0
LnGrp LOS	D	D	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		351			154			1171			862	
Approach Delay, s/veh		39.4			36.7			7.9			1.0	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.7		26.3	8.7	69.9		26.3				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		70.0		24.0	8.0	58.0		24.0				
Max Q Clear Time (g_c+I1), s		15.5		20.9	4.1	7.1		8.8				
Green Ext Time (p_c), s		9.2		0.4	0.1	6.9		0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.7								
HCM 6th LOS				B								

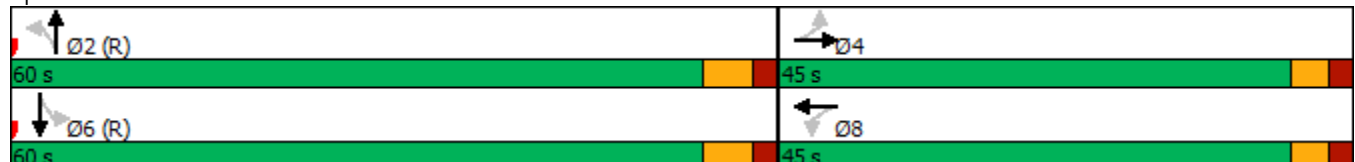
Timings  
2: Peoria St & 13th Ave

2020 Total AM Peak Hour

09/26/2019

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	50	20	30	35	70	1105	50	680
Future Volume (vph)	50	20	30	35	70	1105	50	680
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	9.7	9.7	9.7	9.7	84.3	84.3	84.3	84.3
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.80	0.80	0.80	0.80
v/c Ratio	0.48	0.43	0.26	0.50	0.13	0.42	0.15	0.26
Control Delay	58.6	21.1	48.4	30.7	2.9	3.0	4.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	21.1	48.4	30.7	2.9	3.0	4.1	3.0
LOS	E	C	D	C	A	A	A	A
Approach Delay		34.6		34.8		3.0		3.1
Approach LOS		C		C		A		A
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 55								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.50								
Intersection Signal Delay: 6.9					Intersection LOS: A			
Intersection Capacity Utilization 59.4%					ICU Level of Service B			
Analysis Period (min) 15								



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2020 Total AM Peak Hour

09/26/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	140	75	115	20	90	95	995	20	700
Future Volume (vph)	140	75	115	20	90	95	995	20	700
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	10.0	23.0	23.0	10.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	12.0	29.0	29.0	12.0	76.0	64.0	64.0
Total Split (%)	27.6%	27.6%	11.4%	27.6%	27.6%	11.4%	72.4%	61.0%	61.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	18.0	18.0	30.0	18.0	18.0	78.0	76.0	65.0	65.0
Actuated g/C Ratio	0.17	0.17	0.29	0.17	0.17	0.74	0.72	0.62	0.62
v/c Ratio	0.78	0.25	0.23	0.09	0.42	0.21	0.42	0.07	0.39
Control Delay	67.4	37.8	5.5	34.8	36.3	5.6	6.9	8.9	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.4	37.8	5.5	34.8	36.3	5.6	6.9	8.9	9.7
LOS	E	D	A	C	D	A	A	A	A
Approach Delay		39.1			36.1		6.8		9.7
Approach LOS		D			D		A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 14.0

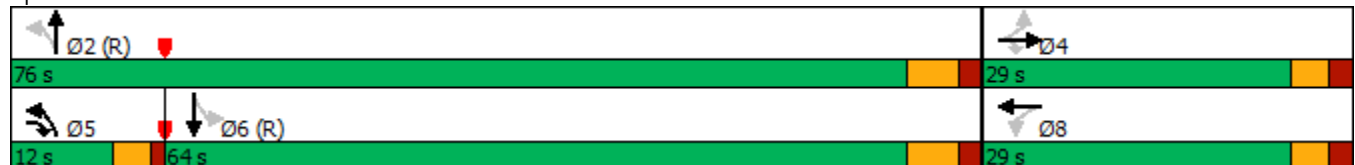
Intersection LOS: B

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	100	5	20	105	15	20	5	35	5	5	35
Future Vol, veh/h	30	100	5	20	105	15	20	5	35	5	5	35
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	95	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	122	5	24	128	18	24	6	43	6	6	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	127	0	0	409	393	125	408	386	137
Stage 1	-	-	-	-	-	-	199	199	-	185	185	-
Stage 2	-	-	-	-	-	-	210	194	-	223	201	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1436	-	-	1459	-	-	553	543	926	554	548	911
Stage 1	-	-	-	-	-	-	803	736	-	817	747	-
Stage 2	-	-	-	-	-	-	792	740	-	780	735	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1436	-	-	1459	-	-	504	519	926	506	523	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	504	519	-	506	523	-
Stage 1	-	-	-	-	-	-	781	715	-	794	734	-
Stage 2	-	-	-	-	-	-	735	727	-	717	714	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			1.1			10.8			10		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	689	1436	-	-	1459	-	-	778				
HCM Lane V/C Ratio	0.106	0.025	-	-	0.017	-	-	0.071				
HCM Control Delay (s)	10.8	7.6	0	-	7.5	0	-	10				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.2				

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	35	0	1210	775	5
Future Vol, veh/h	0	35	0	1210	775	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	0	1274	816	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 411	- 0	- 0
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	0 590	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 590	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 590	- -	- -
HCM Lane V/C Ratio	- 0.062	- -	- -
HCM Control Delay (s)	- 11.5	- -	- -
HCM Lane LOS	- B	- -	- -
HCM 95th %tile Q(veh)	- 0.2	- -	- -

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

2020 Total PM Peak Hour

09/26/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	30	85	90	60	40	105	740	35	70	1385	60
Future Volume (veh/h)	40	30	85	90	60	40	105	740	35	70	1385	60
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	42	32	89	95	63	42	111	779	37	74	1458	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	74	207	213	178	119	250	2444	116	554	2457	106
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	1.00	1.00	1.00	0.71	0.71	0.71
Sat Flow, veh/h	1289	437	1215	1270	1047	698	343	3454	164	670	3471	150
Grp Volume(v), veh/h	42	0	121	95	0	105	111	401	415	74	745	776
Grp Sat Flow(s),veh/h/ln	1289	0	1652	1270	0	1745	343	1777	1841	670	1777	1843
Q Serve(g_s), s	2.7	0.0	5.9	6.5	0.0	4.8	16.1	0.0	0.0	3.3	19.0	19.1
Cycle Q Clear(g_c), s	7.5	0.0	5.9	12.4	0.0	4.8	35.2	0.0	0.0	3.3	19.0	19.1
Prop In Lane	1.00		0.74	1.00		0.40	1.00		0.09	1.00		0.08
Lane Grp Cap(c), veh/h	231	0	281	213	0	297	250	1258	1303	554	1258	1305
V/C Ratio(X)	0.18	0.00	0.43	0.45	0.00	0.35	0.44	0.32	0.32	0.13	0.59	0.59
Avail Cap(c_a), veh/h	584	0	734	561	0	775	250	1258	1303	554	1258	1305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	33.5	39.0	0.0	33.0	5.3	0.0	0.0	4.3	6.6	6.6
Incr Delay (d2), s/veh	0.4	0.0	1.0	1.5	0.0	0.7	5.6	0.7	0.6	0.5	2.1	2.0
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	1.5	0.0	4.3	3.8	0.0	3.7	2.0	0.4	0.4	0.8	10.5	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	34.5	40.5	0.0	33.7	10.9	0.7	0.6	4.8	8.7	8.6
LnGrp LOS	D	A	C	D	A	C	B	A	A	A	A	A
Approach Vol, veh/h	163			200			927			1595		
Approach Delay, s/veh	35.1			36.9			1.9			8.5		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	69.7			20.3			69.7			20.3		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	39.0			40.0			39.0			40.0		
Max Q Clear Time (g_c+I1), s	37.2			9.5			21.1			14.4		
Green Ext Time (p_c), s	1.1			0.9			11.0			0.9		
Intersection Summary												
HCM 6th Ctrl Delay	9.8											
HCM 6th LOS	A											

