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# TRAFFIC IMPACT STUDY

For

**Project Rio  
City of Thornton  
Adams County, Colorado**

*Prepared For:*

**TC Denver Development, Inc.  
1225 17<sup>th</sup> Street, Suite 3175  
Denver, CO 80202**

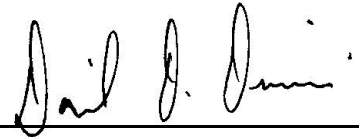
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100612301**

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## **EXECUTIVE SUMMARY**

TC Denver Development, Inc. has retained Langan Engineering and Environmental Services to prepare a traffic impact study for a proposed 856,600 square foot (sf) distribution center. The development property had previously been approved for a mixed-use development, which consisted of a hotel and retail space. The previously approved development was part of a May 2010 traffic study submitted by SM Rocha, LLC. The proposed distribution center will be supported by 2,502 car parking spaces, 378 trailer parking spaces and 67 loading docks.

The overall development is 88-acres and is located in the northeast quadrant of the 144<sup>th</sup> Avenue and Interstate 25 (I-25) interchange. The development is bounded by Washington Street to the east, I-25 to the west, undeveloped land to the north and 144<sup>th</sup> Avenue to the south. The development is located in the City of Thornton, Adams County, Colorado.

Regional access to the distribution center will be provided via I-25. Direct access to the development will be provided via one access driveway along 144<sup>th</sup> Avenue, one access driveway via the 144<sup>th</sup> Avenue underpass along Lincoln Way, and four access driveways along Grant Street. As part of the development it is proposed to extend Grant Street to the north to provide a connection from 144<sup>th</sup> Avenue to 148<sup>th</sup> Avenue. 146<sup>th</sup> Avenue and 148<sup>th</sup> Avenue will be constructed as part of the Grant Street extension. 146<sup>th</sup> Avenue and 148<sup>th</sup> Avenue will provide a connection between Grant Street and Washington Street. The concept plan depicting the access points is included in Appendix A.

We estimated the number of new trips the proposed distribution center would generate based on tenant-specific projected operations. The trip generation estimates are based on operations during the peak operating season (November – December). The proposed distribution center is anticipated to begin operations in 2018. We estimate that the proposed distribution center will generate approximately 1,058 trips (1,033 enter, 25 exit) during the weekday morning peak hour and 2,190 trips (1,096 enter, 1,094 exit) during the weekday evening peak hour. The trip generation during the non-peak operating season (January – October) is approximately 40 percent less than during the peak operating season. We used the peak season operations to show a conservative analysis.

We determined the directional distribution of the site-generated traffic based on existing and expected travel patterns in the study area, and a review of approved traffic studies in the site's vicinity, most notably the Denver Premium Outlets dated August 2016.

We conducted capacity analyses for the 2018 short-term year, as well as the 2037 long-term year, per City of Thornton requirements. The analyses were conducted at the following intersections:

- 144<sup>th</sup> Avenue and I-25 SB Ramps
- 144<sup>th</sup> Avenue and I-25 NB Ramps
- 144<sup>th</sup> Avenue and Lincoln Street
- 144<sup>th</sup> Avenue and Grant Street
- 144<sup>th</sup> Avenue and Washington Street
- Proposed 146<sup>th</sup> Avenue/School Driveway and Washington Street
- Lincoln Street and Lincoln Way
- Proposed 148<sup>th</sup> Avenue and Washington Street
- Grant Street and Proposed 146<sup>th</sup> Avenue/Site Driveway 2
- Grant Street and Proposed 148<sup>th</sup> Avenue/Site Driveway 3
- Grant Street and Site Driveway 4
- Grant Street and Site Driveway 5

As part of this development, we propose the following improvements for the 2018 short-term year as well as the 2037 long-term year:

- The existing eastbound 144<sup>th</sup> Avenue approach at the intersection with Lincoln Street currently provides two through lanes and a right-turn lane. We propose to widen the eastbound approach to provide three through lanes and an exclusive right-turn lane providing 220' of storage and a 165' taper. There are currently three receiving lanes for the eastbound approach, which would allow for the widening to occur with minimal impact. We also proposed to re-stripe the westbound approach to provide two left-turn lanes, two through lanes, and a shared through/right-turn lane. The through/right turn lane will provide 205' of storage and a 100' taper. The southbound site driveway approach will intersect 144<sup>th</sup> Avenue directly across from Lincoln Street and provide a left-turn lane, a shared through/right-turn lane, and a right-turn lane.
- We will extend Grant Street to the north from its current intersection with 144<sup>th</sup> Avenue to the proposed 148<sup>th</sup> Avenue. The extension will be constructed as two lanes in each direction, separated by a median, and will include pedestrian accommodations. The proposed extension will provide four direct-access driveways to the development.
- With the extension of Grant Street across 144<sup>th</sup> Avenue, the intersection will become a four-leg intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach will provide two left-turn lanes, two through lanes and a right-turn lane. The left-turn lanes will provide 185' of storage and a 150' taper. The westbound 144<sup>th</sup> Avenue approach

will provide two left-turn lanes, two through lanes, and a right-turn lane. The right-turn lane will provide 200' of storage and a 100' taper. The northbound Grant Street approach will provide two left-turn lanes, two through lanes, and a right-turn lane. The southbound Grant Street approach will provide two left-turn lanes, two through lanes, and a right-turn lane. The right-turn lane will provide 250' of storage and a 150' taper. The left-turn lanes will provide 150' of storage and a 150' taper.

- At the intersection of 144<sup>th</sup> Avenue and Washington Street we propose to extend the eastbound left-turn lanes to provide 300' of storage and a 165' taper.
- 146<sup>th</sup> Avenue will be constructed directly across from the northern Stargate Charter School signalized driveway, and extend to the west to connect with the proposed Grant Street connection. 146<sup>th</sup> Avenue will become the fourth leg at the signalized intersection. The eastbound 146<sup>th</sup> Avenue approach will provide a left-turn lane, a through lane, and a right-turn lane. The eastbound right turn will have an overlap and a green arrow during the northbound and southbound left turn protected phase. The left-turn lane will provide 100' of storage and a 135' taper. The right-turn lane will provide 250' of storage and a 135' taper. The westbound School Driveway approach will continue to provide two left-turn lanes and a shared through/right-turn lane. The northbound Washington Street approach will provide two left-turn lanes, two through lanes and a right-turn lane. The left-turn lanes will provide 200' of storage and a 100' taper. The southbound Washington Street approach is proposed to provide a left-turn lane, three through lanes, and a right-turn lane.
- 148<sup>th</sup> Avenue will be constructed from the extension of Grant Street to Washington Street. 148<sup>th</sup> Avenue will intersect Washington Street to form a T-shaped stop-controlled intersection. The eastbound proposed 148<sup>th</sup> Avenue approach will provide a left-turn lane, a shared through/right-turn lane, and will be "stop"-controlled. The left-turn lane is proposed to provide 100' of storage and a 135' taper. The northbound Washington Street approach will provide a shared left-turn/through lane. The southbound Washington Street approach will provide a shared through/right-turn.
- In the 2037 long-term, we propose to add right-turn overlap signal heads on each approach at both the 144<sup>th</sup> Avenue & Grant Street and the 144<sup>th</sup> Avenue & Washington Street intersections. Additionally, we propose to add a right-turn overlap signal head on the eastbound approach at 144<sup>th</sup> Avenue and Lincoln Street. This will allow the right-turn movement to run during the protected left-turn phases and will allow more vehicles to be processed through the intersection.

- In the 2037 long-term, along the 144<sup>th</sup> Avenue corridor, the weekday evening peak hour cycle length should be increased from a 100 second cycle length to a 120 second cycle length. Additional timing improvements are discussed in the Analysis of Future Traffic Operations section.
- To improve capacity along 144<sup>th</sup> Avenue, from I-25 to Washington Street, the roadway should, in the long term (20 years) be widened to allow an additional lane in each direction (six through lanes total). The future widening is included as a recommendation in the 2009 City of Thornton Transportation Plan.

We do not expect the proposed distribution center to significantly impact area traffic operations during peak traffic hours in the short-term (2018). Based on our analyses, we determined the adjacent roadway network has sufficient capacity to accommodate the site-generated traffic associated with the proposed distribution center in the short-term (2018) with the above recommended improvements. More specifically, future traffic conditions at all signalized intersections are expected to operate at acceptable overall levels of service during the 2018 build year.

## **INTRODUCTION**

TC Denver Development, Inc. has retained Langan Engineering and Environmental Services to prepare a traffic impact study for a proposed 856,600 square foot (sf) distribution center. The development property had previously been approved for a mixed-use development, which consisted of a hotel and retail space. The previously approved development was part of a May 2010 traffic study submitted by SM Rocha, LLC.

The overall development is 88-acres and is located in the northeast quadrant of the 144<sup>th</sup> Avenue and Interstate 25 (I-25) interchange. The development is bounded by Washington Street to the east, I-25 to the west, undeveloped land to the north and 144<sup>th</sup> Avenue to the south. The development is located in the City of Thornton, Adams County, Colorado.

### **Project Description**

The purpose of this traffic impact study is to analyze the impact of an 856,000 sf distribution center on the adjacent roadway network. Original approval of the mixed-use development consisted of approximately 565,000 sf of retail space and a 300-room hotel. Based on the most recent development plan provided by Langan, the development proposes to replace the approved mixed-use development with an 856,000 sf distribution center located in the northwest quadrant of the 144<sup>th</sup> Avenue and Washington Street intersection. The building will be supported by 2,502 car parking spaces, 378 trailer parking spaces and 67 loading docks.

Regional access to the distribution center will be provided via I-25. Direct access to the development will be provided via one access driveway along 144<sup>th</sup> Avenue, one access driveway via the 144<sup>th</sup> Avenue underpass along Lincoln Way, and four access driveways along Grant Street. As part of the development it is proposed to extend Grant Street to the north to provide a connection from 144<sup>th</sup> Avenue to 148<sup>th</sup> Avenue. 146<sup>th</sup> Avenue and 148<sup>th</sup> Avenue will be constructed as part of the Grant Street extension. 146<sup>th</sup> Avenue and 148<sup>th</sup> Avenue will provide a connection between Grant Street and Washington Street. The concept plan depicting the access points is included in Appendix A.

### **Study Area**

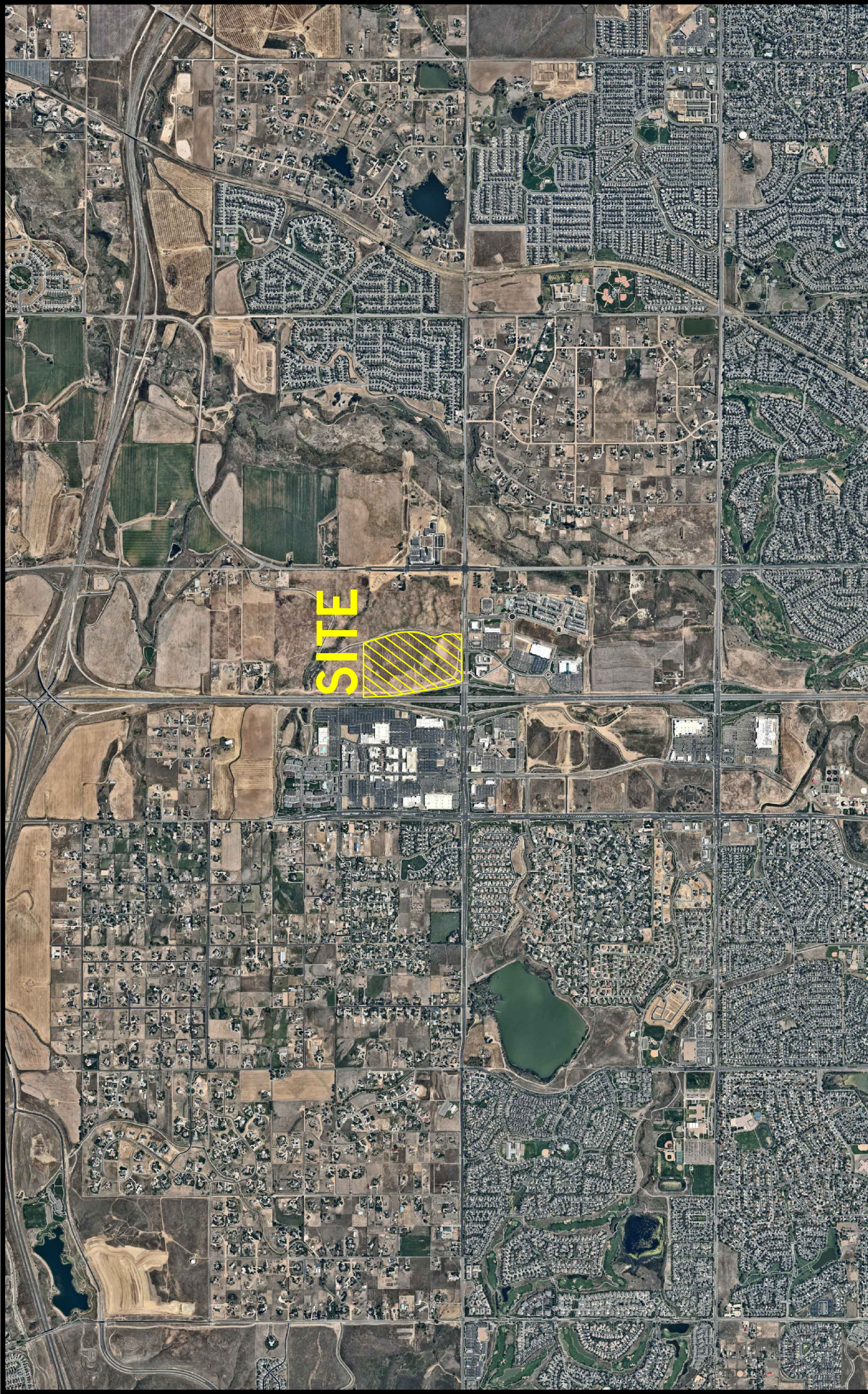
We conducted capacity analyses for the 2018 short-term year as well as the 2037 long-term year per City of Thornton requirements. The analyses were conducted at the following intersections:

- 1144<sup>th</sup> Avenue and I-25 SB Ramps
- 144<sup>th</sup> Avenue and I-25 NB Ramps



- 144<sup>th</sup> Avenue and Lincoln Street
- 144<sup>th</sup> Avenue and Grant Street
- 144<sup>th</sup> Avenue and Washington Street
- Proposed 146<sup>th</sup> Avenue/School Driveway and Washington Street
- Lincoln Street and Lincoln Way
- Proposed 148<sup>th</sup> Avenue and Washington Street
- Grant Street and Proposed 146<sup>th</sup> Avenue/Site Driveway 2
- Grant Street and Proposed 148<sup>th</sup> Avenue/Site Driveway 3
- Grant Street and Site Driveway 4
- Grant Street and Site Driveway 5

An inventory of the physical road conditions is presented in the section “Description of Existing Conditions.”



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	<p><b>PROJECT RIO</b></p> <p>CITY OF THORNTON</p> <p>ADAMS COUNTY</p> <p>COLORADO</p>	<p><b>SITE LOCATION MAP</b></p>	<p>100612301</p> <p>02/09/2017</p> <p>N.T.S.</p> <p>Checked By EJV</p> <p>Submission Date FEBRUARY 2017</p>
<p>NI CERTIFICATE OF AUTHORIZATION No. 24GA27996405</p>		<p>Sheet 1 of 13</p>	

## **DESCRIPTION OF EXISTING CONDITIONS**

This section describes the major roads and intersections, traffic volumes, and existing operations in the area of the overall development in the City of Thornton, Adams County, Colorado.

### **Roads**

#### Interstate 25

I-25 is classified as an interstate. The roadway has a general north-south orientation and provides three travel lanes in each direction within the study area with additional auxiliary lanes provided at interchange ramps. The northbound and southbound travel lanes are separated by a concrete median. The posted speed limit is 75 mph.

#### 144<sup>th</sup> Avenue (Major Road)

144<sup>th</sup> Avenue is classified as a major arterial. The roadway has a general east-west orientation and generally provides two travel lanes in each direction with additional turn lanes at each intersection. The eastbound and westbound travel lanes are separated by a concrete median. The posted speed limit is 45 mph.

#### Lincoln Street

Lincoln Street has a general north-south orientation and provides one travel lane in each direction with a two-way-left-turn median within the study area. The posted speed limit is 30 mph.

#### Grant Street

Grant Street is classified as a minor arterial. The roadway has a general north-south orientation and provides two vehicle travel lanes and one bicycle travel lane in each direction within the study area. The northbound and southbound travel lanes are separated by a concrete median. The posted speed limit is 35 mph.

#### Washington Street (Major Road)

Washington Street is classified as a major arterial. The roadway has a general north-south orientation and generally provides two travel lanes in each direction with additional turn lanes at each intersection. The northbound and southbound travel lanes are separated by a concrete median. The posted speed limit is 55 mph.

## **Intersections**

### 144<sup>th</sup> Avenue and I-25 Southbound Ramps

The I-25 southbound ramps intersect 144<sup>th</sup> Avenue to form a four-leg intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach provides two through lanes, a through lane that is an extension of the left-turn lane at the I-25 northbound ramps, and a channelized right-turn lane under yield-control. The westbound 144<sup>th</sup> Avenue approach provides two left-turn lanes and two through lanes. The southbound I-25 ramp approach provides two left-turn lanes and a channelized right-turn lane that free-flows into an auxiliary lane. The signal operates under three phases with a 100-second background cycle length.