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

2020 Total PM Peak Hour

















09/26/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	75	120	50	95	30	60	735	25	45	1405	120
Future Volume (veh/h)	90	75	120	50	95	30	60	735	25	45	1405	120
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	93	77	124	52	98	31	62	758	26	46	1448	124
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	291	316	221	212	67	481	3856	132	763	3316	282
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1261	1870	1585	1181	1362	431	1781	3505	120	690	3314	282
Grp Volume(v), veh/h	93	77	124	52	0	129	62	384	400	46	773	799
Grp Sat Flow(s),veh/h/ln	1261	1870	1585	1181	0	1793	1781	1777	1849	690	1777	1820
Q Serve(g_s), s	6.5	3.3	6.1	3.6	0.0	5.9	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	12.4	3.3	6.1	6.9	0.0	5.9	0.0	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		0.07	1.00		0.16
Lane Grp Cap(c), veh/h	194	291	316	221	0	279	481	1955	2034	763	1778	1821
V/C Ratio(X)	0.48	0.26	0.39	0.24	0.00	0.46	0.13	0.20	0.20	0.06	0.43	0.44
Avail Cap(c_a), veh/h	194	291	316	221	0	279	542	1955	2034	763	1778	1821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	33.5	31.3	36.5	0.0	34.6	0.1	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.5	0.8	0.5	0.0	1.2	0.1	0.2	0.2	0.2	0.8	0.8
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	3.8	2.7	0.1	1.9	0.0	4.7	0.0	0.2	0.2	0.1	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	33.9	32.1	37.1	0.0	35.8	0.2	0.2	0.2	0.2	0.8	0.8
LnGrp LOS	D	C	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		294			181			846			1618	
Approach Delay, s/veh		35.7			36.1			0.2			0.8	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		106.0		19.0	8.9	97.1		19.0				
Change Period (Y+Rc), s		* 6		5.0	5.0	6.0		5.0				
Max Green Setting (Gmax), s		* 66		14.0	7.0	53.0		14.0				
Max Q Clear Time (g_c+I1), s		2.0		14.4	2.0	3.1		8.9				
Green Ext Time (p_c), s		5.9		0.0	0.0	19.1		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			6.3									
HCM 6th LOS			A									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

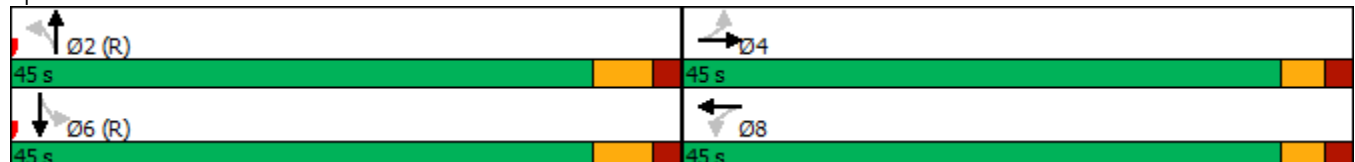
Timings  
2: Peoria St & 13th Ave

2020 Total PM Peak Hour

09/26/2019

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	40	30	90	60	105	740	70	1385
Future Volume (vph)	40	30	90	60	105	740	70	1385
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	12.2	12.2	12.2	12.2	66.8	66.8	66.8	66.8
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.74	0.74	0.74	0.74
v/c Ratio	0.24	0.51	0.58	0.38	0.58	0.31	0.16	0.58
Control Delay	36.1	39.5	49.7	25.2	22.4	3.9	5.3	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	39.5	49.7	25.2	22.4	3.9	5.3	7.0
LOS	D	D	D	C	C	A	A	A
Approach Delay		38.6		36.8		6.2		6.9
Approach LOS		D		D		A		A
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.58								
Intersection Signal Delay: 10.5					Intersection LOS: B			
Intersection Capacity Utilization 71.8%					ICU Level of Service C			
Analysis Period (min) 15								



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2020 Total PM Peak Hour

09/26/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	75	120	50	95	60	735	45	1405
Future Volume (vph)	90	75	120	50	95	60	735	45	1405
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	10.0	23.0	23.0	10.0	23.0	24.0	24.0
Total Split (s)	19.0	19.0	12.0	19.0	19.0	12.0	71.0	59.0	59.0
Total Split (%)	21.1%	21.1%	13.3%	21.1%	21.1%	13.3%	78.9%	65.6%	65.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	11.4	11.4	22.7	11.4	11.4	68.6	68.6	56.3	56.3
Actuated g/C Ratio	0.13	0.13	0.25	0.13	0.13	0.76	0.76	0.63	0.63
v/c Ratio	0.65	0.33	0.29	0.31	0.54	0.26	0.29	0.11	0.72
Control Delay	57.5	38.6	19.3	39.7	40.3	5.8	3.8	5.9	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	38.6	19.3	39.7	40.3	5.8	3.8	5.9	10.7
LOS	E	D	B	D	D	A	A	A	B
Approach Delay		36.4			40.1		3.9		10.6
Approach LOS		D			D		A		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 13.1

Intersection LOS: B

Intersection Capacity Utilization 74.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	110	20	60	135	30	10	5	30	15	5	20
Future Vol, veh/h	15	110	20	60	135	30	10	5	30	15	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	95	95	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	122	21	63	150	33	11	6	33	17	6	22




Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	143	0	0	474	476	133	479	470	167
Stage 1	-	-	-	-	-	-	167	167	-	293	293	-
Stage 2	-	-	-	-	-	-	307	309	-	186	177	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1392	-	-	1440	-	-	501	488	916	497	492	877
Stage 1	-	-	-	-	-	-	835	760	-	715	670	-
Stage 2	-	-	-	-	-	-	703	660	-	816	753	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1392	-	-	1440	-	-	461	458	916	452	462	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	461	458	-	452	462	-
Stage 1	-	-	-	-	-	-	824	750	-	706	637	-
Stage 2	-	-	-	-	-	-	646	628	-	770	743	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	2	10.6	11.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	688	1392	-	-	1440	-	-	599
HCM Lane V/C Ratio	0.073	0.012	-	-	0.044	-	-	0.074
HCM Control Delay (s)	10.6	7.6	0	-	7.6	0	-	11.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	0	880	1550	10
Future Vol, veh/h	0	20	0	880	1550	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	25	0	926	1632	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 822	- 0	- 0
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	0 317	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 317	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	17.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 317	- -	- -
HCM Lane V/C Ratio	- 0.079	- -	- -
HCM Control Delay (s)	- 17.3	- -	- -
HCM Lane LOS	- C	- -	- -
HCM 95th %tile Q(veh)	- 0.3	- -	- -























## APPENDIX E. 2040 BACKGROUND CONDITIONS LOS

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

2040 Background AM Peak Hour

09/27/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	25	75	35	45	80	70	1360	45	60	830	35
Future Volume (veh/h)	30	25	75	35	45	80	70	1360	45	60	830	35
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	31	26	77	36	46	82	72	1402	46	62	856	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	51	150	151	74	131	505	2715	89	353	2687	113
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	1.00	1.00	1.00	0.77	0.77	0.77
Sat Flow, veh/h	1262	416	1232	1291	603	1074	624	3511	115	368	3475	146
Grp Volume(v), veh/h	31	0	103	36	0	128	72	709	739	62	438	454
Grp Sat Flow(s),veh/h/ln	1262	0	1649	1291	0	1677	624	1777	1850	368	1777	1844
Q Serve(g_s), s	2.5	0.0	6.1	2.8	0.0	7.6	1.4	0.0	0.0	4.8	7.8	7.8
Cycle Q Clear(g_c), s	10.1	0.0	6.1	9.0	0.0	7.6	9.1	0.0	0.0	4.8	7.8	7.8
Prop In Lane	1.00		0.75	1.00		0.64	1.00		0.06	1.00		0.08
Lane Grp Cap(c), veh/h	131	0	201	151	0	205	505	1374	1430	353	1374	1426
V/C Ratio(X)	0.24	0.00	0.51	0.24	0.00	0.63	0.14	0.52	0.52	0.18	0.32	0.32
Avail Cap(c_a), veh/h	458	0	628	485	0	639	505	1374	1430	353	1374	1426
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	0.0	43.2	47.4	0.0	43.8	0.4	0.0	0.0	3.2	3.6	3.6
Incr Delay (d2), s/veh	0.9	0.0	2.0	0.8	0.0	3.1	0.5	1.1	1.1	1.1	0.6	0.6
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	1.5	0.0	4.7	1.7	0.0	6.0	0.1	0.8	0.8	0.7	4.3	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	45.2	48.2	0.0	46.9	0.9	1.1	1.1	4.3	4.2	4.2
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		134			164			1520			954	
Approach Delay, s/veh		46.2			47.2			1.1			4.2	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.2		17.8		87.2		17.8				
Change Period (Y+Rc), s		6.0		5.0		6.0		5.0				
Max Green Setting (Gmax), s		54.0		40.0		54.0		40.0				
Max Q Clear Time (g_c+I1), s		11.1		12.1		9.8		11.0				
Green Ext Time (p_c), s		16.2		0.7		8.7		0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				7.1								
HCM 6th LOS				A								

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

2040 Background AM Peak Hour

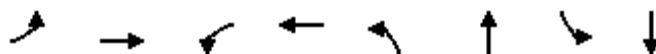
09/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	95	140	25	110	45	115	1215	15	25	820	100
Future Volume (veh/h)	165	95	140	25	110	45	115	1215	15	25	820	100
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	176	101	149	27	117	48	122	1293	16	27	872	106
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	428	436	277	288	118	486	2396	30	270	1857	226
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.05	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	1221	1870	1585	1130	1260	517	1781	3595	44	420	3190	388
Grp Volume(v), veh/h	176	101	149	27	0	165	122	639	670	27	486	492
Grp Sat Flow(s),veh/h/ln	1221	1870	1585	1130	0	1777	1781	1777	1862	420	1777	1801
Q Serve(g_s), s	15.0	4.6	7.9	2.1	0.0	8.3	2.7	19.7	19.7	1.3	0.0	0.0
Cycle Q Clear(g_c), s	23.3	4.6	7.9	6.7	0.0	8.3	2.7	19.7	19.7	12.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.02	1.00		0.22
Lane Grp Cap(c), veh/h	251	428	436	277	0	406	486	1185	1242	270	1035	1048
V/C Ratio(X)	0.70	0.24	0.34	0.10	0.00	0.41	0.25	0.54	0.54	0.10	0.47	0.47
Avail Cap(c_a), veh/h	251	428	436	277	0	406	539	1185	1242	270	1035	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	44.4	33.0	30.5	35.8	0.0	34.4	7.0	9.1	9.1	1.1	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.3	0.5	0.2	0.0	0.7	0.3	1.8	1.7	0.7	1.5	1.4
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	8.8	3.8	5.5	1.1	0.0	6.6	1.8	11.9	12.3	0.1	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	33.3	30.9	35.9	0.0	35.1	7.3	10.9	10.8	1.8	1.5	1.4
LnGrp LOS	D	C	C	D	A	D	A	B	B	A	A	A
Approach Vol, veh/h		426			192			1431			1005	
Approach Delay, s/veh		40.5			35.2			10.5			1.5	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.0		29.0	8.9	67.1		29.0				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		70.0		24.0	8.0	58.0		24.0				
Max Q Clear Time (g_c+I1), s		21.7		25.3	4.7	14.2		10.3				
Green Ext Time (p_c), s		12.8		0.0	0.1	8.7		0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.3								
HCM 6th LOS				B								

Timings  
2: Peoria St & 13th Ave

2040 Background AM Peak Hour

09/27/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	25	35	45	70	1360	60	830
Future Volume (vph)	30	25	35	45	70	1360	60	830
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	11.8	11.8	11.8	11.8	82.2	82.2	82.2	82.2
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.78	0.78	0.78	0.78
v/c Ratio	0.27	0.41	0.26	0.60	0.16	0.53	0.27	0.32
Control Delay	46.6	19.1	45.5	45.8	3.7	4.0	7.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	19.1	45.5	45.8	3.7	4.0	7.4	4.0
LOS	D	B	D	D	A	A	A	A
Approach Delay		25.5		45.7		4.0		4.2
Approach LOS		C		D		A		A

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 7.6

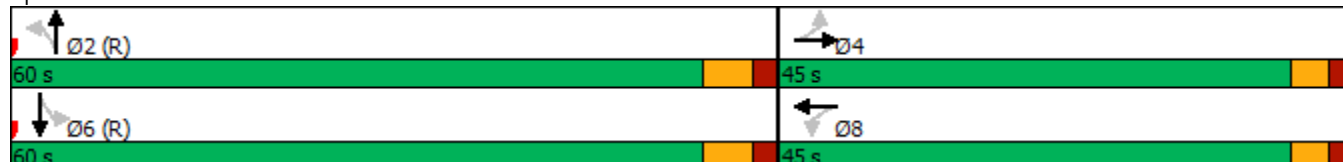
Intersection LOS: A

Intersection Capacity Utilization 73.0%

ICU Level of Service C

Analysis Period (min) 15



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2040 Background AM Peak Hour

09/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	165	95	140	25	110	115	1215	25	820
Future Volume (vph)	165	95	140	25	110	115	1215	25	820
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	11.0	23.0	23.0	11.0	24.0	24.0	24.0
Total Split (s)	29.0	29.0	12.0	29.0	29.0	12.0	76.0	64.0	64.0
Total Split (%)	27.6%	27.6%	11.4%	27.6%	27.6%	11.4%	72.4%	61.0%	61.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	20.9	20.9	33.3	20.9	20.9	75.1	73.1	61.7	61.7
Actuated g/C Ratio	0.20	0.20	0.32	0.20	0.20	0.72	0.70	0.59	0.59
v/c Ratio	0.87	0.27	0.25	0.11	0.45	0.31	0.53	0.12	0.48
Control Delay	78.2	36.4	6.3	33.6	36.0	7.3	9.1	10.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.2	36.4	6.3	33.6	36.0	7.3	9.1	10.2	11.4
LOS	E	D	A	C	D	A	A	B	B
Approach Delay		43.1			35.6		9.0		11.3
Approach LOS		D			D		A		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 16.2

Intersection LOS: B




Intersection Capacity Utilization 74.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave
























Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	125	135	15	5	35
Future Vol, veh/h	30	125	135	15	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	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	152	165	18	6	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	183	0	-	0	400	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	226	-
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	1392	-	-	-	606	869
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1392	-	-	-	588	869
Mov Cap-2 Maneuver	-	-	-	-	588	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	812	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.5	0		9.7		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1392	-	-	-	820	
HCM Lane V/C Ratio	0.026	-	-	-	0.059	
HCM Control Delay (s)	7.7	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

2040 Background PM Peak Hour

09/27/2019























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	35	90	110	75	50	75	910	45	85	1695	55
Future Volume (veh/h)	25	35	90	110	75	50	75	910	45	85	1695	55
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	26	37	95	116	79	53	79	958	47	89	1784	58
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	90	231	236	202	136	169	2359	116	464	2404	78
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	1.00	1.00	1.00	0.68	0.68	0.68
Sat Flow, veh/h	1258	464	1192	1258	1044	700	251	3448	169	561	3513	114
Grp Volume(v), veh/h	26	0	132	116	0	132	79	494	511	89	898	944
Grp Sat Flow(s),veh/h/ln	1258	0	1656	1258	0	1744	251	1777	1840	561	1777	1850
Q Serve(g_s), s	1.7	0.0	6.3	8.0	0.0	5.9	25.2	0.0	0.0	5.4	29.1	29.6
Cycle Q Clear(g_c), s	7.6	0.0	6.3	14.3	0.0	5.9	54.7	0.0	0.0	5.4	29.1	29.6
Prop In Lane	1.00		0.72	1.00		0.40	1.00		0.09	1.00		0.06
Lane Grp Cap(c), veh/h	240	0	320	236	0	338	169	1216	1259	464	1216	1266
V/C Ratio(X)	0.11	0.00	0.41	0.49	0.00	0.39	0.47	0.41	0.41	0.19	0.74	0.75
Avail Cap(c_a), veh/h	556	0	736	551	0	775	169	1216	1259	464	1216	1266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	31.8	38.1	0.0	31.7	13.1	0.0	0.0	5.3	9.1	9.2
Incr Delay (d2), s/veh	0.2	0.0	0.8	1.6	0.0	0.7	8.3	0.9	0.9	0.9	4.1	4.0
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	0.9	0.0	4.6	4.6	0.0	4.6	2.7	0.6	0.6	1.2	15.8	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	0.0	32.7	39.7	0.0	32.4	21.4	0.9	0.9	6.3	13.1	13.2
LnGrp LOS	D	A	C	D	A	C	C	A	A	A	B	B
Approach Vol, veh/h	158			248			1084			1931		
Approach Delay, s/veh	33.1			35.8			2.4			12.8		
Approach LOS	C			D			A			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	67.6			22.4			67.6			22.4		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	39.0			40.0			39.0			40.0		
Max Q Clear Time (g_c+I1), s	56.7			9.6			31.6			16.3		
Green Ext Time (p_c), s	0.0			0.9			6.3			1.1		
Intersection Summary												
HCM 6th Ctrl Delay	12.1											
HCM 6th LOS	B											