### 144<sup>th</sup> Avenue and I-25 Northbound Ramps

The I-25 northbound ramps intersect 144<sup>th</sup> Avenue to form a four-leg intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach provides two left-turn lanes and two thru lanes. The westbound 144<sup>th</sup> approach provides two through lanes, two through lanes that are extensions of the left-turn lanes at the I-25 southbound ramps, and a channelized right-turn lane under yield-control. The northbound I-25 ramp approach provides two left-turn lanes and one channelized right-turn lane that free-flows into an auxiliary lane. The signal operates under three phases with a 100-second background cycle length.

### 144<sup>th</sup> Avenue and Lincoln Street

Lincoln Street intersects 144<sup>th</sup> Avenue to form a T-shaped intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach provides two through lanes and a right-turn lane. The westbound 144<sup>th</sup> Avenue approach provides two left-turn lanes and three through lanes. The northbound Lincoln Street approach provides two left-turn lanes and a right-turn lane. The signal operates under three phases with a 100-second background cycle length.

### 144<sup>th</sup> Avenue and Grant Street

Grant Street intersects 144<sup>th</sup> Avenue to form a T-shaped intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach provides two left-turn lanes, two through lanes, and a right-turn lane. The westbound 144<sup>th</sup> Avenue approach provides two left-turn lanes and two through lanes. The northbound Grant Street approach provides two left-turn lanes, two through that are currently coned and closed, and a right-turn lane. The signal operates under three phases with a 100-second background cycle length.

### 144<sup>th</sup> Avenue and Washington Street

Washington Street intersects 144<sup>th</sup> Avenue to form a four-leg intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach provides two left-turn lanes, two through lanes and one

right-turn lane. The westbound 144<sup>th</sup> Avenue approach provides two left-turn lanes, two through lanes and one right-turn lane. The northbound Washington Street approach provides two left-turn lanes, two through lanes and one right-turn lane. The southbound Washington Street approach provides two left-turn lanes, two through lanes and one right-turn lane. The signal operates under four phases with a 100-second background cycle length.

#### Washington Street and School Driveway

The School Driveway intersects Washington Street to form a T-shaped intersection under signal control. The westbound School Driveway approach provides two left turn lanes and one shared through/right-turn lane. The northbound Washington Street approach provides one left-turn lane, two through lanes and one right-turn lane. The southbound Washington Street approach provides one left-turn lane, three through lanes, and one right-turn lane. The signal operates under four phases with a 100-second background cycle length.

#### Lincoln Street and Lincoln Way

Lincoln Way intersects Lincoln Street to form a four-leg intersection under stop control. The eastbound Lincoln Way approach provides one shared left-turn, through and right-turn lane and is "stop"-controlled. The westbound Lincoln Way approach provides one shared left-turn, through and right-turn lane and is "stop"-controlled. The northbound Lincoln Street approach provides one through lane, one channelized right-turn lane under yield control, and a two-way-left-turn median. The southbound Lincoln Street approach provides one shared through/right-turn lane and a two-way-left-turn median.

## **Traffic Volumes**

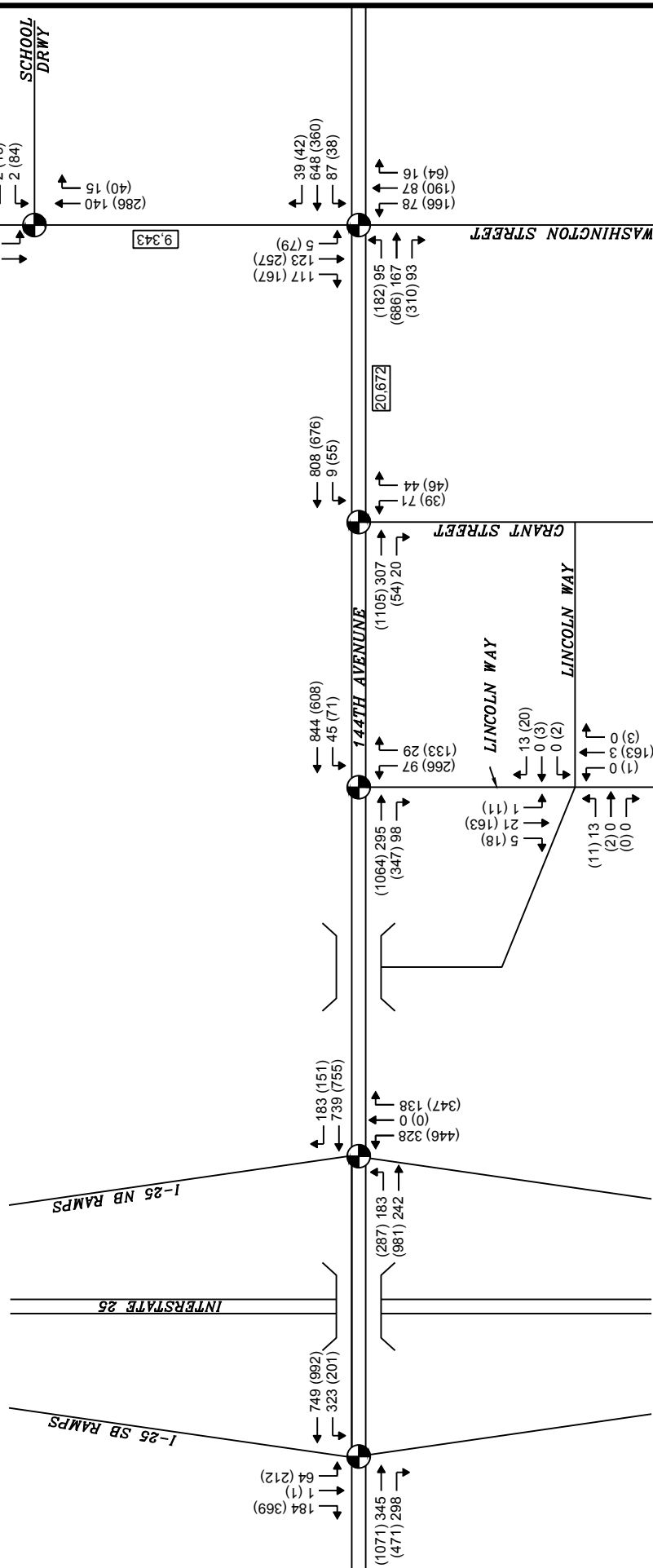
We arranged for traffic counts to be conducted during morning and evening peak periods on a typical weekday at the study intersections to examine traffic conditions near the development. Specifically, we arranged for manual turning movement counts to be conducted on Thursday, 12 January 2017 from 5:00 AM to 9:00 AM and from 4:00 PM to 8:00 PM. Additionally, ATR (Automatic Traffic Recorders) counts were conducted on both 144<sup>th</sup> Avenue and Washington Street from 12:00 PM on Monday, January 9, 2017, to 12:00 PM on Friday, January 17, 2017.

It is noted that the tenant specific data indicates that peak shift turnover periods and traffic activity associated with the proposed development generally do not coincide with the roadway peak hours. The morning shift turnover for the facility occurs between 6:30 AM to 7:30 AM. During the evening, the shift turnover period occurs between 5:00 PM to 6:00 PM. For the purpose of this study, analyses were conducted during the proposed development's peak hours instead of the street peak hours. Figure 2 illustrates the existing weekday morning and evening peak hour traffic volumes as well as the AADT (Annual Average Daily Traffic) volumes. We obtained the AADT volumes from the ATR counts we performed.

Figure 2 illustrates the existing weekday morning and evening peak hour traffic volumes. Summaries of the manual traffic counts are contained in Appendix C.



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - 20.672 AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL



<p><b>LANGAN</b></p> <p>300 Kimball Drive Parsippany, NJ 07054 T: 973-560-4900 F: 973-560-4901 www.langan.com</p> <p>Longan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., S.A. Longan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Longan Engineering and Environmental Services, Inc. Longan CT, Inc. Longan International LLC Collectively known as Langan</p>	<p>Project</p> <p><b>PROJECT RIO</b></p> <p>CITY OF THORNTON</p> <p>ADAMS COUNTY</p> <p>COLORADO</p>	<p>Drawing Title</p> <p><b>2017 EXISTING TRAFFIC VOLUMES</b></p>	<p>Drawing No.</p> <p><b>FIGURE 2</b></p>
	<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>
<p>Checked By</p> <p>EJV</p>	<p>Drawn By</p> <p>EJV</p>	<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Sheet 2 of 13</p>

Project: PROJECT RIO, City of Thornton, Adams County, Colorado

Drawing Title: 2017 EXISTING TRAFFIC VOLUMES

Drawing No.: FIGURE 2

Project No.: 100612301

Date: 02/09/2017

Scale: N.T.S.

Checked By: EJV

Drawn By: EJV

Submission Date: FEBRUARY 2017

Sheet 2 of 13

## Capacity Analyses

We conducted capacity analyses for the study intersections to determine the existing traffic operations during peak hours. Table 1 summarizes the 2017 existing levels of service (LOS) for each of the study intersections during the weekday morning and evening peak hours. Summary sheets of the capacity analyses are contained in Appendix E. The 2010 Highway Capacity Manual (HCM) LOS criteria for both unsignalized and signalized intersections is also contained in Appendix E.

Based on a review of Table 1, all the signalized intersections are currently operating at an overall LOS C or better during both the weekday morning and evening peak hours. Additionally, all movements at the Lincoln Street and Lincoln Way intersection are currently operating at LOS B or better during both the weekday morning and evening peak hours. Figure 3 summarizes the existing lane geometry at each intersection.

**Table 1 – Intersection Capacity Analysis Summary (Existing)**

Location	Movement	2017 Existing Traffic		
		AM	PM	
<b>Signalized Intersections</b>				
144- Avenue and I-25 SB Ramps	EB	T	B (10.2)	B (12.9)
		R	A (0.3)	A (0.5)
	WB	L	D (46.1)	D (47.7)
		T	A (4.7)	A (9.3)
	SB	L	D (48.8)	D (50.2)
		R	A (0.2)	A (0.4)
<b>Overall</b>		<b>B (12.8)</b>	<b>B (13.2)</b>	
144- Avenue and I-25 NB Ramps	EB	L	D (38.8)	C (27.8)
		T	A (0.8)	A (3.3)
	WB	T	B (19.5)	C (26.0)
		R	A (0.2)	A (0.1)
	NB	L	D (47.5)	D (45.9)
		R	A (0.1)	A (0.3)
<b>Overall</b>		<b>C (20.6)</b>	<b>B (17.3)</b>	
144- Avenue and Lincoln Street	EB	T	A (5.3)	A (7.5)
		R	A (1.2)	A (1.2)
	WB	L	D (46.4)	D (50.5)
		T	A (3.8)	A (6.9)
	NB	L	D (46.3)	D (46.2)
		R	B (17.4)	B (10.4)
<b>Overall</b>		<b>A (8.5)</b>	<b>B (12.0)</b>	
144- Avenue and Grant Street	EB	T	A (2.2)	A (4.5)
		R	A (0.8)	A (0.7)
	WB	L	D (35.7)	D (40.4)
		T	A (3.0)	A (1.9)
	NB	L	D (46.1)	D (45.1)
		R	B (16.9)	B (18.2)
<b>Overall</b>		<b>A (5.9)</b>	<b>A (5.6)</b>	

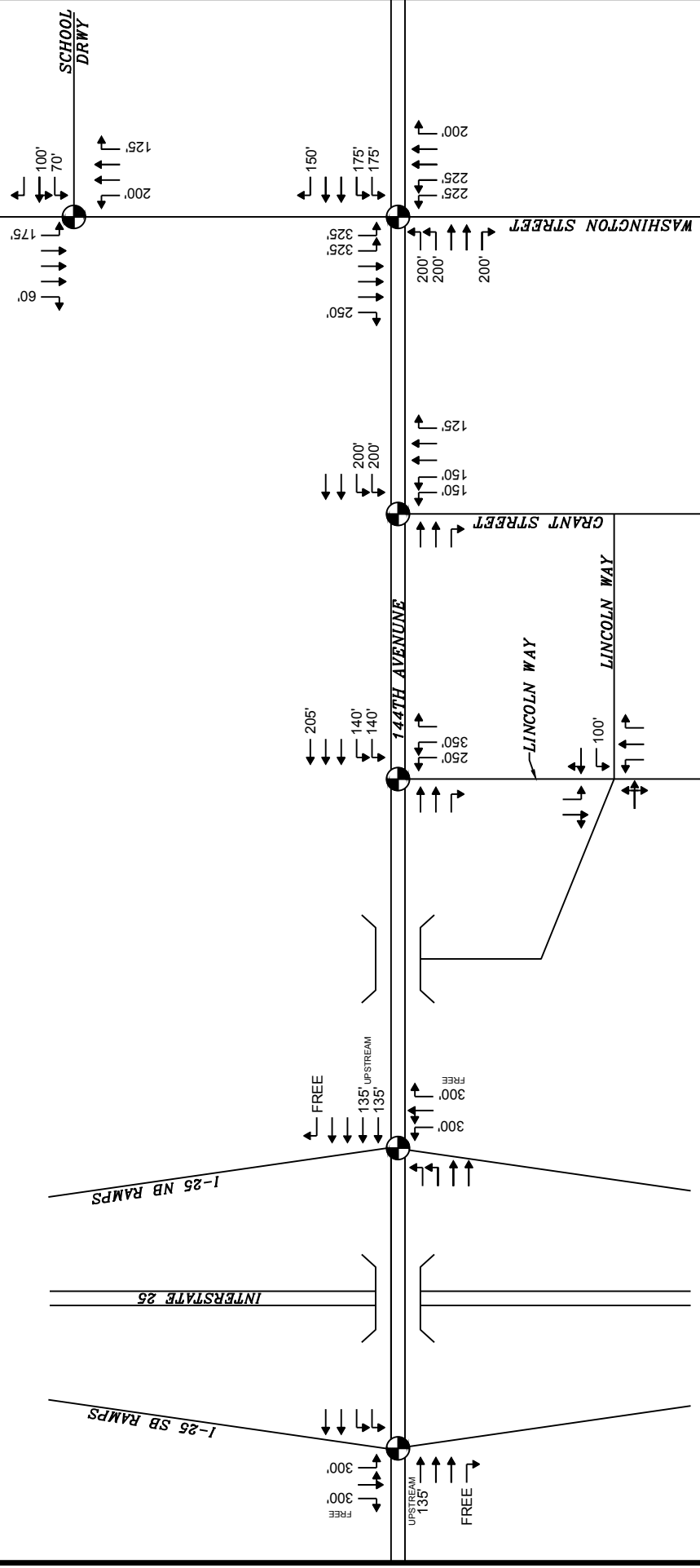


**Table 1 Cont'd – Intersection Capacity Analysis Summary (Existing)**

Location	Movement	2017 Existing Traffic		
		AM	PM	
<b>Signalized Intersections</b>				
144 <sup>+</sup> Avenue and Washington Street	EB	L	E (57.9)	C (32.9)
		T	A (7.0)	C (31.6)
		R	A (1.6)	B (16.9)
	WB	L	D (46.2)	D (45.5)
		T	B (15.4)	B (19.8)
		R	A (0.1)	A (0.1)
	NB	L	D (46.1)	D (48.8)
		T	D (35.7)	D (40.9)
		R	A (0.2)	A (1.2)
	SB	L	D (49.6)	D (50.7)
		T	D (44.9)	D (39.4)
R		A (4.5)	B (10.2)	
<b>Overall</b>		<b>C (21.8)</b>	<b>C (28.9)</b>	
Washington Street and Proposed 146 <sup>+</sup> Avenue/ School Driveway	WB	L	D (42.5)	D (43.1)
		T,R	A (0.0)	A (0.1)
	NB	T	A (0.3)	A (0.4)
		R	A (0.0)	A (0.1)
	SB	L	D (45.0)	D (45.8)
		T	A (0.6)	A (2.3)
<b>Overall</b>		<b>A (0.9)</b>	<b>A (6.4)</b>	
<b>Unsignalized Intersections</b>				
Lincoln Street and Lincoln Way	EB	L,T,R	A (8.9)	B (13.0)
	WB	L	A (0.0)	B (12.4)
		T,R	A (8.4)	B (10.0)
	NB	L	A (0.0)	A (7.7)
	SB	L	A (7.2)	A (7.7)
<b>Overall</b>		<b>A (4.2)</b>	<b>A (1.3)</b>	



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - STORAGE LENGTH
  - TRAFFIC SIGNAL



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	Drawing Title	<p><b>2017 EXISTING LANE GEOMETRY</b></p>	
Drawing No.	<p><b>FIGURE 3</b></p>		
Project No.	100612301	Date	02/09/2017
Scale	N.T.S.	Drawn By	EJV
Checked By	N.T.S.	Submission Date	FEBRUARY 2017
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## PROPOSED CONDITIONS

### Site-Generated Trips

The overall development was originally approved for approximately 565,000 sf of retail space and a 300-room hotel. The trip generation estimates for the original approval are summarized in Table 2. As per the 2010 traffic studies, the trip generation was determined based on the data published by the Institute of Transportation Engineers (ITE) for Land Use Code 820 (Shopping Center) and Land Use Code 310 (Hotel) as contained in Trip Generation, 7<sup>th</sup> edition.