# HCM 6th Signalized Intersection Summary

## 5: Peoria St & 11th Ave

2040 Background PM Peak Hour

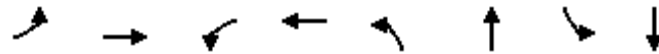
09/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	95	150	60	115	35	75	865	30	55	1700	140
Future Volume (veh/h)	100	95	150	60	115	35	75	865	30	55	1700	140
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	103	98	155	62	119	36	77	892	31	57	1753	144
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	291	322	203	214	65	315	2530	88	460	2098	170
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.72	0.72	1.00	1.00	1.00
Sat Flow, veh/h	1232	1870	1585	1127	1378	417	1781	3504	122	606	3329	270
Grp Volume(v), veh/h	103	98	155	62	0	155	77	452	471	57	925	972
Grp Sat Flow(s),veh/h/ln	1232	1870	1585	1127	0	1795	1781	1777	1848	606	1777	1822
Q Serve(g_s), s	6.8	4.2	7.8	4.7	0.0	7.2	1.2	8.5	8.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	14.0	4.2	7.8	8.9	0.0	7.2	1.2	8.5	8.5	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.07	1.00		0.15
Lane Grp Cap(c), veh/h	173	291	322	203	0	279	315	1283	1335	460	1120	1148
V/C Ratio(X)	0.59	0.34	0.48	0.31	0.00	0.56	0.24	0.35	0.35	0.12	0.83	0.85
Avail Cap(c_a), veh/h	173	291	322	203	0	279	388	1283	1335	460	1120	1148
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	41.9	33.9	31.7	37.8	0.0	35.1	4.3	4.7	4.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.4	0.7	1.1	0.8	0.0	2.4	0.4	0.8	0.7	0.3	4.6	5.1
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(95%),veh/ln	4.6	3.5	5.4	2.4	0.0	5.9	0.7	4.9	5.1	0.1	2.5	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	34.5	32.8	38.7	0.0	37.5	4.7	5.4	5.4	0.3	4.6	5.1
LnGrp LOS	D	C	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		356			217			1000			1954	
Approach Delay, s/veh		37.5			37.8			5.3			4.7	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		71.0		19.0	8.3	62.7		19.0				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		65.0		14.0	8.0	53.0		14.0				
Max Q Clear Time (g_c+I1), s		10.5		16.0	3.2	2.3		10.9				
Green Ext Time (p_c), s		7.4		0.0	0.1	27.9		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.2									
HCM 6th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Timings  
2: Peoria St & 13th Ave

2040 Background PM Peak Hour

09/27/2019



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	35	110	75	75	910	85	1695
Future Volume (vph)	25	35	110	75	75	910	85	1695
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	13.8	13.8	13.8	13.8	65.2	65.2	65.2	65.2
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72
v/c Ratio	0.15	0.51	0.65	0.43	0.75	0.39	0.25	0.72
Control Delay	32.3	39.7	51.9	25.1	54.8	4.9	7.5	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	39.7	51.9	25.1	54.8	4.9	7.5	10.2
LOS	C	D	D	C	D	A	A	B
Approach Delay		38.4		37.6		8.5		10.1
Approach LOS		D		D		A		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 12.9

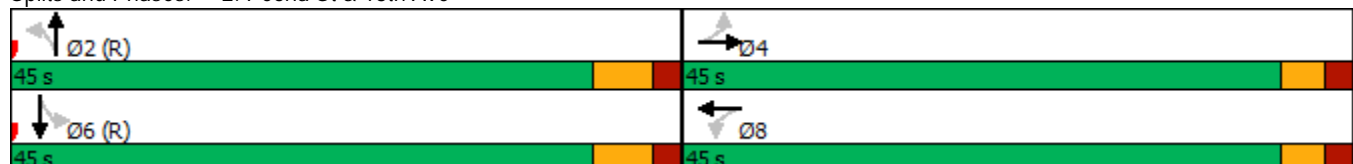
Intersection LOS: B

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2040 Background PM Peak Hour

09/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	100	95	150	60	115	75	865	55	1700
Future Volume (vph)	100	95	150	60	115	75	865	55	1700
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	9.5	23.0	23.0	9.5	24.0	24.0	24.0
Total Split (s)	19.0	19.0	12.0	19.0	19.0	12.0	71.0	59.0	59.0
Total Split (%)	21.1%	21.1%	13.3%	21.1%	21.1%	13.3%	78.9%	65.6%	65.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	12.3	12.3	23.9	12.3	12.3	68.7	66.7	56.1	56.1
Actuated g/C Ratio	0.14	0.14	0.27	0.14	0.14	0.76	0.74	0.62	0.62
v/c Ratio	0.76	0.39	0.35	0.35	0.60	0.36	0.35	0.16	0.87
Control Delay	70.9	39.3	21.8	40.2	43.0	9.8	4.7	6.4	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	39.3	21.8	40.2	43.0	9.8	4.7	6.4	14.4
LOS	E	D	C	D	D	A	A	A	B
Approach Delay		40.9			42.2		5.1		14.2
Approach LOS		D			D		A		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 16.0

Intersection LOS: B




Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	135	175	30	15	20
Future Vol, veh/h	15	135	175	30	15	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	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	150	194	33	17	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	227	0	-	0	395	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	184	-
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	1341	-	-	-	610	829
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1341	-	-	-	601	829
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	848	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		10.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1341	-	-	-	713	
HCM Lane V/C Ratio	0.012	-	-	-	0.055	
HCM Control Delay (s)	7.7	0	-	-	10.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	






















## APPENDIX F. 2040 TOTAL TRAFFIC CONDITIONS LOS

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave























2040 Total AM Peak Hour

09/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	25	85	35	45	80	85	1360	45	60	835	70
Future Volume (veh/h)	55	25	85	35	45	80	85	1360	45	60	835	70
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	57	26	88	36	46	82	88	1402	46	62	861	72
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	53	180	168	85	152	469	2646	87	346	2501	209
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	1.00	1.00	1.00	0.75	0.75	0.75
Sat Flow, veh/h	1262	375	1268	1279	603	1074	600	3511	115	368	3320	278
Grp Volume(v), veh/h	57	0	114	36	0	128	88	709	739	62	461	472
Grp Sat Flow(s),veh/h/ln	1262	0	1642	1279	0	1677	600	1777	1850	368	1777	1820
Q Serve(g_s), s	4.6	0.0	6.7	2.8	0.0	7.4	2.2	0.0	0.0	5.2	9.1	9.1
Cycle Q Clear(g_c), s	12.1	0.0	6.7	9.5	0.0	7.4	11.3	0.0	0.0	5.2	9.1	9.1
Prop In Lane	1.00		0.77	1.00		0.64	1.00		0.06	1.00		0.15
Lane Grp Cap(c), veh/h	158	0	233	168	0	238	469	1339	1394	346	1339	1371
V/C Ratio(X)	0.36	0.00	0.49	0.21	0.00	0.54	0.19	0.53	0.53	0.18	0.34	0.34
Avail Cap(c_a), veh/h	460	0	626	474	0	639	469	1339	1394	346	1339	1371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	41.5	45.9	0.0	41.9	0.6	0.0	0.0	3.8	4.3	4.3
Incr Delay (d2), s/veh	1.4	0.0	1.6	0.6	0.0	1.9	0.9	1.5	1.5	1.1	0.7	0.7
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	2.7	0.0	5.1	1.7	0.0	5.7	0.2	1.0	1.0	0.8	5.3	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.8	0.0	43.1	46.6	0.0	43.7	1.5	1.5	1.5	5.0	5.0	5.0
LnGrp LOS	D	A	D	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h	171			164			1536			995		
Approach Delay, s/veh	45.0			44.4			1.5			5.0		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	85.1			19.9			85.1			19.9		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	54.0			40.0			54.0			40.0		
Max Q Clear Time (g_c+I1), s	13.3			14.1			11.1			11.5		
Green Ext Time (p_c), s	16.3			0.8			9.2			0.9		
Intersection Summary												
HCM 6th Ctrl Delay	7.8											
HCM 6th LOS	A											

# HCM 6th Signalized Intersection Summary 5: Peoria St & 11th Ave

















2040 Total AM Peak Hour  
09/27/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	95	140	25	110	45	115	1225	15	25	855	110
Future Volume (veh/h)	170	95	140	25	110	45	115	1225	15	25	855	110
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	181	101	149	27	117	48	122	1303	16	27	910	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	428	436	277	288	118	471	2397	29	267	1844	237
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.05	0.67	0.67	1.00	1.00	1.00
Sat Flow, veh/h	1221	1870	1585	1130	1260	517	1781	3595	44	416	3167	407
Grp Volume(v), veh/h	181	101	149	27	0	165	122	644	675	27	511	516
Grp Sat Flow(s),veh/h/ln	1221	1870	1585	1130	0	1777	1781	1777	1862	416	1777	1797
Q Serve(g_s), s	15.5	4.6	7.9	2.1	0.0	8.3	2.7	19.9	19.9	1.4	0.0	0.0
Cycle Q Clear(g_c), s	23.8	4.6	7.9	6.7	0.0	8.3	2.7	19.9	19.9	12.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	251	428	436	277	0	406	471	1185	1242	267	1035	1046
V/C Ratio(X)	0.72	0.24	0.34	0.10	0.00	0.41	0.26	0.54	0.54	0.10	0.49	0.49
Avail Cap(c_a), veh/h	251	428	436	277	0	406	524	1185	1242	267	1035	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	33.0	30.5	35.8	0.0	34.4	7.0	9.1	9.2	1.1	0.0	0.0
Incr Delay (d2), s/veh	9.6	0.3	0.5	0.2	0.0	0.7	0.3	1.8	1.7	0.8	1.7	1.7
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	9.1	3.8	5.5	1.1	0.0	6.6	1.8	12.0	12.4	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	33.3	30.9	35.9	0.0	35.1	7.3	10.9	10.9	1.9	1.7	1.7
LnGrp LOS	D	C	C	D	A	D	A	B	B	A	A	A
Approach Vol, veh/h		431			192			1441			1054	
Approach Delay, s/veh		41.3			35.2			10.6			1.7	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.0		29.0	8.9	67.1		29.0				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		70.0		24.0	8.0	58.0		24.0				
Max Q Clear Time (g_c+I1), s		21.9		25.8	4.7	14.4		10.3				
Green Ext Time (p_c), s		12.9		0.0	0.1	9.3		0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.3								
HCM 6th LOS				B								

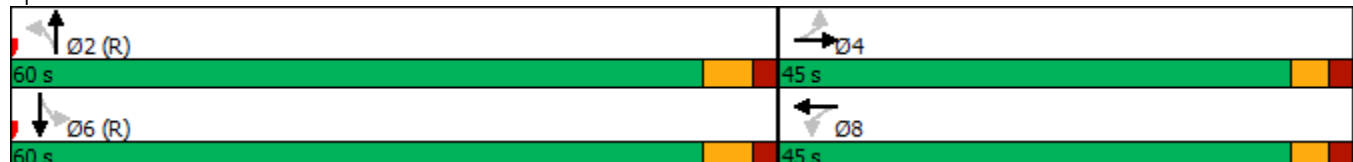
Timings  
2: Peoria St & 13th Ave

2040 Total AM Peak Hour

09/27/2019

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	55	25	35	45	85	1360	60	835
Future Volume (vph)	55	25	35	45	85	1360	60	835
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	60.0	60.0	60.0	60.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	11.8	11.8	11.8	11.8	82.2	82.2	82.2	82.2
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.78	0.78	0.78	0.78
v/c Ratio	0.50	0.43	0.28	0.60	0.20	0.53	0.27	0.34
Control Delay	56.9	18.6	46.5	45.8	4.0	4.0	7.4	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	18.6	46.5	45.8	4.0	4.0	7.4	4.1
LOS	E	B	D	D	A	A	A	A
Approach Delay		31.3		46.0		4.0		4.3
Approach LOS		C		D		A		A
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 60								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.60								
Intersection Signal Delay: 8.1					Intersection LOS: A			
Intersection Capacity Utilization 73.0%					ICU Level of Service C			
Analysis Period (min) 15								



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2040 Total AM Peak Hour

09/27/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	170	95	140	25	110	115	1225	25	855
Future Volume (vph)	170	95	140	25	110	115	1225	25	855
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	9.5	23.0	23.0	9.5	24.0	24.0	24.0
Total Split (s)	29.0	29.0	12.0	29.0	29.0	12.0	76.0	64.0	64.0
Total Split (%)	27.6%	27.6%	11.4%	27.6%	27.6%	11.4%	72.4%	61.0%	61.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	21.3	21.3	33.7	21.3	21.3	74.7	72.7	61.3	61.3
Actuated g/C Ratio	0.20	0.20	0.32	0.20	0.20	0.71	0.69	0.58	0.58
v/c Ratio	0.88	0.27	0.25	0.10	0.44	0.33	0.54	0.13	0.50
Control Delay	78.5	36.1	7.5	33.4	35.6	7.7	9.4	10.5	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.5	36.1	7.5	33.4	35.6	7.7	9.4	10.5	12.0
LOS	E	D	A	C	D	A	A	B	B
Approach Delay		44.0			35.3		9.2		12.0
Approach LOS		D			D		A		B

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

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

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.6

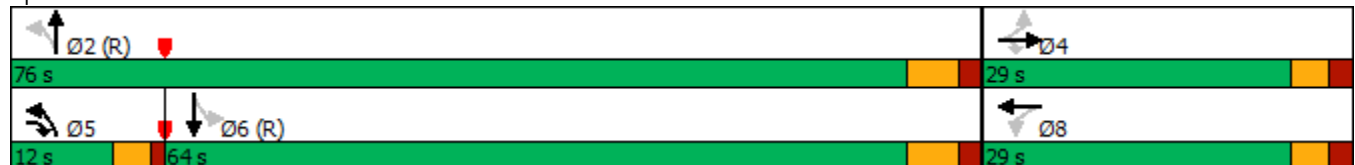
Intersection LOS: B

Intersection Capacity Utilization 74.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	125	5	20	135	15	20	5	35	5	5	35
Future Vol, veh/h	30	125	5	20	135	15	20	5	35	5	5	35
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	95	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	152	5	24	165	18	24	6	43	6	6	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	183	0	0	157	0	0	476	460	155	475	453	174
Stage 1	-	-	-	-	-	-	229	229	-	222	222	-
Stage 2	-	-	-	-	-	-	247	231	-	253	231	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1392	-	-	1423	-	-	499	498	891	500	503	869
Stage 1	-	-	-	-	-	-	774	715	-	780	720	-
Stage 2	-	-	-	-	-	-	757	713	-	751	713	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1392	-	-	1423	-	-	453	475	891	455	479	869
Mov Cap-2 Maneuver	-	-	-	-	-	-	453	475	-	455	479	-
Stage 1	-	-	-	-	-	-	752	694	-	757	706	-
Stage 2	-	-	-	-	-	-	700	699	-	688	692	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.4			0.9			11.4			10.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	639	1392	-	-	1423	-	-	729
HCM Lane V/C Ratio	0.115	0.026	-	-	0.017	-	-	0.075
HCM Control Delay (s)	11.4	7.7	0	-	7.6	0	-	10.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.2

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	35	0	1490	950	5
Future Vol, veh/h	0	35	0	1490	950	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	0	1568	1000	5

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 503	- 0	- 0
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	0 514	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 514	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0	0
HCM LOS	B		






















Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 514	- -	- -
HCM Lane V/C Ratio	- 0.072	- -	- -
HCM Control Delay (s)	- 12.5	- -	- -
HCM Lane LOS	- B	- -	- -
HCM 95th %tile Q(veh)	- 0.2	- -	- -

# HCM 6th Signalized Intersection Summary

## 2: Peoria St & 13th Ave

2040 Total PM Peak Hour























09/26/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	35	100	110	75	50	120	910	45	85	1705	70
Future Volume (veh/h)	45	35	100	110	75	50	120	910	45	85	1705	70
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	47	37	105	116	79	53	126	958	47	89	1795	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	86	244	235	209	140	161	2338	115	460	2359	97
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	1.00	1.00	1.00	0.68	0.68	0.68
Sat Flow, veh/h	1258	430	1221	1246	1044	700	245	3448	169	561	3479	143
Grp Volume(v), veh/h	47	0	142	116	0	132	126	494	511	89	912	957
Grp Sat Flow(s),veh/h/ln	1258	0	1651	1246	0	1744	245	1777	1840	561	1777	1845
Q Serve(g_s), s	3.0	0.0	6.8	8.1	0.0	5.9	29.7	0.0	0.0	5.5	30.5	31.3
Cycle Q Clear(g_c), s	8.9	0.0	6.8	14.9	0.0	5.9	61.0	0.0	0.0	5.5	30.5	31.3
Prop In Lane	1.00		0.74	1.00		0.40	1.00		0.09	1.00		0.08
Lane Grp Cap(c), veh/h	249	0	330	235	0	348	161	1205	1247	460	1205	1251
V/C Ratio(X)	0.19	0.00	0.43	0.49	0.00	0.38	0.78	0.41	0.41	0.19	0.76	0.77
Avail Cap(c_a), veh/h	557	0	734	540	0	775	161	1205	1247	460	1205	1251
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	31.5	38.0	0.0	31.2	21.0	0.0	0.0	5.5	9.6	9.7
Incr Delay (d2), s/veh	0.4	0.0	0.9	1.6	0.0	0.7	30.7	1.0	1.0	0.9	4.5	4.5
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	1.7	0.0	4.9	4.6	0.0	4.5	7.2	0.6	0.6	1.2	16.6	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	0.0	32.4	39.6	0.0	31.9	51.7	1.0	1.0	6.5	14.0	14.2
LnGrp LOS	D	A	C	D	A	C	D	A	A	A	B	B
Approach Vol, veh/h	189				248				1131		1958	
Approach Delay, s/veh	33.2				35.5				6.7		13.8	
Approach LOS	C				D				A		B	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	67.0			23.0			67.0			23.0		
Change Period (Y+Rc), s	6.0			5.0			6.0			5.0		
Max Green Setting (Gmax), s	39.0			40.0			39.0			40.0		
Max Q Clear Time (g_c+I1), s	63.0			10.9			33.3			16.9		
Green Ext Time (p_c), s	0.0			1.0			5.0			1.1		
Intersection Summary												
HCM 6th Ctrl Delay	14.1											
HCM 6th LOS	B											