**Table 2 – Trip Generation Estimates – Original Approval**

Use	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
565,000 sf Retail	2,676	117	84	201	103	107	210
300-room Hotel	24,261	355	227	582	1,017	1,102	2,119
<b>Total</b>	<b>26,937</b>	<b>472</b>	<b>311</b>	<b>783</b>	<b>1,120</b>	<b>1,209</b>	<b>2,329</b>
15% Internal Capture	4,040	71	46	117	168	181	349
<b>Total New Trips</b>	<b>22,897</b>	<b>401</b>	<b>265</b>	<b>666</b>	<b>952</b>	<b>1,028</b>	<b>1,979</b>

We prepared trip generation estimates for the proposed distribution center based on tenant-specific projected operations. The trip generation estimates are based on operations during the anticipated peak operating season (November – December). During other times of the year the trip generation would be significantly less (approximately 40 percent), as shown in the table below. Table 3 summarizes the trip generation estimates for the distribution center during the weekday morning and evening peak hours.

**Table 3 – Future Trip Generation Estimates – Proposed 856,600 sf Distribution Center**

Use	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
<b>Peak Operating Season (November – December)</b>							
Passenger Cars*	10,586	1,128	12	1,140	1,201	1,201	2,402
<i>10% Carpool Reduction</i>	<i>1,059</i>	<i>113</i>	<i>1</i>	<i>114</i>	<i>120</i>	<i>120</i>	<i>240</i>
Passenger Cars W/ Reduction	9,527	1,015	11	1,026	1,081	1,081	2,162
Trucks*	654	18	14	32	15	13	28
<b>Total</b>	<b>10,181</b>	<b>1,033</b>	<b>25</b>	<b>1,058</b>	<b>1,096</b>	<b>1,094</b>	<b>2,190</b>
<b>Non-Peak Operation Season (January – October)</b>							
Passenger Cars	6,352	677	7	684	721	720	1,441
Trucks	392	11	8	19	9	8	17
<b>Total</b>	<b>6,744</b>	<b>688</b>	<b>15</b>	<b>703</b>	<b>730</b>	<b>728</b>	<b>1,458</b>

\*Based on Tenant specific data.

We have prepared the following table to compare the trip generation associated with the proposed distribution center to the peak hour trips generated by the previously approved mixed-use development.

**Table 4 – Trip Generation Comparison**

Use	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Previously Approved Development	22,897	401	265	666	952	1,028	1,979
Proposed – Distribution Center	10,181	1,033	25	1,058	1,096	1,094	2,190
Difference	-12,716	+632	-240	+392	+144	+66	+210

Based on a review of the peak hour traffic generation, it is concluded that, in general, the proposed distribution center will generate more overall peak hour traffic demands entering and exiting the driveways as compared to the previously approved mixed-use development. We calculated that there is an increase of 392 (+ 632 enter, - 240 exit) trips during the morning peak hour and 210 (+ 144 enter, + 66 exit) trips during the evening peak hour associated with the proposed distribution center use as compared to the previously approved mixed-use development.

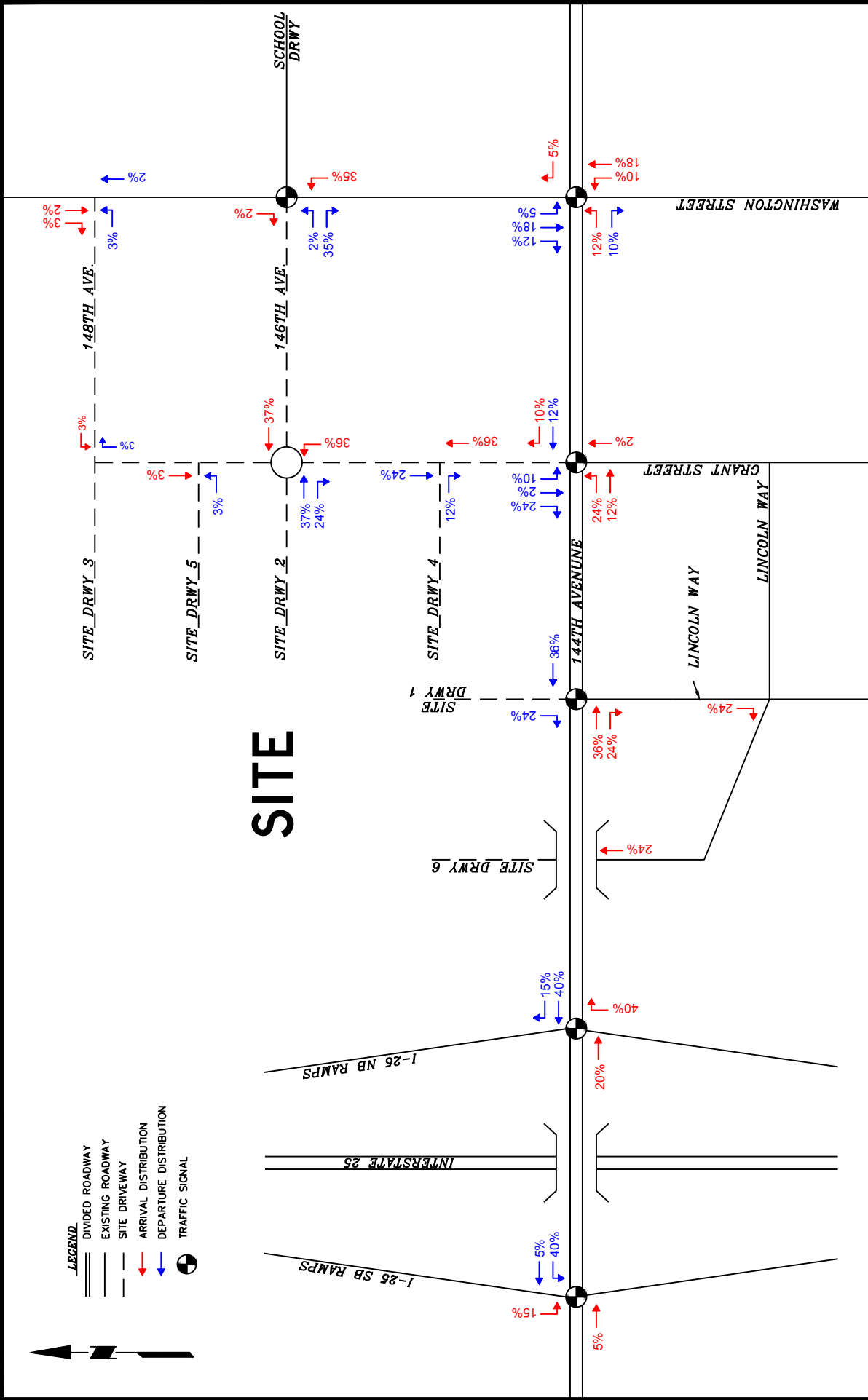
**Trip Distribution**

We determined the directional distribution of the site-generated trips based on existing and expected travel patterns in the study area, and a review of approved traffic studies in the development’s vicinity, most notably the Denver Premium Outlets dated August 2016. The directional distributions of site-generated trips are summarized in Table 5.

**Table 5 – Trip Distribution**

Direction (To/From)	Passenger Car Arrival & Departure	Truck Arrival & Departure
I-25 (North)	15%	20%
I-25 (South)	40%	70%
144 <sup>th</sup> Avenue (East)	5%	-
144 <sup>th</sup> Avenue (West)	5%	-
Washington Street (North)	5%	10%
Washington Street (South)	28%	-
Grant Street (South)	2%	-
<b>Total</b>	<b>100%</b>	<b>100%</b>

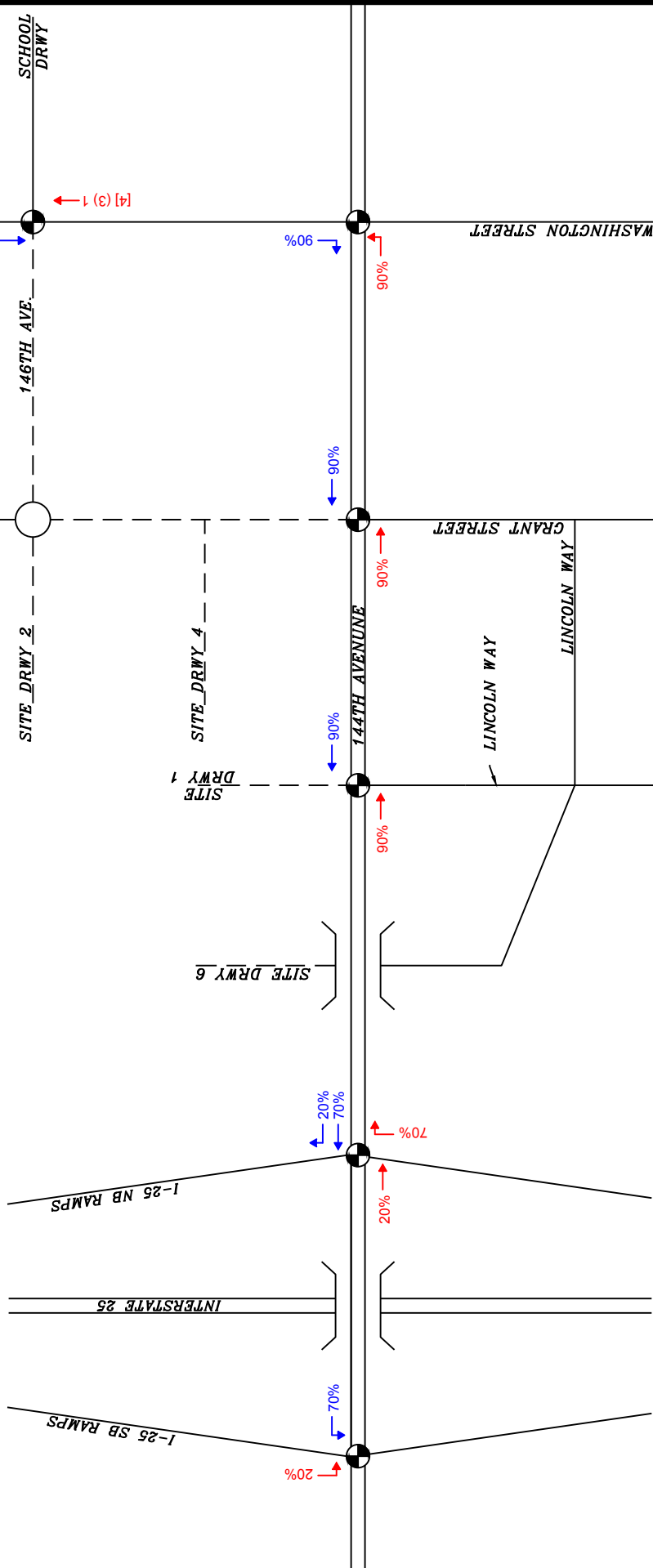
We assigned the site-generated traffic to the adjacent roadway system as per the above distributions. Figures 4 and 5 show the arrival and departure distributions for passenger cars and trucks, respectively. Figures 6 and 7 show the site-generated traffic for the passenger cars and trucks, respectively. Figure 8 shows the total site-generated traffic assigned to the roadway network.



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	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>	<p>Scale</p> <p>N.T.S.</p>
<p>Submission Date</p> <p>FEBRUARY 2017</p>		<p>Sheet 4 of 13</p>	



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ARRIVAL DISTRIBUTION
  - ← DEPARTURE DISTRIBUTION
  - TRAFFIC SIGNAL

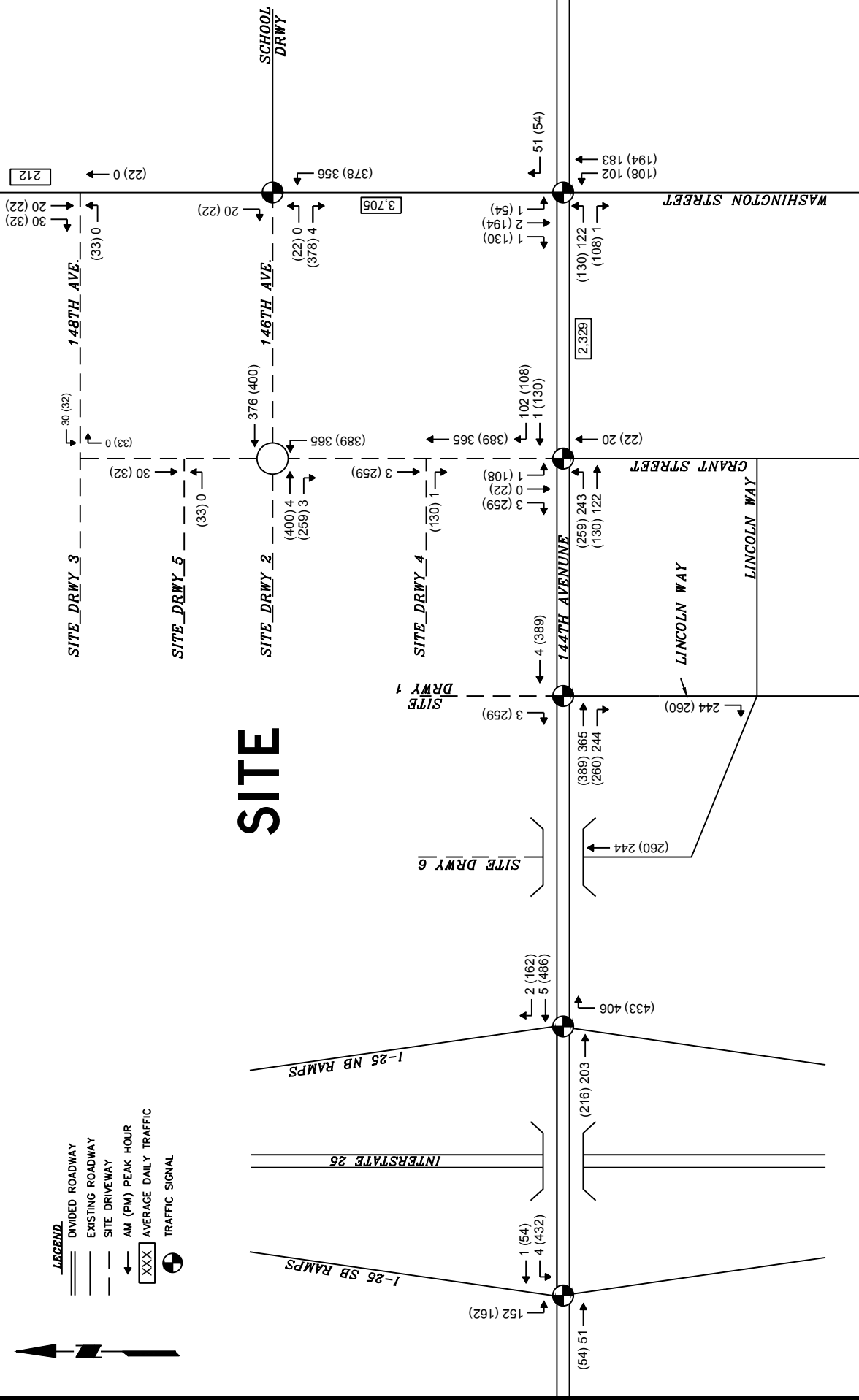


Project No. 100612301	Drawing No. <b>FIGURE 5</b>	
	Date 02/09/2017	Scale N.T.S.
Drawn By EJV	Checked By N.T.S.	Submission Date FEBRUARY 2017
Project <b>PROJECT RIO</b>		Sheet <b>5</b> of <b>13</b>
Drawing Title <b>TRUCK ARRIVAL AND DEPARTURE DISTRIBUTIONS</b>		ADAMS COUNTY COLORADO
City of Thornton		ADAMS COUNTY COLORADO
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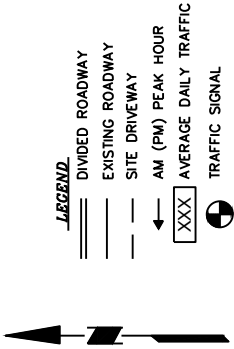


- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - AM (PM) PEAK HOUR
  - AVERAGE DAILY TRAFFIC
  - TRAFFIC SIGNAL

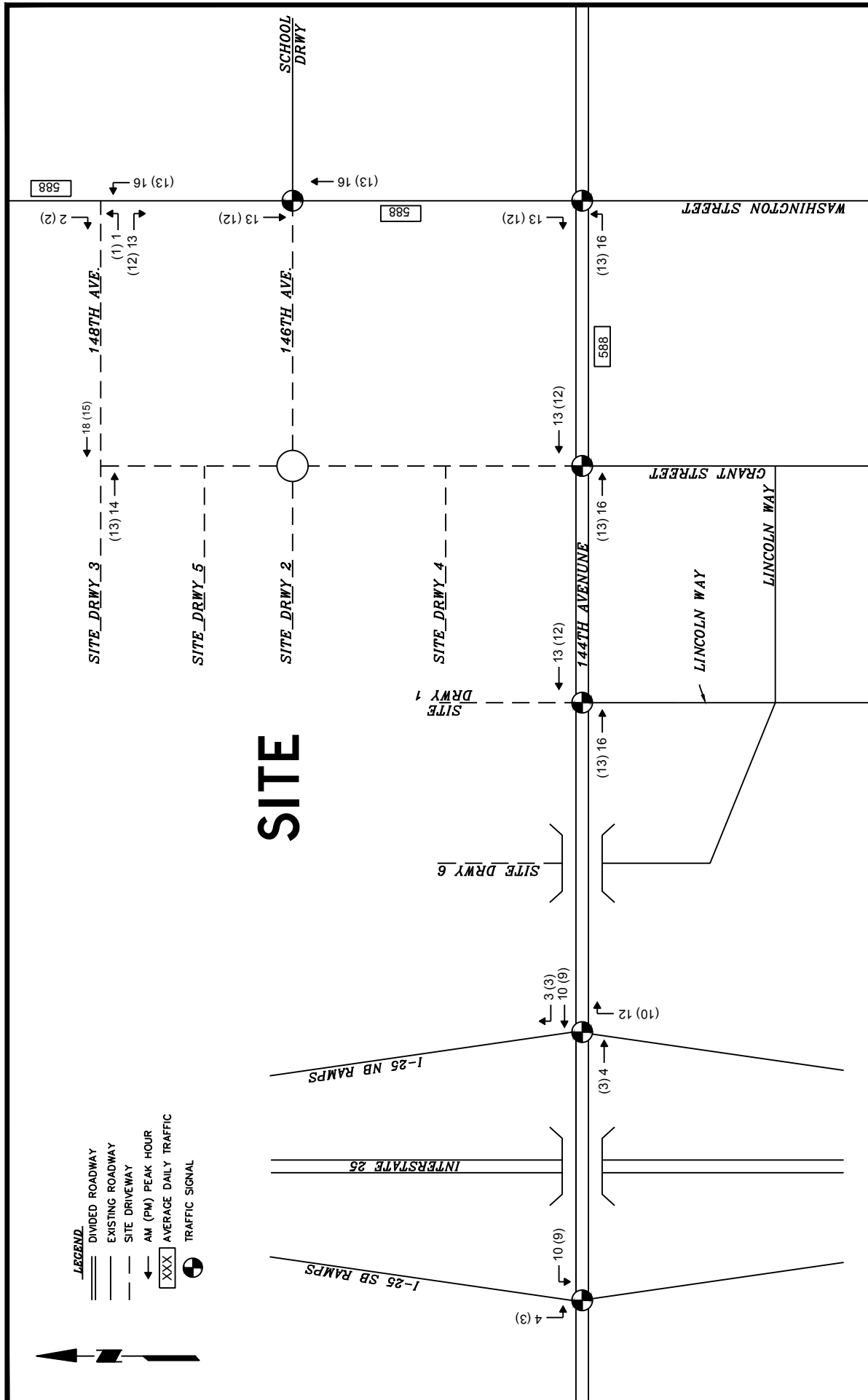
# SITE



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		Project No. 100612301	Date 02/09/2017	Scale N.T.S.	Drawn By EJV
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27966403					



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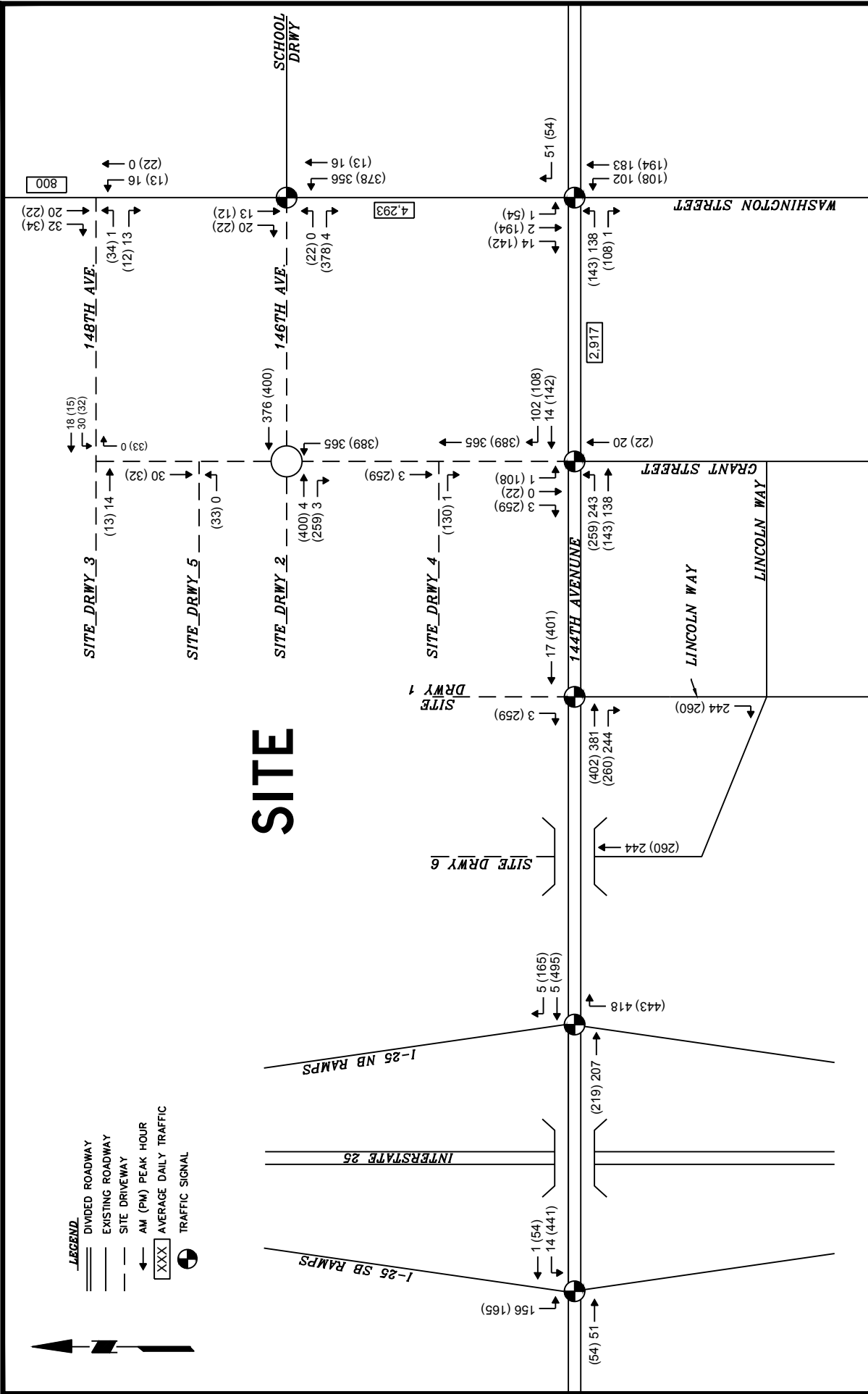
 300 Kimball Drive Parsippany, NJ 07054 T: 973-560-4900 F: 973-560-4901 www.langan.com Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., S.A. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Langan Engineering and Environmental Services, Inc. Langan CT, Inc. Langan International LLC Collectively known as Langan	Project	<b>PROJECT RIO</b>	Project Title	<b>TRUCK PROJECTED SITE-GENERATED TRAFFIC VOLUMES</b>	Drawing No.	<b>FIGURE 7</b>
	ADAMS COUNTY CITY OF THORNTON COLORADO	Project No. 100612301	Date 02/09/2017	Scale N.T.S.	Drawn By EJV	Checked By N.T.S.
NJ CERTIFICATE OF AUTHORIZATION No. 24G427996403 Langan International LLC Collectively known as Langan	Submission Date	FEBRUARY 2017	Sheet	7	of	13





- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE



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	<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Project No.</p> <p>100612301</p>	<p>Scale</p> <p>N.T.S.</p>
<p>City of Thornton</p>		<p>Drawn By</p> <p>EJV</p>	<p>Checked By</p> <p>N.T.S.</p>
<p>ADAMS COUNTY</p>		<p>Date</p> <p>02/09/2017</p>	<p>Date</p> <p>02/09/2017</p>
<p>ADAMS COUNTY</p>		<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Submission Date</p> <p>FEBRUARY 2017</p>

## **ESTIMATE OF FUTURE CONDITIONS**

This section of the report covers background traffic growth and future traffic volumes. We anticipate the proposed distribution center will be completed by the end of 2018. Accordingly, we projected traffic volumes to include existing traffic and new traffic created by background growth to derive the 2018 and 2037 background traffic volumes.

### **Background Traffic Growth**

We increased the existing peak hour traffic volumes by a compounded annual growth rate of 2.8 percent to derive the 2018 and 2037 base traffic volumes. The 2.8 percent growth rate is based on conversations with the city about area development and a review of both the Thornton Transportation Plan and the Denver Premium Outlets (DPO) Traffic Study dated August 2016, which utilized the 2.8 percent. Since the DPO traffic study looked at a larger demographic area we determined the 2.8 percent growth rate would be a conservative representation of the surrounding area.

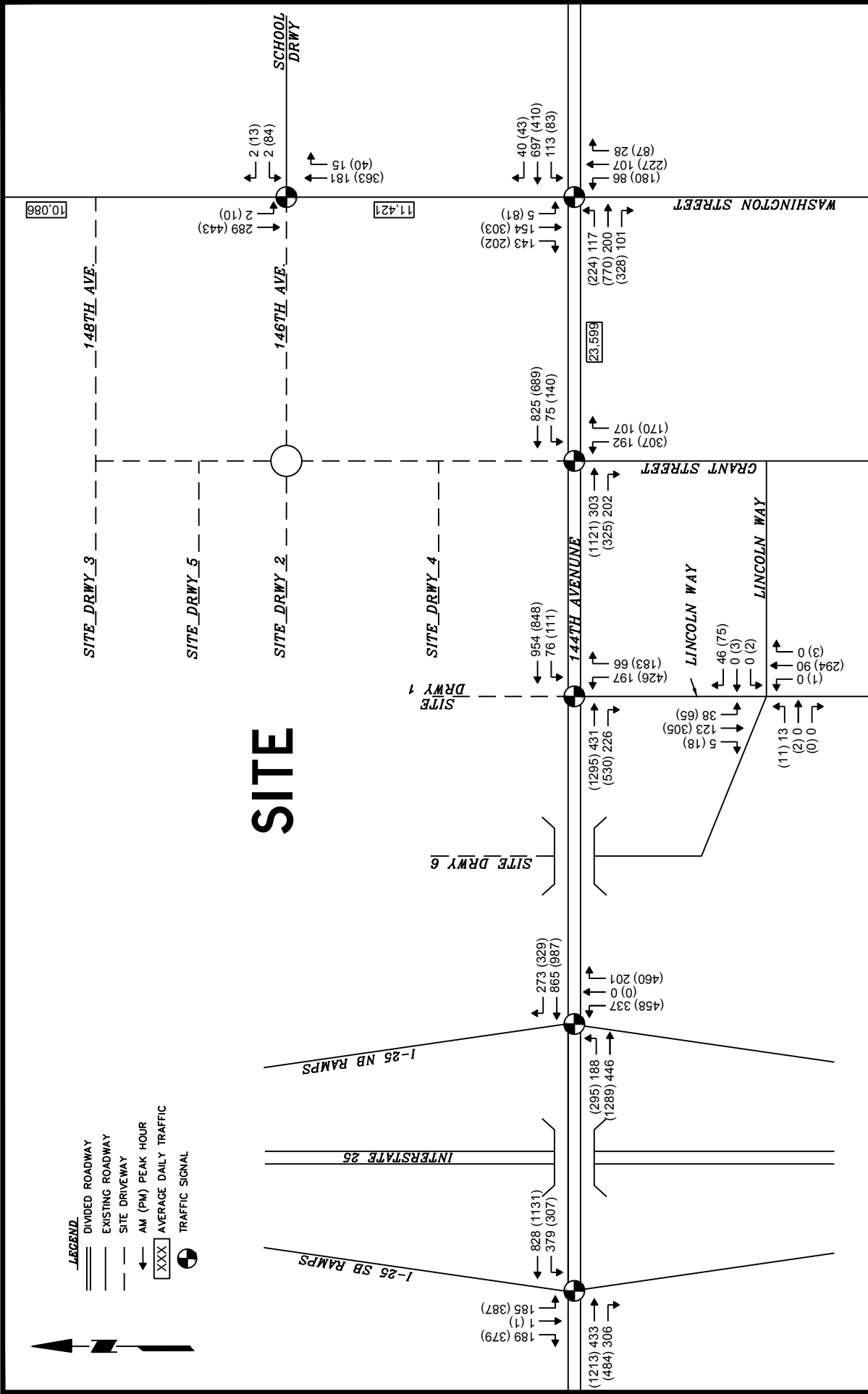
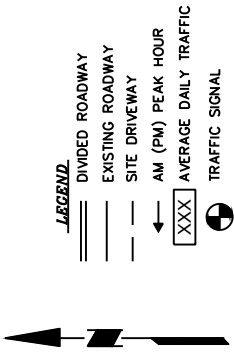
Additionally, we looked into approved adjacent developments with imminent buildout years in the surrounding area. To obtain approved development information we utilized the City of Thornton maps web portal. More specifically, we utilized the Current Development Projects map and the City of Thornton, 144<sup>th</sup> and I-25 NEC Records Requests to obtain the traffic studies for the following approved developments.

- Denver Premium Outlets
- 144<sup>th</sup> & Washington Summit
- The Grove

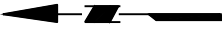
The total adjacent development traffic was then added the 2018 and 2037 base traffic volumes to derive the 2018 and 2037 background traffic volumes. Figures 9 and 10 illustrate the 2018 and 2037 background traffic volumes, respectively. The base and adjacent development traffic volumes are contained in Appendix B.

### **Total Future Traffic**

We derived the 2018 and 2037 future traffic volumes by adding the total site-generated traffic to the 2018 and 2037 background traffic volumes. Figures 11 and 12 illustrate the 2018 and 2037 future weekday morning and evening peak hour traffic volumes, respectively.



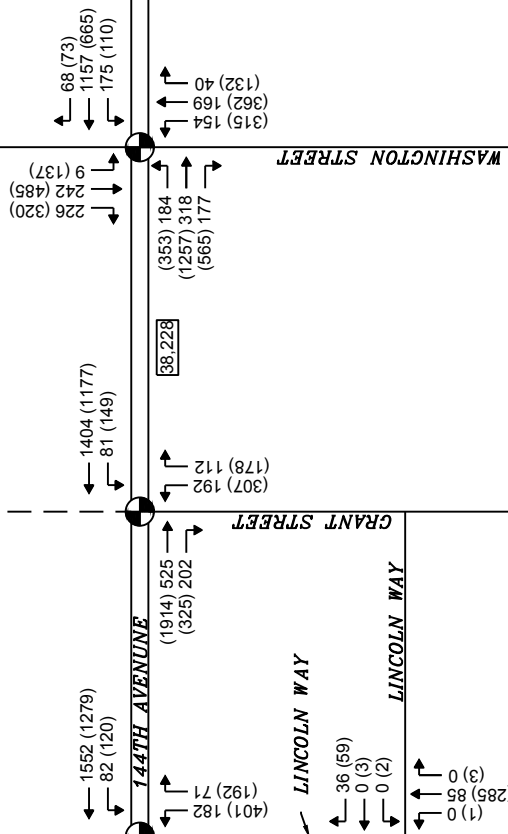
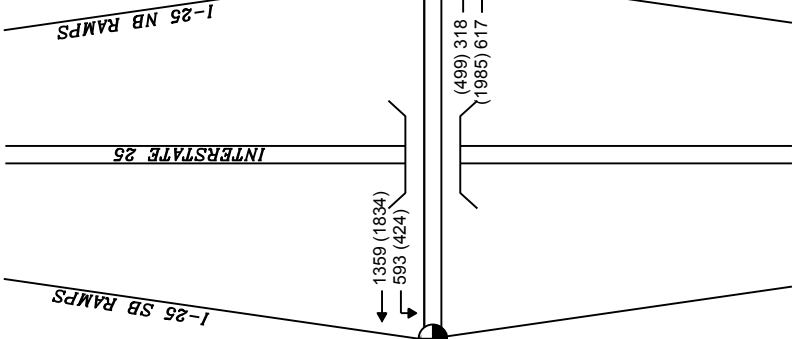
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	<b>Project No.</b> 100612301		<b>Date</b> 02/09/2017		<b>Scale</b> N.T.S.	
<b>Submission Date</b> FEBRUARY 2017		<b>Drawn By</b> EJV		<b>Checked By</b> N.T.S.		
<b>Submission Date</b> FEBRUARY 2017		<b>Project</b> ADAMS COUNTY CITY OF THORNTON COLORADO		<b>Sheet</b> 9 <b>of</b> 13		



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - AM (PM) PEAK HOUR
  - 20,672 AVERAGE DAILY TRAFFIC
  - TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3 148TH AVE.  
 SITE\_DRWY\_5  
 SITE\_DRWY\_2 146TH AVE.  
 SITE\_DRWY\_4  
 SITE DRWY 1  
 SITE DRWY 6



15,792

18,047

38,228

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Project

## PROJECT RIO

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Drawing Title

## 2037 BACKGROUND TRAFFIC VOLUMES

Project No. 100612301

Date 02/09/2017

Scale N.T.S.

Drawn By EJV

Checked By

Submission Date FEBRUARY 2017

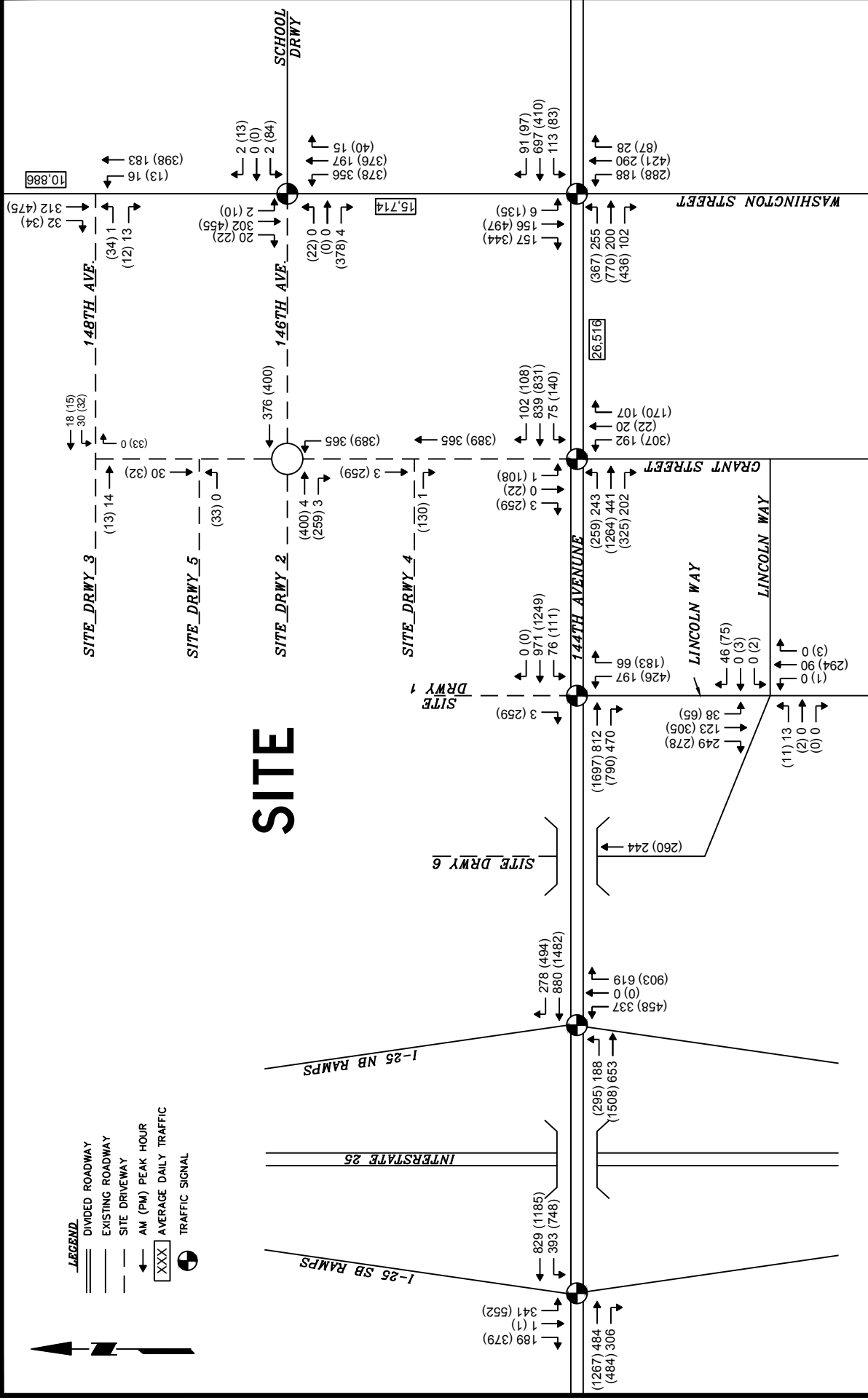
Drawing No.

# FIGURE 10

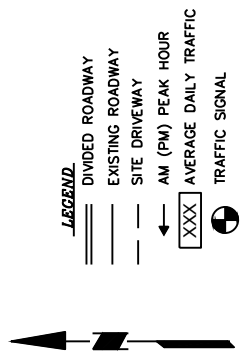
Sheet 10 of 13



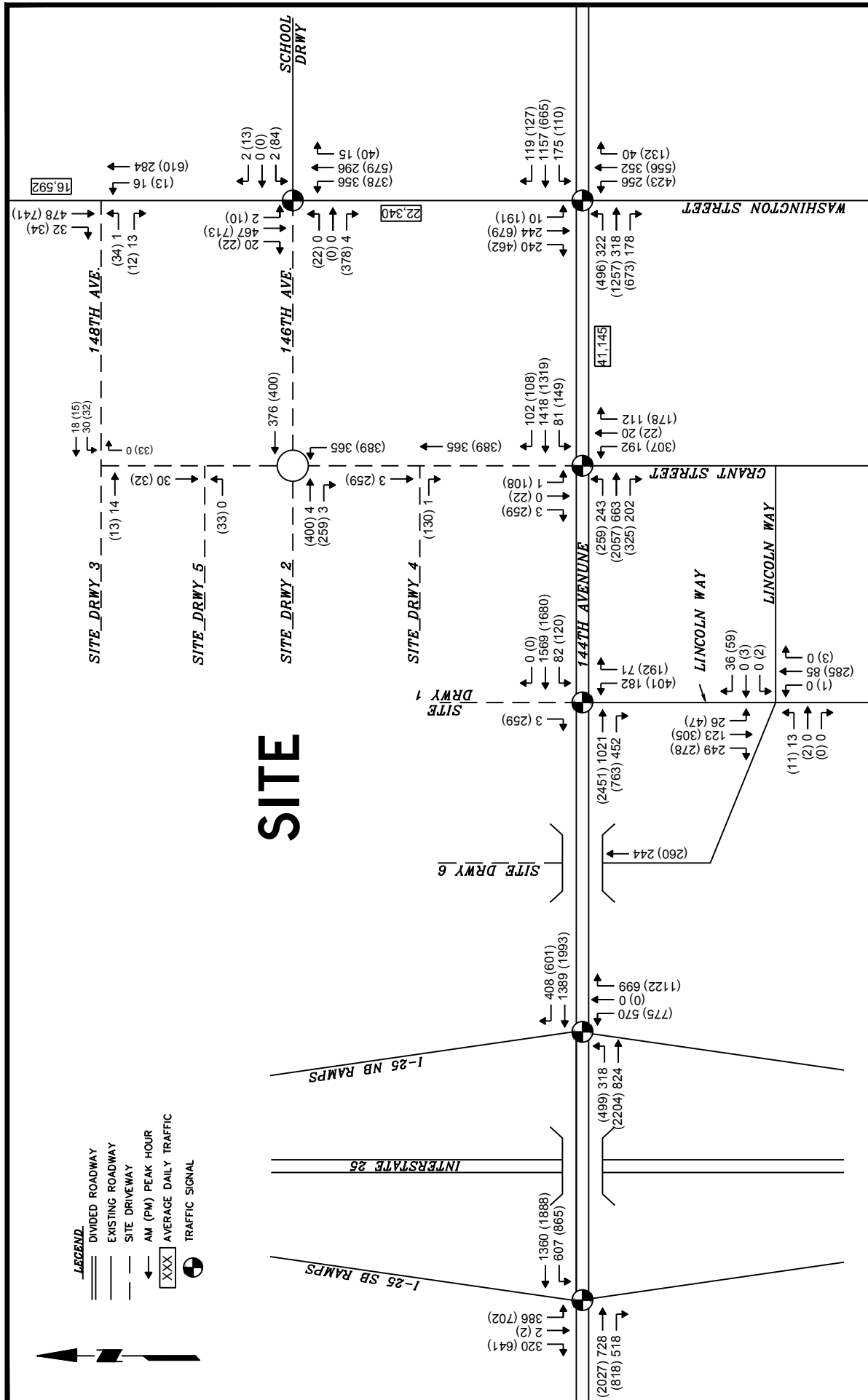
- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL



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	<p>Project</p>	<p>Drawing Title</p>	<p>Project No.</p> <p>100612301</p>
<p>Scale</p> <p>N.T.S.</p>		<p>Date</p> <p>02/09/2017</p>	<p>Submission Date</p> <p>FEBRUARY 2017</p>
<p>Drawn By</p> <p>EJV</p>		<p>Checked By</p> <p>N.T.S.</p>	<p>Sheet</p> <p>11 of 13</p>



# SITE



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	<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Scale</p> <p>N.T.S.</p>	<p>Date</p> <p>02/09/2017</p>	<p>Project No.</p> <p>100612301</p>
<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Drawn By</p> <p>EJV</p>	<p>Checked By</p> <p>N.T.S.</p>	<p>Scale</p> <p>N.T.S.</p>	<p>Sheet</p> <p>12 of 13</p>

## ANALYSIS OF FUTURE TRAFFIC OPERATIONS

Capacity analysis provides an indication of the adequacy of road facilities to serve traffic demand. We conducted capacity analyses for the study intersections and found that the proposed distribution center will not detrimentally impact traffic operations during peak hours with the proposed roadway improvements. Tables 6 and 7 summarize the 2018 and 2037 background traffic and future traffic levels of service (LOS) for each of the study intersections. All capacity printouts are contained in Appendix E. The 2010 Highway Capacity Manual (HCM) level of service (LOS) criteria for both unsignalized and signalized intersections is contained in Appendix E.

**Table 6 – Intersection Capacity Analysis Summary (2018)**

Location	Movement	2018 Background Traffic		2018 Total Future Traffic		
		AM	PM	AM	PM	
<b>Signalized Intersections</b>						
144 <sup>th</sup> Avenue and I-25 SB Ramps	EB	T	B (12.8)	C (20.2)	B (15.6)	C (31.0)
		R	A (0.3)	A (0.5)	A (0.3)	A (0.5)
	WB	L	D (47.6)	D (38.2)	D (51.0)	E (76.6)
		T	A (6.3)	B (16.5)	A (7.8)	B (12.2)
	SB	L	D (50.4)	D (48.6)	D (49.2)	D (46.6)
		R	A (0.2)	A (0.4)	A (0.2)	A (0.4)
<b>Overall</b>		<b>B (16.5)</b>	<b>B (19.0)</b>	<b>C (20.0)</b>	<b>C (29.8)</b>	
144 <sup>th</sup> Avenue and I-25 NB Ramps	EB	L	D (45.9)	D (36.6)	D (41.6)	D (37.6)
		T	A (0.9)	A (5.0)	A (1.1)	B (14.8)
	WB	T	C (23.5)	C (26.2)	C (21.9)	C (24.2)
		R	A (0.3)	A (0.3)	A (0.3)	A (0.5)
	NB	L	D (47.4)	D (45.7)	D (47.4)	D (45.7)
		R	A (0.2)	A (0.5)	A (0.9)	A (1.7)
<b>Overall</b>		<b>B (19.7)</b>	<b>B (16.9)</b>	<b>B (15.0)</b>	<b>B (17.9)</b>	
144 <sup>th</sup> Avenue and Lincoln Street/ Site Driveway 1	EB	T	A (6.0)	B (10.6)	B (10.1)	B (15.4)
		R	A (0.7)	A (1.7)	A (3.4)	A (5.0)
	WB	L	D (46.0)	E (62.0)	D (42.6)	D (42.5)
		T,R	A (5.5)	A (5.9)	-	-
	NB	L	D (46.5)	D (47.0)	D (46.5)	E (62.5)
		R	B (12.7)	A (8.9)	-	-
		T,R	-	-	B (13.3)	A (8.4)
	SB	L	-	-	D (46.0)	D (46.0)
		T,R	-	-	A (0.0)	A (7.7)
		R	-	-	A (0.0)	A (7.6)
<b>Overall</b>		<b>B (11.0)</b>	<b>B (14.2)</b>	<b>B (11.2)</b>	<b>B (16.9)</b>	
144 <sup>th</sup> Avenue and Grant Street	EB	L	-	-	E (57.4)	E (71.4)
		T	A (4.5)	A (8.9)	A (1.8)	B (12.5)
		R	A (0.7)	A (2.1)	A (0.4)	A (1.9)
	WB	L	D (40.6)	D (41.1)	D (41.7)	D (54.6)
		T	A (5.0)	A (4.4)	B (17.8)	B (11.0)
		R	-	-	A (6.0)	A (1.8)
	NB	L	D (47.1)	D (51.4)	D (53.4)	E (68.0)
		T	-	-	D (42.2)	D (41.4)
		R	B (12.0)	B (10.9)	A (9.3)	B (13.3)
	SB	L	-	-	D (45.0)	D (46.5)
T		-	-	D (45.0)	D (42.5)	
R		-	-	A (0.0)	D (35.6)	
<b>Overall</b>		<b>B (11.2)</b>	<b>B (13.5)</b>	<b>C (20.5)</b>	<b>C (23.9)</b>	

**Table 6 Cont'd – Intersection Capacity Analysis Summary (2018)**

Location	Movement	2018 Background Traffic		2018 Total Future Traffic		
		AM	PM	AM	PM	
<b>Signalized Intersections</b>						
144 <sup>th</sup> Avenue and Washington Street	EB	L	D (52.8)	C (28.8)	D (45.5)	D (35.2)
		T	A (8.0)	C (31.4)	A (8.7)	D (36.1)
		R	A (1.4)	B (16.4)	A (1.9)	C (22.6)
	WB	L	D (46.4)	D (46.2)	D (46.4)	D (46.2)
		T	B (16.8)	C (22.4)	C (23.4)	C (33.3)
		R	A (0.1)	A (0.2)	A (0.3)	A (2.8)
	NB	L	D (46.4)	D (49.6)	D (52.1)	E (66.0)
		T	D (35.3)	D (40.0)	D (35.6)	D (39.6)
		R	A (0.3)	A (3.1)	A (0.2)	A (2.3)
	SB	L	D (49.0)	D (52.2)	D (46.7)	D (52.1)
		T	D (44.8)	D (39.0)	E (62.9)	D (44.4)
		R	A (7.3)	A (9.4)	C (29.6)	C (23.7)
	<b>Overall</b>		<b>C (22.8)</b>	<b>C (29.0)</b>	<b>C (30.7)</b>	<b>D (35.9)</b>
Washington Street and Proposed 146 <sup>th</sup> Avenue/ School Driveway	EB	L	-	-	D (45.0)	D (50.8)
		T	-	-	-	-
		R	-	-	A (0.0)	C (29.0)
	WB	L	D (42.5)	D (43.1)	D (38.0)	D (39.8)
		T,R	A (0.0)	A (0.1)	A (0.0)	A (0.1)
	NB	L	-	-	E (56.1)	E (56.0)
		T	A (0.2)	A (0.4)	A (0.4)	A (1.5)
	SB	R	A (0.0)	A (0.1)	A (0.0)	A (0.1)
		L	D (45.0)	D (45.8)	D (45.0)	D (45.8)
		T	A (0.6)	A (2.4)	A (8.6)	B (13.6)
		R	-	-	A (0.1)	A (0.0)
	<b>Overall</b>		<b>A (0.8)</b>	<b>A (5.6)</b>	<b>C (25.4)</b>	<b>C (24.6)</b>
	<b>Unsignalized Intersections</b>					
Lincoln Street and Lincoln Way	EB	L,T,R	B (12.3)	D (28.6)	B (14.4)	E (38.7)
	WB	L	A (0.0)	C (22.4)	A (0.0)	D (28.9)
		T,R	A (9.1)	B (12.1)	A (9.1)	B (12.7)
	NB	L	A (0.0)	A (8.2)	A (0.0)	A (9.3)
	SB	L	A (7.5)	A (8.3)	A (7.5)	A (8.3)
	<b>Overall</b>		<b>A (2.7)</b>	<b>A (2.4)</b>	<b>A (1.6)</b>	<b>A (2.0)</b>
Washington Street and Proposed 148 <sup>th</sup> Avenue	EB	L	-	-	B (14.2)	C (20.8)
		R	-	-	B (11.2)	B (13.0)
	NB	L	-	-	A (8.8)	A (9.5)
<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.5)</b>	<b>A (1.0)</b>	
Grant Street and Proposed 148 <sup>th</sup> Avenue / Site Driveway 3	WB	L	-	-	A (7.3)	A (7.3)
	NB	L	-	-	A (9.1)	A (9.1)
		R	-	-	A (8.4)	A (8.5)
<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (3.6)</b>	<b>A (5.6)</b>	
Grant Street and Site Driveway 4	EB	R	-	-	A (8.3)	A (9.8)
	<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.0)</b>	<b>A (1.6)</b>
Grant Street and Site Driveway 5	EB	L,R	-	-	A (8.6)	A (8.7)
	NB	L,T	-	-	A (0.0)	A (0.0)
	<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.3)</b>	<b>A (4.4)</b>
<b>Roundabout Intersection</b>						
Grant Street and Proposed 146 <sup>th</sup> Avenue / Site Driveway 2	EB	L,T,R	-	-	A (3.2)	B (11.7)
	WB	L,T,R	-	-	B (10.4)	B (11.4)
	NB	L,T	-	-	A (6.7)	B (11.7)
		T,R	-	-	A (3.2)	A (4.3)
	SB	L,T	-	-	A (5.8)	A (6.1)
		T,R	-	-	A (5.6)	A (5.8)
	<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (8.5)</b>	<b>B (11.6)</b>

Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]