# HCM 6th Signalized Intersection Summary 5: Peoria St & 11th Ave

















2040 Total PM Peak Hour

09/26/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	95	150	60	115	35	75	900	30	55	1725	145
Future Volume (veh/h)	110	95	150	60	115	35	75	900	30	55	1725	145
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	113	98	155	62	119	36	77	928	31	57	1778	149
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	291	322	203	214	65	310	2534	85	444	2095	173
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.72	0.72	1.00	1.00	1.00
Sat Flow, veh/h	1232	1870	1585	1127	1378	417	1781	3509	117	586	3323	275
Grp Volume(v), veh/h	113	98	155	62	0	155	77	470	489	57	939	988
Grp Sat Flow(s),veh/h/ln	1232	1870	1585	1127	0	1795	1781	1777	1849	586	1777	1821
Q Serve(g_s), s	6.8	4.2	7.8	4.7	0.0	7.2	1.2	9.0	9.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	14.0	4.2	7.8	8.9	0.0	7.2	1.2	9.0	9.0	0.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		0.06	1.00		0.15
Lane Grp Cap(c), veh/h	173	291	322	203	0	279	310	1283	1336	444	1120	1148
V/C Ratio(X)	0.65	0.34	0.48	0.31	0.00	0.56	0.25	0.37	0.37	0.13	0.84	0.86
Avail Cap(c_a), veh/h	173	291	322	203	0	279	384	1283	1336	444	1120	1148
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	33.9	31.7	37.8	0.0	35.1	4.3	4.7	4.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	8.4	0.7	1.1	0.8	0.0	2.4	0.4	0.8	0.8	0.6	7.6	8.5
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	5.2	3.5	5.4	2.4	0.0	5.9	0.7	5.2	5.4	0.1	4.2	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	34.5	32.8	38.7	0.0	37.5	4.7	5.5	5.5	0.6	7.6	8.5
LnGrp LOS	D	C	C	D	A	D	A	A	A	A	A	A
Approach Vol, veh/h		366			217			1036			1984	
Approach Delay, s/veh		38.8			37.8			5.5			7.8	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		71.0		19.0	8.3	62.7		19.0				
Change Period (Y+Rc), s		6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s		65.0		14.0	8.0	53.0		14.0				
Max Q Clear Time (g_c+I1), s		11.0		16.0	3.2	2.8		10.9				
Green Ext Time (p_c), s		7.8		0.0	0.1	28.6		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

Timings  
2: Peoria St & 13th Ave

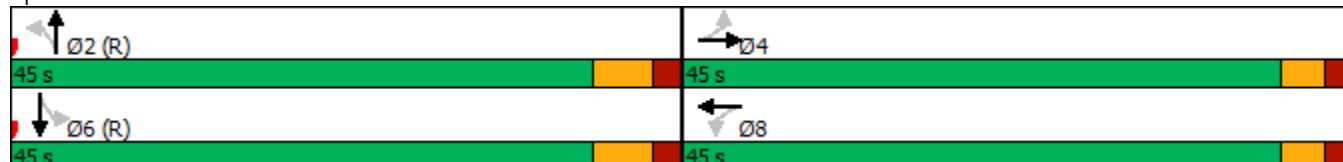
2040 Total PM Peak Hour  
09/26/2019

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	45	35	110	75	120	910	85	1705
Future Volume (vph)	45	35	110	75	120	910	85	1705
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.0	23.0	23.0	23.0	24.0	24.0	24.0	24.0
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	14.0	14.0	14.0	14.0	65.0	65.0	65.0	65.0
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.72	0.72	0.72	0.72
v/c Ratio	0.26	0.55	0.67	0.42	1.25	0.40	0.25	0.73
Control Delay	35.0	41.2	54.1	24.9	191.4	4.9	7.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	41.2	54.1	24.9	191.4	4.9	7.5	10.6
LOS	C	D	D	C	F	A	A	B
Approach Delay		39.7		38.6		25.7		10.4
Approach LOS		D		D		C		B

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 18.9
Intersection Capacity Utilization 88.4%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service E



















Splits and Phases: 2: Peoria St & 13th Ave



Timings  
5: Peoria St & 11th Ave

2040 Total PM Peak Hour

09/26/2019

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	95	150	60	115	75	900	55	1725
Future Volume (vph)	110	95	150	60	115	75	900	55	1725
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4	5		8	5	2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	5	8	8	5	2	6	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)	23.0	23.0	9.5	23.0	23.0	9.5	24.0	24.0	24.0
Total Split (s)	19.0	19.0	12.0	19.0	19.0	12.0	71.0	59.0	59.0
Total Split (%)	21.1%	21.1%	13.3%	21.1%	21.1%	13.3%	78.9%	65.6%	65.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead			Lead		Lag	Lag
Lead-Lag Optimize?			Yes			Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max
Act Effect Green (s)	12.7	12.7	24.3	12.7	12.7	68.3	66.3	55.7	55.7
Actuated g/C Ratio	0.14	0.14	0.27	0.14	0.14	0.76	0.74	0.62	0.62
v/c Ratio	0.80	0.38	0.34	0.34	0.59	0.36	0.37	0.17	0.89
Control Delay	75.3	38.9	21.7	39.7	42.0	9.8	4.9	6.8	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	38.9	21.7	39.7	42.0	9.8	4.9	6.8	15.9
LOS	E	D	C	D	D	A	A	A	B
Approach Delay		42.8			41.3		5.2		15.6
Approach LOS		D			D		A		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Peoria St & 11th Ave



Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	135	20	60	175	30	10	5	30	15	5	20
Future Vol, veh/h	15	135	20	60	175	30	10	5	30	15	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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	95	95	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	150	21	63	194	33	11	6	33	17	6	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	227	0	0	171	0	0	546	548	161	551	542	211
Stage 1	-	-	-	-	-	-	195	195	-	337	337	-
Stage 2	-	-	-	-	-	-	351	353	-	214	205	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1341	-	-	1406	-	-	448	444	884	445	447	829
Stage 1	-	-	-	-	-	-	807	739	-	677	641	-
Stage 2	-	-	-	-	-	-	666	631	-	788	732	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1341	-	-	1406	-	-	410	415	884	403	418	829
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	415	-	403	418	-
Stage 1	-	-	-	-	-	-	796	729	-	668	608	-
Stage 2	-	-	-	-	-	-	609	598	-	742	722	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.7	11.1	12.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	639	1341	-	-	1406	-	-	546
HCM Lane V/C Ratio	0.078	0.012	-	-	0.045	-	-	0.081
HCM Control Delay (s)	11.1	7.7	0	-	7.7	0	-	12.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3

Intersection

Int Delay, s/veh 0.2

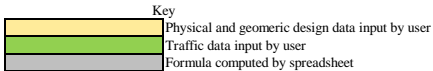
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	
Traffic Vol, veh/h	0	20	0	1075	1905	10
Future Vol, veh/h	0	20	0	1075	1905	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	25	0	1132	2005	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1008	-	0 - 0
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	0 239	0	- - -
Stage 1	0	0	- - -
Stage 2	0	0	- - -
Platoon blocked, %			- - -
Mov Cap-1 Maneuver	- 239	-	- - -
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0	0
HCM LOS	C		

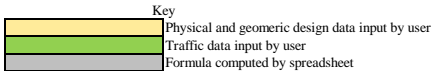
Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 239	-	-
HCM Lane V/C Ratio	- 0.105	-	-
HCM Control Delay (s)	- 21.8	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.3	-	-

## APPENDIX G. PEDESTRIAN LOS



0 if protected only, if perm/prot assume half go perm/half prot

[illegible]



### Peoria St/13th Ave

#### Step 1: Pedestrian Link Analysis (P Seg)

	East Bound 1	East Bound 2	West Bound 1	West Bound 2	North Bound 1	North Bound 2	South Bound 1	South Bound 2
Wol = Width of outside lane in feet	17	15	17	15	18	11	11	11
Wl = Width of shoulder and or bike lane in feet	0	0	0	0	0	0	0	0
Fp = On street parking (if no = 0; if yes = .50)	0.5	0.5	0.5	0.5	0	0	0	0
%OSP = Percent of segment with on street parking	80%	80%	100%	100%	0%	0%	0%	0%
Fb = Type of buffer between walk and roadways (no buffer = 0; 20' spaced trees, bollards, or 3' high barrier = 5.37)	0	0	0	0	0	0	0	0
Wb = Buffer Width in feet including tree lawn or amenity zone	0	0	8	0	0	0	6	0
Ws = Sidewalk width	4	4	4	4	4	4	5	4
Faw = Existing Sidewalk (6-3*Ws)	4.80	4.80	4.80	4.80	4.80	4.80	4.50	4.80
AADT	3320	3670	3320	3670	27150	26100	27150	26100
V = Directional hourly traffic volume for one direction of traffic	105	105	120	130	1145	1195	755	765
RTOR = # per 15 min (20*total right turns per 15 min)	3			4		2	2	
Permitted Left Turns = # per 15 min	7			8		14	13	
F Iv (low volume factor)	1.17	1.0825	1.17	1.0825	1	1	1	1
PHF = Peak hour factor	0.84	0.84	0.88	0.88	0.96	0.96	0.93	0.93
L = Total number of directional through lanes	1	1	1	1	2	2	2	2
S = Speed (MPH)	30	30	30	30	40	40	40	40

P Seg	2.18	2.30	2.20	2.35	3.60	3.92	3.30	3.44
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### Step 2: Pedestrian Crossing Analysis (P Int)

E/W Crossing 1		E/W Crossing 2		N/S Crossing 1		N/S Crossing 2	
RTOR = # right turn on red in 15 minutes (20*total right turns per 15 min)	6	5	5	5	6		
PermLefts = # of permitted left turns in 15 minutes	7	8	14	13	13		
LanesCrossed = number of lanes to cross	3	3	7	7	7		
PerpTrafVol = Volume of curb lane in 15 minutes (using PHF and right lane volume ration of 1.05)	106.5524194	163.3789063	32.8125	38.77840909	38.77840909		
PedcycleDelay = (cycle length - green time)^2 / (2*cycle length)	15.63	15.63	5.63	5.63	5.63		
RTCI = Number of right turns channelization islands to cross	0	0	0	0	0		
P Int	2.54	2.83	2.76	2.78	2.78		

### Step 3: Roadway Crossing Difficulty Factor

Crossing Distance (feet)	36	30	70	55
Pedestrian Speed (feet per second)	3.5	3.5	3.5	3.5
Average Vehicle Length	18	18	18	18
Average traffic volume for one direction (vehicles per second)	0.03	0.03	0.32	0.21
Average Vehicle Flow rate 2 directions	0.53	0.54	0.06	0.07
Average traffic speed (feet per second)	58.67	58.67	44.00	44.00
Average pass by time (veh length/veh speed)	0.31	0.31	0.41	0.41
Block length	1000	1000	1000	1000
Cycle length	80	80	80	80
Green time	30	30	50	50

Wait or Divert	XLOS#
0	1
11	2
21	3
31	4
41	5
61	6

### Step 3a: Wait for Gap

Acceptable gap = crossing distance / Ped Walk Speed + 2 seconds	12.29	10.57	22.00	17.71
T = (acceptable gap + average veh pass time)	12.59	10.88	22.41	18.12
Mean wait	1443.98	673.09	26.51	16.56
Wait for Gap	1456.26	683.66	48.51	34.28

### Step 3b: Divert to Signal LOS

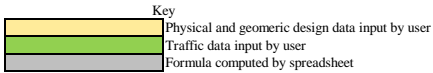
Ped Control/Cycle Delay	15.63	15.63	5.63	5.63
Ped Deviation Delay	190.48	190.48	190.48	190.48
Divert to signal	206.10	206.10	196.10	196.10

### Step 3c: Convert Wait for Gap or Divert to Signal to XLOS#

xlos# Conversion	206.10	206.10	48.51	34.28
XLOS	6.00	6.00	4.85	3.43

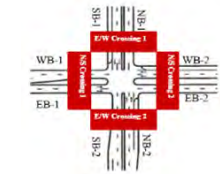
### Step 4: Total LOS Value

[illegible]



0 if protected only, if perm/prot assume half go perm/half prot

[illegible]



	Key
	Physical and geometric design data input by user
	Traffic data input by user
	Formula computed by spreadsheet

# Existing PM Peak Hour

## Peoria St/13th Ave Step 1: Pedestrian Link Analysis (P Seg)

	East Bound 1	East Bound 2	West Bound 1	West Bound 2	North Bound 1	North Bound 2	South Bound 1	South Bound 2
Wol = Width of outside lane in feet	17	15	17	15	18	11	11	11
Wl = Width of shoulder and or bike lane in feet	0	0	0	0	0	0	0	0
Ep = On street parking (if no = 0; if yes = .50)	0.5	0.5	0.5	0.5	0	0	0	0
%OSP = Percent of segment with on street parking	80%	80%	100%	100%	0%	0%	0%	0%
Pb = Type of buffer between walk and roadways (no buffer = 0; 20' spaced trees, bollards, or 3' high barrier = 5.37)	0	0	0	0	0	0	0	0
Wb = Buffer Width in feet including tree lawn or amenity zone	0	0	8	0	0	0	6	0
Ws = Sidewalk width	4	4	4	4	4	4	5	4
Fsw = Existing Sidewalk (6-.3*Ws)	4.80	4.80	4.80	4.80	4.80	4.80	4.50	4.80
AADT	3320	3670	26100	27150	26100	27150	13050	13575
V = Directional hourly traffic volume for one direction of traffic	125	135	165	190	800	835	1490	1540
RTOR = # per 15 min (.20*total right turns per 15 min)	4			2		2	3	
Permitted Left Turns = # per 15 min	5			23		15	18	
F lv (low volume factor)	1.17	1.0825	1	1	1	1	1	1
PHF = Peak hour factor	0.91	0.91	0.89	0.89	0.95	0.95	0.92	0.92
L = Total number of directional through lanes	1	1	1	1	2	2	2	2
S = Speed (MPH)	30	30	30	30	40	40	40	40

P Seg	2.21	2.35	2.41	2.54	3.21	3.50	4.22	4.41
-------	------	------	------	------	------	------	------	------

## Step 2: Pedestrian Crossing Analysis (P Int)

	E/W Crossing 1	E/W Crossing 2	N/S Crossing 1	N/S Crossing 2
RTOR = # right turn on red in 15 minutes (.20*total right turns per 15 min)	5	6	7	4
PermlLefts = # of permitted left turns in 15 minutes	5	23	15	18
LanesCrossed = number of lanes to cross	3	3	7	7
PerpTraVol = Volume of curb lane in 15 minutes (using PHF and right lane volume ration of 1.05)	212.5679348	115.3618421	36.05769231	56.03932584
PedcycleDelay = (cycle length - green time)^2 / (2*cycle length)	15.63	15.63	5.63	5.63
RTCI = Number of right turns channelization islands to cross	0	0	0	0
P Int	3.07	2.67	2.79	2.86

## Step 3: Roadway Crossing Difficulty Factor

	E/W Crossing 1	E/W Crossing 2	N/S Crossing 1	N/S Crossing 2
Crossing Distance (feet)	36	30	70	55
Pedestrian Speed (feet per second)	3.5	3.5	3.5	3.5
Average Vehicle Length	18	18	18	18
Average traffic volume for one direction (vehicles per second)	0.03	0.05	0.22	0.41
Average Vehicle Flow rate 2 directions	0.64	0.66	0.08	0.09
Average traffic speed (feet per second)	58.67	58.67	44.00	44.00
Average pass by time (veh length/veh speed)	0.31	0.31	0.41	0.41
Block length	1000	1000	1000	1000
Cycle length	80	80	80	80
Green time	30	30	50	50

### Step 3a: Wait for Gap

	E/W Crossing 1	E/W Crossing 2	N/S Crossing 1	N/S Crossing 2
Acceptable gap = crossing distance / Ped Walk Speed + 2 seconds	12.29	10.57	22.00	17.71
T = (acceptable gap + average veh pass time)	10.88	10.88	22.41	18.12
Mean wait	4720.34	1970.99	40.67	27.68
Wait for Gap	4732.62	1981.56	62.67	45.40

### Step 3b: Divert to Signal LOS

	E/W Crossing 1	E/W Crossing 2	N/S Crossing 1	N/S Crossing 2
Ped Control/Cycle Delay	15.63	15.63	5.63	5.63
Ped Deviation Delay	190.48	190.48	190.48	190.48
Divert to signal	206.10	206.10	196.10	196.10