**Table 7 – Intersection Capacity Analysis Summary (2037)**

Location	Movement	2037 Background Traffic		2037 Total Future Traffic		
		AM	PM	AM	PM	
<b>Signalized Intersections</b>						
144 <sup>th</sup> Avenue and I-25 SB Ramps	EB	T	B (15.0)	F (87.2)	B (18.2)	F (131.7)
		R	A (0.6)	A (1.4)	A (0.6)	A (1.4)
	WB	L	E (74.9)	C (29.6)	E (79.1)	F (96.5)
		T	A (7.7)	F (81.7)	A (8.3)	B (18.6)
	SB	L	D (50.3)	D (46.7)	D (48.7)	E (64.9)
		R	A (0.3)	A (0.8)	A (0.3)	A (0.8)
<b>Overall</b>		<b>C (20.8)</b>	<b>E (58.0)</b>	<b>C (23.4)</b>	<b>E (62.4)</b>	
144 <sup>th</sup> Avenue and I-25 NB Ramps	EB	L	C (31.4)	D (37.7)	C (26.7)	E (62.1)
		T	A (2.7)	E (63.1)	A (5.9)	E (57.6)
	WB	T	C (34.9)	E (68.4)	C (29.3)	D (36.6)
		R	A (0.4)	A (0.4)	A (0.4)	A (0.6)
	NB	L	D (44.2)	F (86.5)	D (44.2)	D (52.2)
		R	A (0.3)	A (1.0)	A (1.1)	A (3.9)
<b>Overall</b>		<b>C (23.9)</b>	<b>D (53.6)</b>	<b>B (19.1)</b>	<b>D (38.4)</b>	
144 <sup>th</sup> Avenue and Lincoln Street/ Site Driveway 1	EB	T	A (6.5)	E (68.0)	B (11.1)	E (78.6)
		R	A (0.8)	A (5.5)	A (0.6)	A (3.5)
	WB	L	D (53.3)	D (54.5)	D (41.2)	E (68.5)
		T	A (5.5)	A (7.1)	-	-
		T,R	-	-	A (6.4)	B (15.5)
	NB	L	D (46.5)	D (46.2)	D (45.6)	E (71.5)
		R	B (12.8)	B (13.0)	-	-
		T,R	-	-	B (13.2)	B (19.6)
	SB	L	-	-	D (46.0)	E (56.0)
		T,R	-	-	A (0.0)	B (15.1)
R		-	-	A (0.0)	B (14.8)	
<b>Overall</b>		<b>A (9.7)</b>	<b>D (39.3)</b>	<b>B (10.2)</b>	<b>D (45.3)</b>	
144 <sup>th</sup> Avenue and Grant Street	EB	L	-	-	E (59.8)	E (60.4)
		T	A (6.6)	D (49.4)	A (2.7)	E (71.7)
		R	A (1.9)	A (1.1)	A (0.4)	A (3.7)
	WB	L	C (33.8)	E (57.3)	D (35.8)	D (52.6)
		T	B (14.4)	A (1.2)	C (32.1)	C (21.3)
		R	-	-	A (4.2)	A (4.2)
	NB	L	D (47.1)	D (51.4)	D (47.7)	E (78.4)
		T	-	-	D (43.9)	D (53.1)
		R	B (12.0)	B (13.1)	B (10.4)	C (32.1)
	SB	L	-	-	D (44.0)	D (54.2)
		T	-	-	D (45.0)	E (55.4)
		R	-	-	A (0.0)	D (50.7)
<b>Overall</b>		<b>B (14.8)</b>	<b>C (30.4)</b>	<b>C (25.2)</b>	<b>D (49.2)</b>	

**Table 7 Cont'd – Intersection Capacity Analysis Summary (2037)**

Location	Movement	2037 Background Traffic		2037 Total Future Traffic		
		AM	PM	AM	PM	
<b>Signalized Intersections</b>						
144 <sup>th</sup> Avenue and Washington Street	EB	L	D (46.9)	C (28.5)	D (42.5)	D (41.2)
		T	B (12.1)	E (77.4)	B (10.7)	E (77.5)
		R	A (4.0)	C (28.0)	A (3.2)	C (34.7)
	WB	L	D (46.6)	D (46.5)	D (46.6)	E (58.1)
		T	C (30.9)	D (38.8)	D (49.4)	D (52.2)
		R	A (0.2)	A (0.6)	A (2.6)	A (5.5)
	NB	L	D (49.4)	E (78.3)	E (64.2)	E (75.2)
		T	C (32.1)	D (38.8)	D (44.9)	D (47.4)
		R	A (0.3)	A (7.2)	A (0.2)	A (6.7)
	SB	L	D (49.3)	E (55.9)	D (46.1)	E (57.3)
		T	D (43.3)	D (35.8)	E (59.9)	D (50.1)
R		B (12.1)	B (16.2)	B (17.6)	C (27.7)	
<b>Overall</b>		<b>C (28.7)</b>	<b>D (46.9)</b>	<b>D (39.5)</b>	<b>D (52.0)</b>	
Washington Street and Proposed 146 <sup>th</sup> Avenue / School Driveway	EB	L	-	-	D (45.0)	D (50.8)
		T	-	-	-	-
		R	-	-	A (0.0)	D (49.4)
	WB	L	D (42.5)	D (43.1)	D (38.0)	D (39.8)
		T,R	A (0.0)	A (0.1)	A (0.0)	A (0.1)
	NB	L	-	-	D (53.7)	D (37.2)
		T	A (0.3)	A (1.2)	A (0.6)	A (5.0)
	SB	R	A (0.0)	A (0.1)	A (0.0)	A (0.1)
		L	D (45.0)	D (45.8)	D (45.0)	D (45.8)
		T	A (0.6)	A (2.6)	A (9.0)	B (15.9)
		R	-	-	A (0.1)	A (0.0)
<b>Overall</b>		<b>A (0.7)</b>	<b>A (4.7)</b>	<b>C (20.4)</b>	<b>C (23.2)</b>	
<b>Unsignalized Intersections</b>						
Lincoln Street and Lincoln Way	EB	L,T,R	B (11.5)	C (24.2)	B (13.4)	D (31.7)
		L	A (0.0)	C (20.2)	A (0.0)	D (25.7)
	WB	T,R	A (9.0)	B (11.7)	A (9.0)	B (12.3)
		L	A (0.0)	A (8.1)	A (0.0)	A (9.2)
	SB	L	A (7.5)	A (8.2)	A (7.5)	A (8.2)
	<b>Overall</b>		<b>A (2.4)</b>	<b>A (2.0)</b>	<b>A (1.3)</b>	<b>A (1.6)</b>
Washington Street and Proposed 148 <sup>th</sup> Avenue	EB	L	-	-	C (19.1)	E (45.0)
		R	-	-	B (13.1)	C (17.2)
	NB	L	-	-	A (9.5)	B (10.9)
<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.4)</b>	<b>A (1.3)</b>	
Grant Street and Proposed 148 <sup>th</sup> Avenue / Site Driveway 3	WB	L	-	-	A (7.3)	A (7.3)
		L	-	-	A (9.1)	A (9.1)
	NB	R	-	-	A (8.4)	A (8.5)
<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (3.6)</b>	<b>A (5.6)</b>	
Grant Street and Site Driveway 4	EB	R	-	-	A (8.3)	A (9.8)
	<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.0)</b>	<b>A (1.6)</b>
Grant Street and Site Driveway 5	EB	L,R	-	-	A (8.6)	A (8.7)
		L,T	-	-	A (0.0)	A (0.0)
	NB	L,T	-	-	A (0.0)	A (0.0)
<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (0.3)</b>	<b>A (4.4)</b>	
<b>Roundabout Intersection</b>						
Grant Street and Proposed 146 <sup>th</sup> Avenue/ Site Driveway 2	EB	L,T,R	-	-	A (3.2)	B (11.7)
	WB	L,T,R	-	-	B (10.4)	B (11.4)
	NB	L,T	-	-	A (6.7)	B (11.7)
		T,R	-	-	A (3.2)	A (4.3)
	SB	L,T	-	-	A (5.8)	A (6.1)
		T,R	-	-	A (5.6)	A (5.8)
	<b>Overall</b>		<b>-</b>	<b>-</b>	<b>A (8.5)</b>	<b>B (11.6)</b>

Based on Synchro Software [Level of Service (Average vehicle delay [seconds per vehicle])]

We used the timing directives provided by the City of Thornton and the City of Westminster and included them in Appendix D. Figure 13 summarizes the 2018 and 2037 future lane geometry at each of the study intersections. In order to create adequate capacity along 144<sup>th</sup> Avenue, from I-25 to Washington Street, the roadway should, in the long term (20 years) be widened to allow an additional lane in each direction (three through lanes each direction). The results of our 2037 weekday evening peak hour analysis shows that this improvement, which has been recommended previously by other entities, would improve flow along the 144<sup>th</sup> Avenue corridor. It should be noted that to be conservative, the 2037 analyses contained herein do not include the future widening of 144<sup>th</sup> Avenue as recommend in the 2009 City of Thornton Transportation Plan.

#### 144<sup>th</sup> Avenue and I-25 Southbound Ramps

##### *2018*

The signalized intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during both peak hours. During the evening peak hour it is recommended to shift 7 seconds of green time from the eastbound/westbound R.O.W. phase to the westbound advance phase.

##### *2037*

The signalized intersection is expected to operate at an overall LOS C during the weekday morning peak hour and overall LOS E during the weekday evening peak hour under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during the weekday morning peak hour and overall LOS E during the weekday evening peak hour.

During the morning peak hour it is recommended to adjust the offset from 32 seconds to 25 seconds. During the evening peak hour it is recommended to increase the cycle length along 144<sup>th</sup> Avenue to 120 seconds and at this intersection adjust the offset from 0 seconds to 18 seconds.

#### 144<sup>th</sup> Avenue and I-25 Northbound Ramps

##### *2018*

The signalized intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to continue to operate at an overall LOS B during both the weekday morning peak hour and evening peak hours.

2037

The signalized intersection is expected to operate at an overall LOS C during the weekday morning peak hour and overall LOS D during the weekday evening peak hour under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS B during the weekday morning peak hour and overall LOS D during the weekday evening peak hour.

During the evening peak hour it is recommended to increase the cycle length along 144<sup>th</sup> Avenue to 120 seconds and at this intersection adjust the offset from 34 seconds to 36 seconds.

#### 144<sup>th</sup> Avenue and Lincoln Street/Site Driveway 1

##### *Geometry*

Site Driveway 1 will intersect 144<sup>th</sup> Avenue directly across Lincoln Street to form the fourth leg at the signalized intersection. The eastbound 144<sup>th</sup> Avenue approach will provide three through lanes and a right-turn lane. The right-turn lane will provide 220' of storage and a 165' taper. The westbound 144<sup>th</sup> Avenue approach will provide two left-turn lanes, two through lanes, and a shared through/right-turn lane. The shared through/right-turn lane will provide 205' of storage and a 100' taper. The northbound Lincoln Street approach will continue to provide two left-turn lanes and a right-turn lane. The southbound site driveway approach will provide a left-turn lane, a shared through/right-turn lane, and a right-turn lane. The signal is proposed to operate under four phases with a 100-second background cycle length.

2018

The signalized intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to continue to operate at an overall LOS B during both the weekday morning and evening peak hours

2037

The signalized intersection is expected to operate at an overall LOS A during the weekday morning peak hour and overall LOS D during the weekday evening peak hour under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS B during the weekday morning peak hour and overall LOS D during the weekday evening peak hour.

During both peak hours it is recommended to add an overlap phase to the eastbound right-turn movement. Additionally, during the evening peak hour it is recommended to increase the cycle length along 144<sup>th</sup> Avenue to 120 seconds.

### 144<sup>th</sup> Avenue and Grant Street

#### *Geometry*

Grant Street will extend north from 144<sup>th</sup> Avenue to form a four-leg intersection under signal control. The eastbound 144<sup>th</sup> Avenue approach will provide two left-turn lanes, two through lanes and a right-turn lane. The left-turn lanes will provide 185' of storage and a 150' taper. The westbound 144<sup>th</sup> Avenue approach will provide two left-turn lanes, two through lanes, and a right-turn lane. The right-turn lane will provide 200' of storage and a 100' taper. The northbound Grant Street approach will provide two left-turn lanes, two through lanes, and a right-turn lane. The southbound Grant Street approach will provide two left-turn lanes, two through lanes, and a right-turn lane. The left-turn lanes will provide 150' of storage and a 150' taper. The right-turn lane will provide 250' of storage and a 150' taper. The northbound Grant Street approach currently provides bike lanes in both the departing and receiving directions, it is proposed to continue the bike lanes onto the extension of Grant Street. The signal is proposed to operate under four phases with a 100-second background cycle length.

#### *2018*

The signalized intersection is expected to operate at an overall LOS B during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during both the weekday morning and evening peak hours.

#### *2037*

The signalized intersection is expected to operate at an overall LOS B during the weekday morning peak hour and overall LOS C during the weekday evening peak hour under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during the weekday morning peak hour and overall LOS D during the weekday evening peak hour.

During both peak hours it is recommended to add an overlap phase to all approaches right-turn movement. Additionally, during the evening peak hour it is recommended to increase the cycle length along 144<sup>th</sup> Avenue to 120 seconds.

## 144<sup>th</sup> Avenue and Washington Street

### *Geometry*

The intersection approach geometry is proposed to remain the same as in the existing conditions. The eastbound left-turn lanes will be extended to provide 300' of storage and a 165' taper.

### *2018*

The signalized intersection is expected to operate at an overall LOS C during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during the weekday morning peak hour and an overall LOS D during the weekday evening peak hour.

### *2037*

The signalized intersection is expected to operate at an overall LOS C during the weekday morning peak hour and overall LOS D during the weekday evening peak hour under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS D during both the weekday morning and evening peak hours.

During both peak hours it is recommended to add an overlap phase to all approaches right-turn movement. Additionally, during the evening peak hour it is recommended to increase the cycle length along 144<sup>th</sup> Avenue to 120 seconds.

## Proposed 146<sup>th</sup> Avenue/Stargate Charter School Driveway and Washington Street

### *Geometry*

The proposed 146<sup>th</sup> Avenue will intersect Washington Street directly across the School Driveway to form the fourth leg at the signalized intersection. The eastbound proposed 146<sup>th</sup> Avenue approach will provide a left-turn lane, a through lane, and a right-turn lane. The left-turn lane will provide 100' of storage and a 135' taper. The right-turn lane will provide 250' of storage and a 135' taper. The westbound School Driveway approach will provide two left-turn lanes and a shared through/right-turn lane. The northbound Washington Street approach will provide two left-turn lanes, two through lanes and a right-turn lane. The left-turn lanes will provide 170' storage and a 100' taper. The southbound Washington Street approach will provide a left-turn lane, three through lanes, and a right-turn lane.

### *2018*

The signalized intersection is expected to operate at an overall LOS A during both the weekday morning and evening peak hours under the background condition. Under the future condition,

the intersection is expected to operate at an overall LOS C during both the weekday morning and evening peak hours.

*2037*

The signalized intersection is expected to operate at an overall LOS A during both the weekday morning and evening peak hours under the background condition. Under the future condition, the intersection is expected to operate at an overall LOS C during both the weekday morning and evening peak hours.

#### Lincoln Street and Lincoln Way

*2018*

All movements at this stop-controlled intersection are expected to operate at LOS D or better during both the weekday morning and evening peak hours under the background condition. Under the future condition, all movements are expected to operate at LOS E or better during both the weekday morning and evening peak hours.

*2037*

All movements at this stop-controlled intersection are expected to operate at LOS C or better during both the weekday morning and evening peak hours under the background condition. Under the future condition, all movements are expected to operate at LOS D or better during both the weekday morning and evening peak hours.

#### Proposed 148<sup>th</sup> Avenue and Washington Street

##### *Geometry*

The proposed 148<sup>th</sup> Avenue will intersect Washington Street to form a T-shaped stop-controlled intersection. The eastbound proposed 148<sup>th</sup> Avenue approach will provide a left-turn lane, a shared through/right-turn lane, and will be "stop"-controlled. The left-turn lane will provide 100' of storage and a 135' taper. The northbound Washington Street approach will provide a shared left-turn/through lane. The southbound Washington Street approach will provide a shared through/right-turn.

*2018*

All movements at this stop-controlled intersection are expected to operate at LOS C or better during both the weekday morning and evening peak hours under the future condition.

2037

All movements at this stop-controlled intersection are expected to operate at LOS C or better during the weekday morning peak hour and LOS E or better during the weekday evening peak hour under the future condition.

Grant Street and Proposed 148<sup>th</sup> Avenue/Site Driveway 3

*Geometry*

The proposed 148<sup>th</sup> Avenue and Site Driveway 3 will intersect the proposed Grant Street extension to form a T-shaped stop-controlled intersection. The eastbound site driveway approach will provide a shared through/right-turn lane and will be “stop”-controlled. The westbound proposed 148<sup>th</sup> Avenue will provide a shared left-turn/through lane and will be “stop”-controlled. The northbound Grant Street approach will provide a left-turn lane and a right-turn lane.

2018

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.

2037

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.

Grant Street and Site Driveway 4

*Geometry*

Site Driveway 4 will intersect the proposed Grant Street extension to form a T-shaped stop-controlled intersection. The eastbound site driveway approach will provide a channelized right-turn lane and will be “stop”-controlled. The northbound Grant Street approach will provide two through lanes. The southbound Grant Street approach will provide two through lanes. It is noted that the northbound and southbound approaches are separated by a concrete median.