### Step 3c: Convert Wait for Gap or Divert to Signal to XLOS#

	E/W Crossing 1	E/W Crossing 2	N/S Crossing 1	N/S Crossing 2
xlos# Conversion	206.10	206.10	62.67	45.40
XLOS	6.00	6.00	6.00	4.54

## Step 4: Total LOS Value

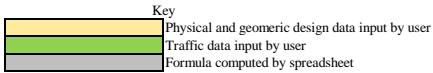
	EB1 + EW Crossing2	EB1 + NS Crossing1	EB2 +EW Crossing 2	EB2 + NS Crossing 2	WB1 + EW Crossing 1	WB1 + NS Crossing 1	WB2+EW Crossing 1	WB2+NS Crossing 2	NB1 + EW Crossing	NB1 + NS Crossing	NB2 + EW Crossing	NB2+ NS Crossing	SB1+ EW Crossing	SB1+ NS Crossing	SB2+ EW Crossing	SB2+ NS Crossing
NXLOS#	2.90	2.92	2.94	2.98	3.05	2.98	3.09	3.04	3.30	3.26	3.31	3.35	3.62	3.56	3.60	3.62
RCDF	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.17	1.20	1.16	1.20	1.20	1.20	1.20
Total LOS	3.47	3.50	3.53	3.58	3.66	3.58	3.71	3.65	3.96	3.81	3.97	3.88	4.35	4.27	4.31	4.34
LOS	C	C	D	D	D	D	D	D	D	D	D	D	E	E	E	E
Average LOS	3.85	D														

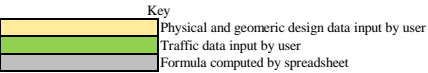
Look up Table 1

Wait or Divert	XLOS#
0	1
11	2
21	3
31	4
41	5
61	6

Look up Table 2

Total Value	LOS
<10	A
2.01	B
2.76	C
3.51	D
4.26	E
5.01	F

[illegible]



### Peoria St/13th Ave

#### Step 1: Pedestrian Link Analysis (P Seg)

	East Bound 1	East Bound 2	West Bound 1	West Bound 2	North Bound 1	North Bound 2	South Bound 1	South Bound 2
Wol = Width of outside lane in feet	17	15	17	15	18	11	11	11
Wl1 = Width of shoulder and or bike lane in feet	0	0	0	0	0	0	0	0
Fp = On street parking (if no = 0; if yes = .50)	0.5	0.5	0.5	0.5	0	0	0	0
%OSP = Percent of segment with on street parking	80%	80%	100%	100%	0%	0%	0%	0%
Fb = Type of buffer between walk and roadways (no buffer = 0; 20' spaced trees, bollards, or 3' high barrier = 5.37)	0	0	0	0	0	0	0	0
Wb = Buffer Width in feet including tree lawn or amenity zone	0	0	8	0	0	0	6	0
Ws = Sidewalk width	4	4	4	4	4	4	5	4
Fsw = Existing Sidewalk (6- 3*Ws)	4.80	4.80	4.80	4.80	4.80	4.80	4.50	4.80
AADT	4820	4250	4820	4250	34720	34260	34720	34260
V = Directional hourly traffic volume for one direction of traffic	165	130	170	160	1495	1490	935	955
RTOR = # per 15 min (.20*total right turns per 15 min)	5			4		3	2	
Permitted Left Turns = # per 15 min	7			8		14	13	
F1v (low volume factor)	1	1	1	1	1	1	1	1
PHF = Peak hour factor	0.84	0.84	0.88	0.88	0.96	0.96	0.93	0.93
L = Total number of directional through lanes	1	1	1	1	2	2	2	2
S = Speed (MPH)	30	30	30	30	40	40	40	40

P Seg	2.43	2.41	2.42	2.47	4.02	4.27	3.52	3.67
-------	------	------	------	------	------	------	------	------

E/W Crossing 1		E/W Crossing 2		N/S Crossing 1		N/S Crossing 2	
RTOR = # right turn on red in 15 minutes (20*total right turns per 15 min)	6	8		7		7	
PermLefts = # of permitted left turns in 15 minutes	7	8		14		13	
LanesCrossed = number of lanes to cross	3	3		7		7	
PerpTrafVol = Volume of curb lane in 15 minutes (using PHF and right lane volume ration of 1.05)	131.9556452	203.7109375		51.5625		47.72727273	
PedcycleDelay = (cycle length - green time)^2 / (2*cycle length)	15.63	15.63		5.63		5.63	
RTCI = Number of right turns channelization islands to cross	0	0		0		0	
P Int	2.67	3.06		2.84		2.82	

Crossing Distance (feet)	36	30	70	55
Pedestrian Speed (feet per second)	3.5	3.5	3.5	3.5
Average Vehicle Length	18	18	18	18
Average traffic volume for one direction (vehicles per second)	0.05	0.05	0.42	0.26
Average Vehicle Flow rate 2 directions	0.68	0.68	0.09	0.08
Average traffic speed (feet per second)	58.67	58.67	44.00	44.00
Average pass by time (veh length/veh speed)	0.31	0.31	0.41	0.41
Block length	1000	1000	1000	1000
Cycle length	80	80	80	80
Green time	30	30	50	50

Wait or Divert	XLOS#
0	1
11	2
21	3
31	4
41	5
61	6

Acceptable gap = crossing distance / Ped Walk Speed + 2 seconds	12.29
T = (acceptable gap + average veh pass time)	12.59
Mean wait	7266.77
Wait for Gap	7279.06

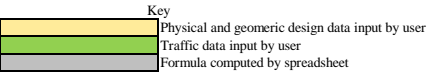
10.57	22.00	17.71
10.88	22.41	18.12
2368.07	53.32	22.91
2378.64	75.32	40.63

Ped Control/Cycle Delay	15.63	15.63	5.63	5.63
Ped Deviation Delay	190.48	190.48	190.48	190.48
Divert to signal	206.10	206.10	196.10	196.10

Total Value	LOS
-10	A
2.01	B
2.76	C
3.51	D
4.26	E
5.01	F

xlos# Conversion	206.10	206.10	75.32	40.63
XLOS	6.00	6.00	6.00	4.06

[illegible]

[illegible]



Approach

Approach Direction	EB
Median Present?	No
Approach Delay(s)	5.4
Level of Service	B

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	205
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.50
Prob of Blocked Lane	0.29
Delay for adq Gap	10.74
Avg Ped Delay (s)	5.36

Approach

Approach Direction	WB
Median Present?	No
Approach Delay(s)	5.4
Level of Service	B

Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	205
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.50
Prob of Blocked Lane	0.29
Delay for adq Gap	10.74
Avg Ped Delay (s)	5.36

#### Approach

Approach Direction	EB
Median Present?	No
Approach Delay(s)	6.7
Level of Service	B

#### Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	245
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.56
Prob of Blocked Lane	0.34
Delay for adq Gap	11.98
Avg Ped Delay (s)	6.74

#### Approach

Approach Direction	WB
Median Present?	No
Approach Delay(s)	6.7
Level of Service	B

#### Crosswalk

Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	245
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.56
Prob of Blocked Lane	0.34
Delay for adq Gap	11.98
Avg Ped Delay (s)	6.74

<b>Approach</b>	
Approach Direction	EB
Median Present?	No
Approach Delay(s)	7.3
Level of Service	B
<b>Crosswalk</b>	
Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	260
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.58
Prob of Blocked Lane	0.35
Delay for adq Gap	12.49
Avg Ped Delay (s)	7.29
<b>Approach</b>	
Approach Direction	WB
Median Present?	No
Approach Delay(s)	7.3
Level of Service	B
<b>Crosswalk</b>	
Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	260
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.58
Prob of Blocked Lane	0.35
Delay for adq Gap	12.49
Avg Ped Delay (s)	7.29

<b>Approach</b>	
Approach Direction	EB
Median Present?	No
Approach Delay(s)	9.3
Level of Service	B
<b>Crosswalk</b>	
Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	310
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.65
Prob of Blocked Lane	0.41
Delay for adq Gap	14.32
Avg Ped Delay (s)	9.29
<b>Approach</b>	
Approach Direction	WB
Median Present?	No
Approach Delay(s)	9.3
Level of Service	B
<b>Crosswalk</b>	
Length (ft)	32
Lanes Crossed	2
Veh Vol Crossed	310
Ped Vol Crossed	0
Yield Rate(%)	0
Ped Platooning	No
Critical Headway (s)	12.14
Prob of Delayed X-ing	0.65
Prob of Blocked Lane	0.41
Delay for adq Gap	14.32
Avg Ped Delay (s)	9.29