2018

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.

2037

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.



### Grant Street and Site Driveway 5

#### *Geometry*

Site Driveway 5 will intersect the proposed Grant Street extension to form a T-shaped stop-controlled intersection. The eastbound site driveway approach will provide a shared left-turn/right-turn lane and will be “stop”-controlled. The northbound Grant Street approach will provide a shared left-turn/through lane and a through lane. The southbound Grant Street approach will provide a through lane and a shared through/right-turn lane.

*2018*

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.

*2037*

All movements at this stop-controlled intersection are expected to operate at LOS A during both the weekday morning and evening peak hours under the future condition.

### Grant Street and Proposed 146<sup>th</sup> Avenue/Site Driveway 2 (Roundabout)

#### *Geometry*

The proposed 146<sup>th</sup> Avenue and Site Driveway 2 intersect the proposed Grant Street extension to form a yield-controlled roundabout. The inner circle will provide two travel lanes. The eastbound site driveway and westbound proposed 146<sup>th</sup> Avenue approaches are to provide one entering and one exiting lane and are “yield”-controlled. The northbound and southbound Grant Street approaches will provide two entering and two exiting lanes and are “yield”-controlled.

*2018*

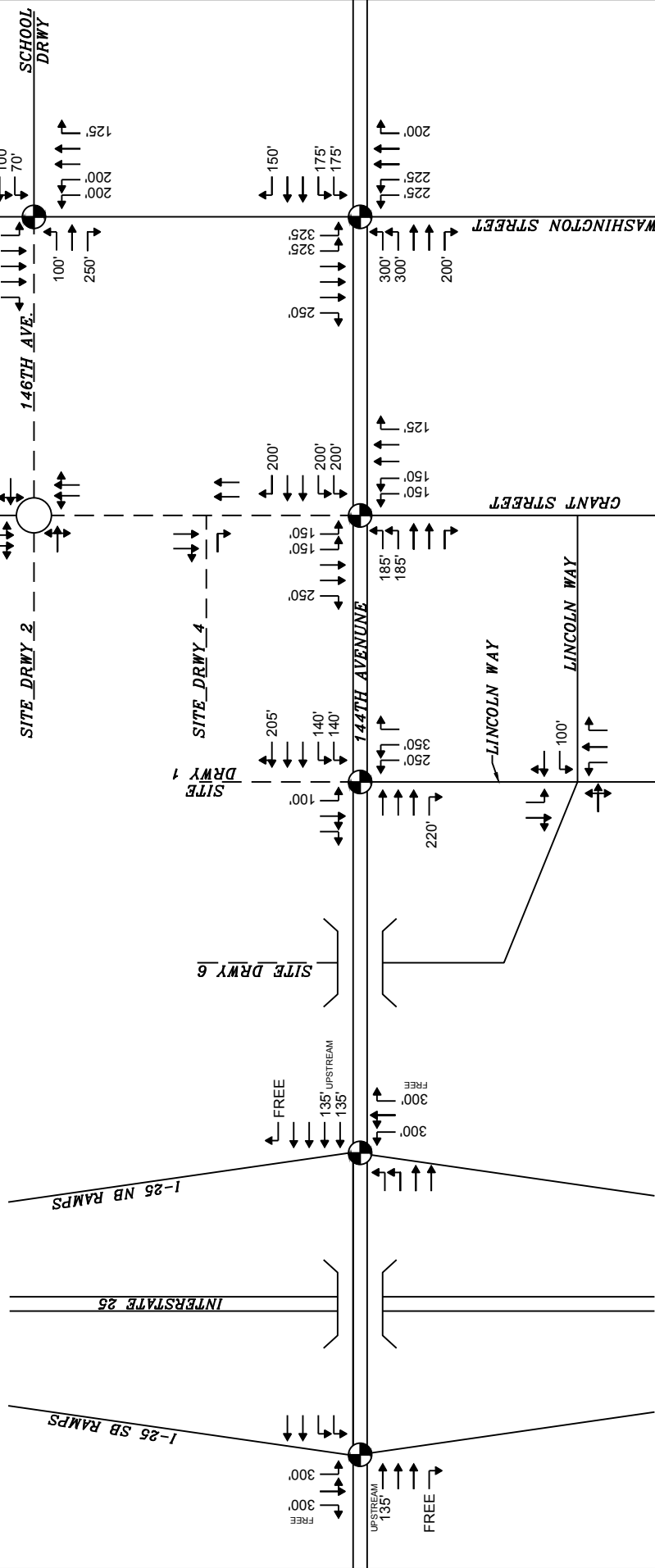
All movements at the roundabout intersection are expected to operate at LOS B or better during both the weekday morning and evening peak hours under the future condition.

*2037*

All movements at the roundabout intersection are expected to operate at LOS B or better during both the weekday morning and evening peak hours under the future condition.



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - STORAGE LENGTH
  - ◐ TRAFFIC SIGNAL



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 Langan CT, Inc.  
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 Collectively known as Langan

NEW JERSEY CERTIFICATE OF AUTHORIZATION No. 24GA27996403

Project

**PROJECT RIO**

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Drawing Title

**2018 AND 2037  
 FUTURE LANE  
 GEOMETRY**

Project No. 100612301

Date 02/09/2017

Scale N.T.S.

Drawn By EJV

Checked By

Submission Date

FEBRUARY 2017

Drawing No.

**FIGURE  
 13**

Sheet 13 of 13

## INTERSECTION QUEUING ANALYSIS

We reviewed the 95<sup>th</sup> percentile queue lengths from the Synchro analyses at the study intersections for the critical turning movements. The table below summarizes the existing turn lane queue lengths, if present, compared to the 95<sup>th</sup> percentile queue. At the applicable intersections and movements we have also provided a recommended turn lane length as a result of the development proposed roadway construction. The queuing analysis results are summarized in Table 8 below for the 2018 total future analysis.

**Table 8 – Queuing Analysis Results (2018)**

Location	Movement		AM Peak Hour			PM Peak Hour		
			Existing Turn Lane Length (feet)	2018 Queue Length (feet)	Recommended Turn Lane Length (feet)	Existing Turn Lane Length (feet)	2018 Queue Length (feet)	Recommended Turn Lane Length (feet)
144 <sup>TH</sup> Ave and I-25 SB Ramps	WB	L	685'	199'	-	685'	391'	-
	SB	L	300'	155'	-	300'	234'	-
144 <sup>th</sup> Ave and I-25 NB Ramps	EB	L	685'	80'	-	685'	106'	-
	NB	L	300'	157'	-	300'	195'	-
144 <sup>th</sup> Ave and Lincoln St	WB	L	140'	52'	-	140'	55'	-
		L	350'	103'	-	350'	241'	-
	NB	T,R	-	40'	-	-	67'	-
		L	-	6'	100'	-	6'	100'
SB	T,R	-	0'	-	-	17'	-	
	L	-	213'	185'	-	109'	185'	
144 <sup>TH</sup> Ave and Grant St	EB	R	600'	0'	-	600'	26'	-
		L	200'	51'	-	200'	68'	-
	WB	R	-	49'	200'	-	15'	200'
		L	150'	105'	-	150'	188'	-
	NB	R	125'	29'	-	125'	65'	-
		L	-	3'	150'	-	64'	150'
	SB	R	-	0'	250'	-	175'	250'
		L	200'	116'	300'	200'	246'	300'
144 <sup>TH</sup> Ave and Washington St	EB	R	200'	0'	-	200'	283'	-
		L	175'	67'	-	175'	52'	-
	WB	R	150'	0'	-	150'	16'	-
		L	225'	104'	-	225'	173'	-
	NB	R	200'	0'	-	200'	9'	-
		L	325'	10'	-	325'	76'	-
	SB	R	250'	109'	-	250'	109'	-
		L	-	6'	100'	-	41'	100'
146 <sup>th</sup> Ave / School Drwy and Washington St	EB	R	-	0'	250'	-	197'	250'
		L	70'	4'	-	70'	49'	-
	NB	L	200'	187'	-	200'	196'	-
	SB	L	175'	9'	-	175'	25'	-

As shown in the table, it is anticipated that the queues will remain within the storage lengths with the exception of the eastbound left and right turn movements at 144<sup>th</sup> Avenue and Washington Street during the weekday evening peak hour. It is recommended to extend the eastbound double left turn movements to provide a storage length of 300', which would contain the anticipated queue length.

Table 9 summarizes the queuing analysis results for the 2037 total future analysis. The 95<sup>th</sup> percentile queue summaries are included in the capacity analysis reports in Appendix E.

**Table 9 – Queuing Analysis Results (2037)**

Location	Movement		AM Peak Hour			PM Peak Hour		
			Existing Turn Lane Length (feet)	2037 Queue Length (feet)	Recommended Turn Lane Length (feet)	Existing Turn Lane Length (feet)	2037 Queue Length (feet)	Recommended Turn Lane Length (feet)
144 <sup>TH</sup> Ave and I-25 SB Ramps	WB	L	685'	355'	-	685'	576'	-
	SB	L	300'	172'	-	300'	408'	-
144 <sup>th</sup> Ave and I-25 NB Ramps	EB	L	685'	120'	-	685'	192'	-
	NB	L	300'	239'	-	300'	367'	-
144 <sup>th</sup> Ave and Lincoln St	WB	L	140'	41'	-	140'	88'	-
	NB	L	350'	95'	-	350'	264'	-
		T,R	-	41'	-	-	132'	-
	SB	L	-	6'	100'	-	7'	100'
T,R		-	0'	-	-	41'	-	
144 <sup>TH</sup> Ave and Grant St	EB	L	-	214'	185'	-	101'	185'
		R	600'	0'	-	600'	45'	-
	WB	L	200'	37'	-	200'	71'	-
		R	-	17'	200'	-	25'	200'
	NB	L	150'	105'	-	150'	218'	-
		R	125'	43'	-	125'	151'	-
SB	L	-	3'	150'	-	75'	150'	
	R	-	0'	250'	-	250'	250'	
144 <sup>TH</sup> Ave and Washington St	EB	L	200'	122'	300'	200'	216'	300'
		R	200'	23'	-	200'	570'	-
	WB	L	175'	93'	-	175'	76'	-
		R	150'	26'	-	150'	43'	-
	NB	L	225'	158'	-	225'	276'	-
		R	200'	0'	-	200'	50'	-
SB	L	325'	13'	-	325'	118'	-	
	R	250'	72'	-	250'	384'	-	
146 <sup>th</sup> Ave / School Drvy and Washington St	EB	L	-	6'	100'	-	41'	100'
		R	-	0'	250'	-	318'	250'
	WB	L	70'	4'	-	70'	49'	-
	NB	L	200'	187'	-	200'	164'	-
SB	L	175'	9'	-	175'	25'	-	

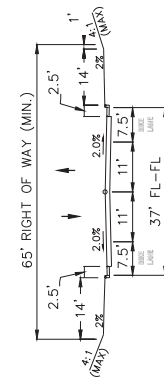
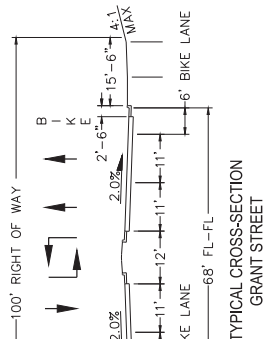
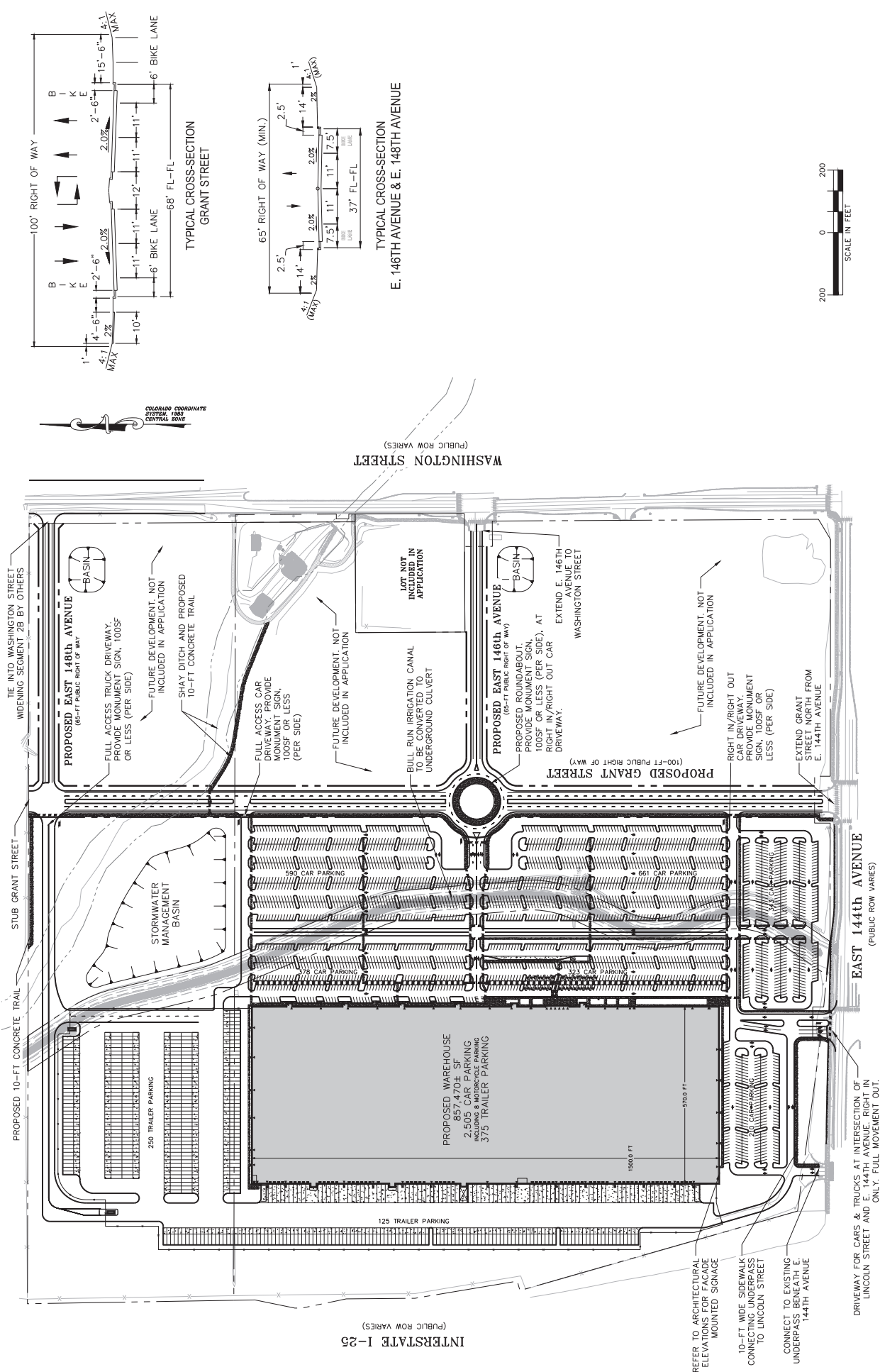
## CONCLUSIONS

Langan finds that the proposed development will not significantly impact area traffic operations during peak hours in the short-term (2018) with the proposed roadway improvements identified herein. Based on our short-term (2018) analyses, we determined the adjacent roadway network has sufficient capacity to accommodate the site-generated traffic associated with the proposed development during peak season operations. During all other times of the year there will be approximately 40 percent less vehicles associated with the proposed distribution center. Based on the conservative analyses, which includes all adjacent area development and a 2.8% growth factor, traffic conditions at all signalized intersections are expected to operate at an overall level of service D or better in the future 2018 condition.

During the long-term (2037) all the adjacent area developments are expected to have a larger impact on the surrounding roadway. A recommendation to reduce the anticipated impact would be to implement right-turn overlaps on all approaches at both 144<sup>th</sup> Avenue & Washington Street and 144<sup>th</sup> Avenue & Grant Street. Additionally, to create improved capacity along 144<sup>th</sup> Avenue, from I-25 to Washington Street, the roadway should, in the long term (20 years) be widened to allow an additional lane in each direction (six through lanes total). The results of our 2037 weekday evening peak hour analysis shows that this improvement, which has been recommended previously by other entities, would improve flow along the 144<sup>th</sup> Avenue corridor. The future widening is included as a recommendation in the 2009 City of Thornton Transportation Plan.

**APPENDIX A**  
**CONCEPT PLAN**

# PROJECT RIO - CONCEPTUAL SITE PLAN



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	<p><b>CONCEPTUAL SITE PLAN</b></p>		
<p>REVISIONS</p>			
<p>SIGNATURE</p> <p>RICHARD BURROW</p> <p>PROFESSIONAL ENGINEER CO LIC. No. PE-0096315</p>	<p>DATE SIGNED</p>		

PROJECT NO. 100612301

LANGAN

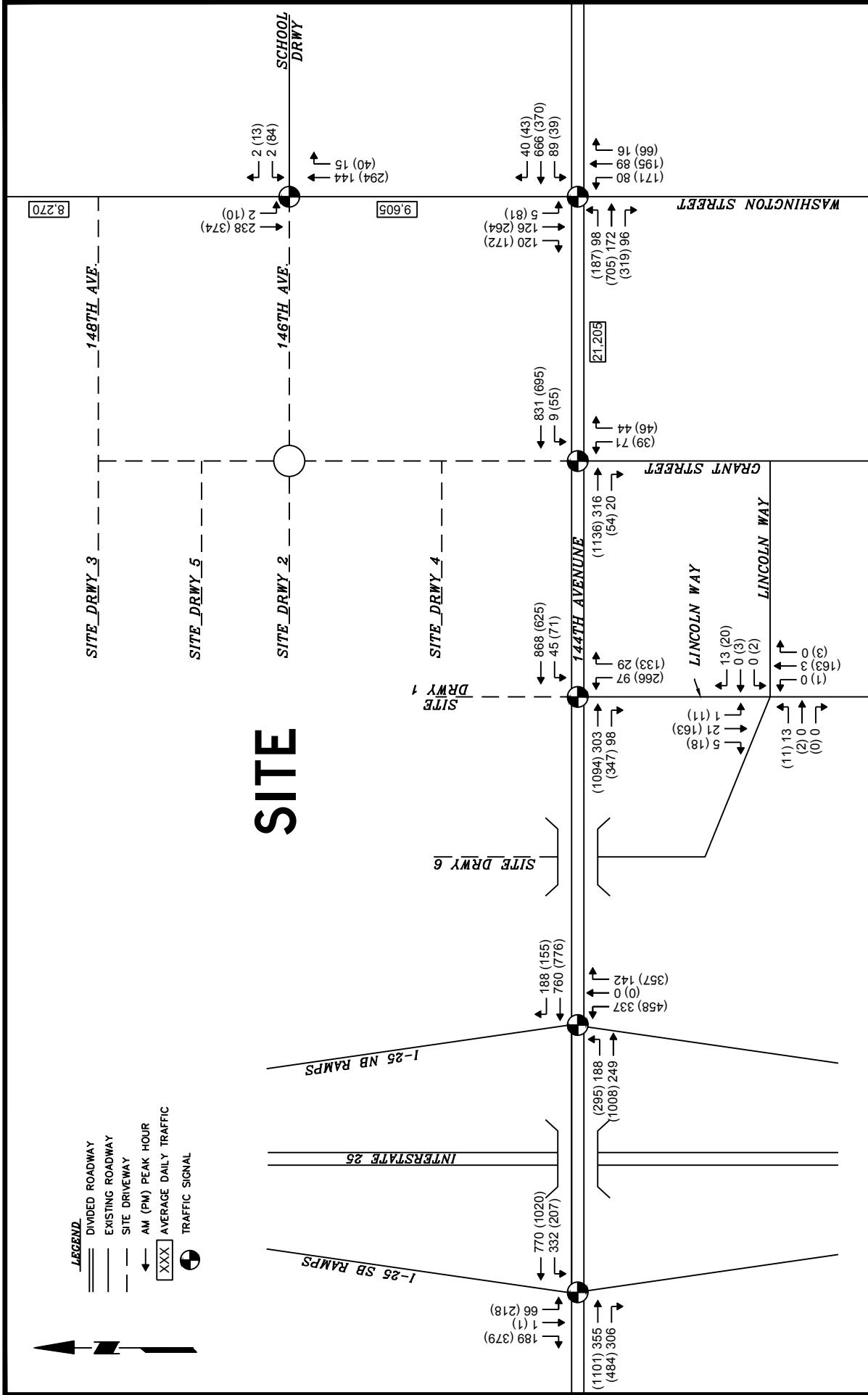
**APPENDIX B**  
**VOLUME WORKSHEETS**





- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE



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	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>	<p>Scale</p> <p>N.T.S.</p>
<p>Submission Date</p> <p>FEBRUARY 2017</p>	<p>Drawn By</p> <p>EJV</p>	<p>Checked By</p> <p>N.T.S.</p>	<p>Sheet</p> <p>1 of 9</p>



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - AM (PM) PEAK HOUR
  - 20,672 AVERAGE DAILY TRAFFIC
  - TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3

148TH AVE.

SITE\_DRWY\_5

SITE\_DRWY\_2

146TH AVE.

SITE DRWY 1

SITE\_DRWY\_4

144TH AVENUE

SITE DRWY 6

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

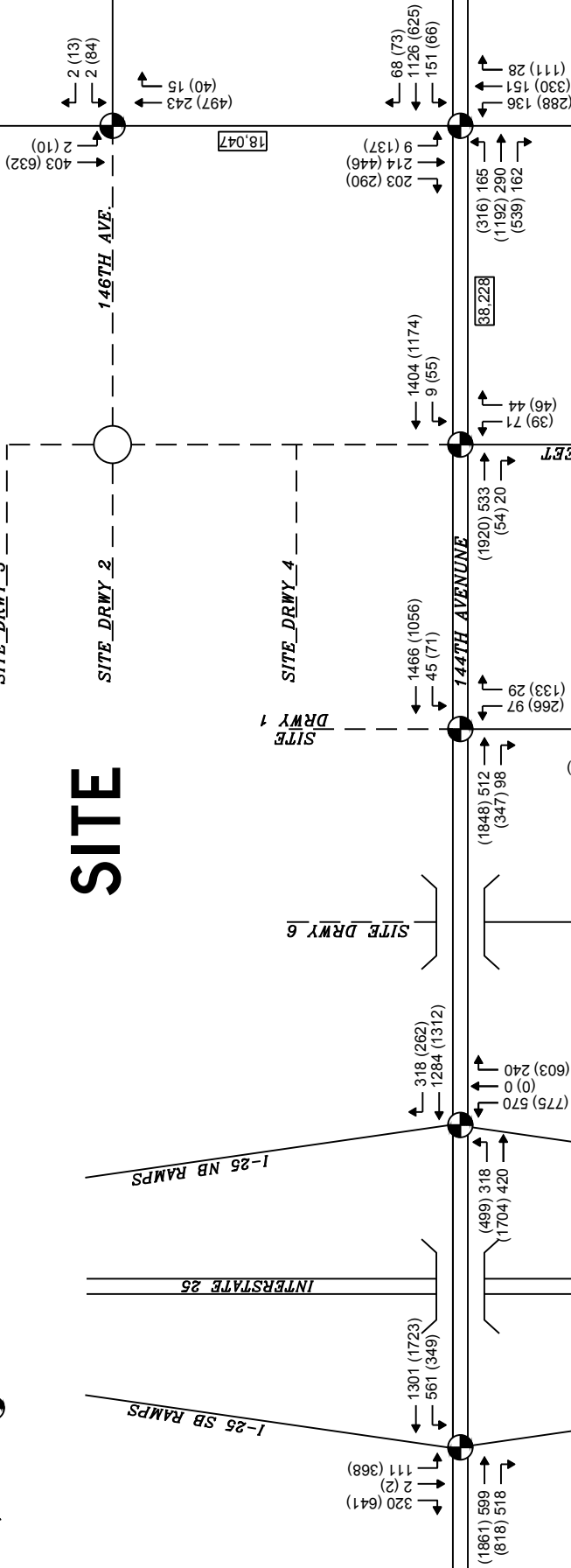
GRANT STREET

WASHINGTON STREET

SCHOOL DRWY

LINCOLN WAY

LINCOLN WAY



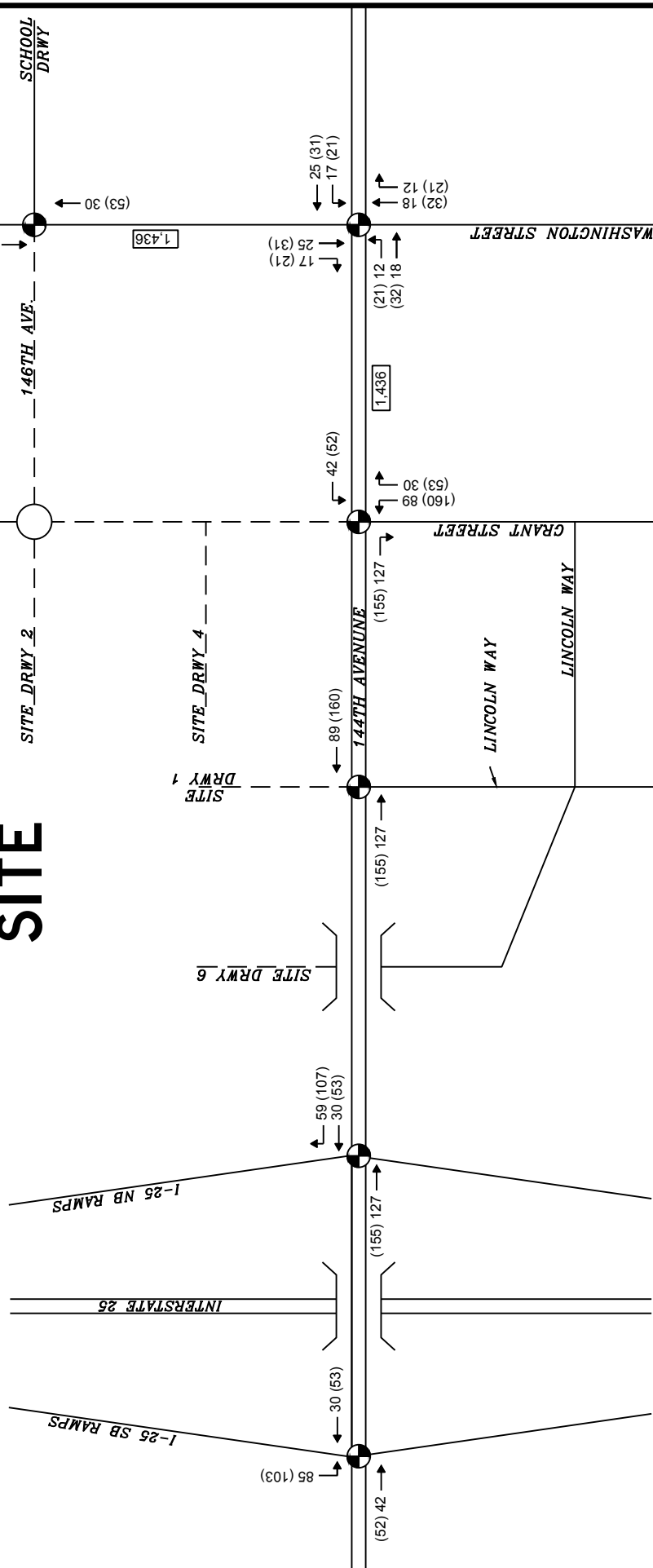
<p><b>LANGAN</b></p> <p>300 Kimball Drive Parsippany, NJ 07054 T: 973-560-4900 F: 973-560-4901 www.langan.com</p> <p>Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., S.A. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Langan Engineering and Environmental Services, Inc. Langan CT, Inc. Langan International LLC Collectively known as Langan</p>	Project	<p><b>PROJECT RIO</b></p> <p>CITY OF THORNTON</p> <p>ADAMS COUNTY</p> <p>COLORADO</p>	
	Drawing Title	<p><b>2037 BASE</b></p> <p><b>TRAFFIC VOLUMES</b></p>	
Drawing No.	Project No.	<p><b>FIGURE</b></p> <p><b>B-2</b></p>	
Date	Date	<p>Submission Date</p> <p>FEBRUARY 2017</p>	
Scale	Scale	<p>N.T.S.</p>	
Drawn By	Checked By	<p>EJV</p>	
Submission Date	Submission Date	<p>FEBRUARY 2017</p>	
Sheet 2 of 9	Sheet 2 of 9	<p>© 2017 Langan</p>	



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3  
 148TH AVE.  
 SITE\_DRWY\_5  
 146TH AVE.  
 SITE\_DRWY\_2  
 SCHOOL DRWY  
 SITE\_DRWY\_4  
 144TH AVENUE  
 SITE DRWY 1  
 LINCOLN WAY  
 LINCOLN WAY



1,436

1,436

1,436

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	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>	<p>Scale</p> <p>N.T.S.</p>
<p>Submission Date</p> <p>FEBRUARY 2017</p>		<p>Sheet 3 of 9</p>	



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXX AVERAGE DAILY TRAFFIC
  - TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3

1487H AVE.

SITE\_DRWY\_5

SITE\_DRWY\_2

146TH AVE.

SITE\_DRWY\_4

182

SITE\_DRWY\_1

182

SITE\_DRWY\_6

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

144TH AVENUE

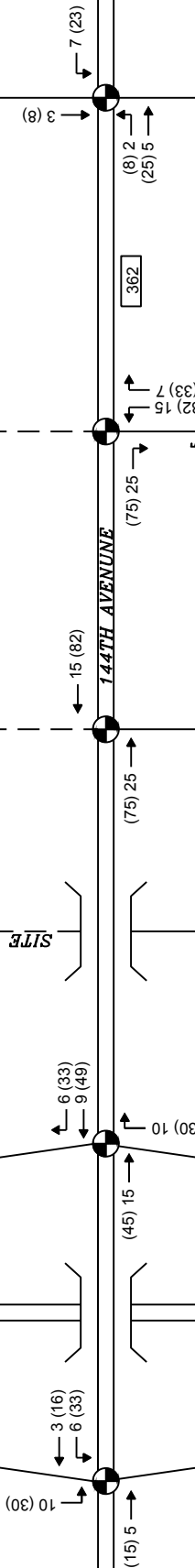
GRANT STREET

WASHINGTON STREET

LINCOLN WAY

LINCOLN WAY

SCHOOL DRWY



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## PROJECT RIO

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Project Title  
**2018 AND 2037  
 ADJACENT DEVELOPMENT  
 NEW SITE-GENERATED TRAFFIC  
 (144TH & WASHINGTON  
 SUMMIT)**

Project No.	100612301	Drawing No.	<b>FIGURE B-4</b>
Date	02/09/2017	Scale	N.T.S.
Drawn By	EJV	Checked By	
Submission Date	FEBRUARY 2017	Sheet	4 of 9



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - AM (PM) PEAK HOUR
  - AVERAGE DAILY TRAFFIC
  - TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3

148TH AVE.

SITE\_DRWY\_5

SITE\_DRWY\_2

146TH AVE.

SITE\_DRWY\_1

SITE\_DRWY\_4

SITE\_DRWY\_6

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

144TH AVENUE

LINCOLN WAY

LINCOLN WAY

GRANT STREET

WASHINGTON STREET

SCHOOL DRWY

198

198

596

6 (9)

(8) 5

6 (9)

(8) 5

6 (9)

(8) 5

6 (9)

(8) 5

-12 (-15)

12 (15)

(14) 10

(21) 16

(8) 5

(8) 5

(6) 5

(6) 5

-25 (-31)

25 (31)

(29) 21

(42) 32

(-23) - 18

(23) 18

(55) 41

47 (60)

(-47) - 36

(47) 36

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NU CERTIFICATE OF AUTHORIZATION No. 246A27996403

Project

### PROJECT RIO

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Drawing Title

2018 AND 2037  
 ADJACENT DEVELOPMENT  
 PASS-BY TRIPS  
 (THE GROVE)

Project No.

100612301

Date

02/09/2017

Scale

N.T.S.

Drawn By

EJV

Checked By

N.T.S.

Submission Date

FEBRUARY 2017

Drawing No.

# FIGURE B-5

Sheet 5 of 9



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3

1487H AVE.

SITE\_DRWY\_5

SITE\_DRWY\_2

146TH AVE.

SITE\_DRWY\_4

SITE DRWY 1

SITE DRWY 6

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

144TH AVENUE

LINCOLN WAY

LINCOLN WAY

GRANT STREET

WASHINGTON STREET

SCHOOL DRWY

198

198

596

6 (9)

(8) 5

6 (9)

(9) 6

(8) 5

(8) 5

(6) 5

6 (9)

12 (18)

(12) 7

(17) 10

(8) 5

(18) 12

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7 (12)

6 (9)

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37 (54)

(73) 49

20 (34)

66 (109)

24 (36)

(45) 31

(81) 55

(73) 49

25 (42)

41 (67)

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 Langan Engineering, Environmental, Surveying and  
 Landscape Architecture, D.P.C.  
 Langan Engineering and Environmental Services, Inc.  
 Langan CT, Inc.  
 Langan International LLC  
 Collectively known as Langan

NIJ CERTIFICATE OF AUTHORIZATION No. 24G427996403

Project

### PROJECT RIO

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Drawing Title

2018  
 ADJACENT DEVELOPMENT  
 NEW SITE-GENERATED TRAFFIC  
 (THE GROVE)

Project No.

100612301

Date

02/09/2017

Scale

N.T.S.

Drawn By

EJV

Checked By

Submission Date

FEBRUARY 2017

Drawing No.

# FIGURE B-6

Sheet 6 of 9



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3 148TH AVE.

SITE\_DRWY\_5 146TH AVE.

SITE\_DRWY\_2

SITE\_DRWY\_4

SITE DRWY 1

SITE DRWY 6

SCHOOL DRWY

144TH AVENUE

GRANT STREET

WASHINGTON STREET

LINCOLN WAY

LINCOLN WAY

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

198

198

596

6 (9)

6 (9)

6 (9)

(8) 5

(8) 5

(26) 15

(12) 7

(25) 15

12 (18)

18 (27)

7 (12)

12 (18)

(17) 10

(18) 12

(106) 84

(17) 10

23 (39)

(67) 41

(18) 12

(109) 74

49 (73)

25 (36)

20 (34)

51 (84)

(46) 31

(81) 55

24 (36)

(45) 31

25 (42)

26 (42)

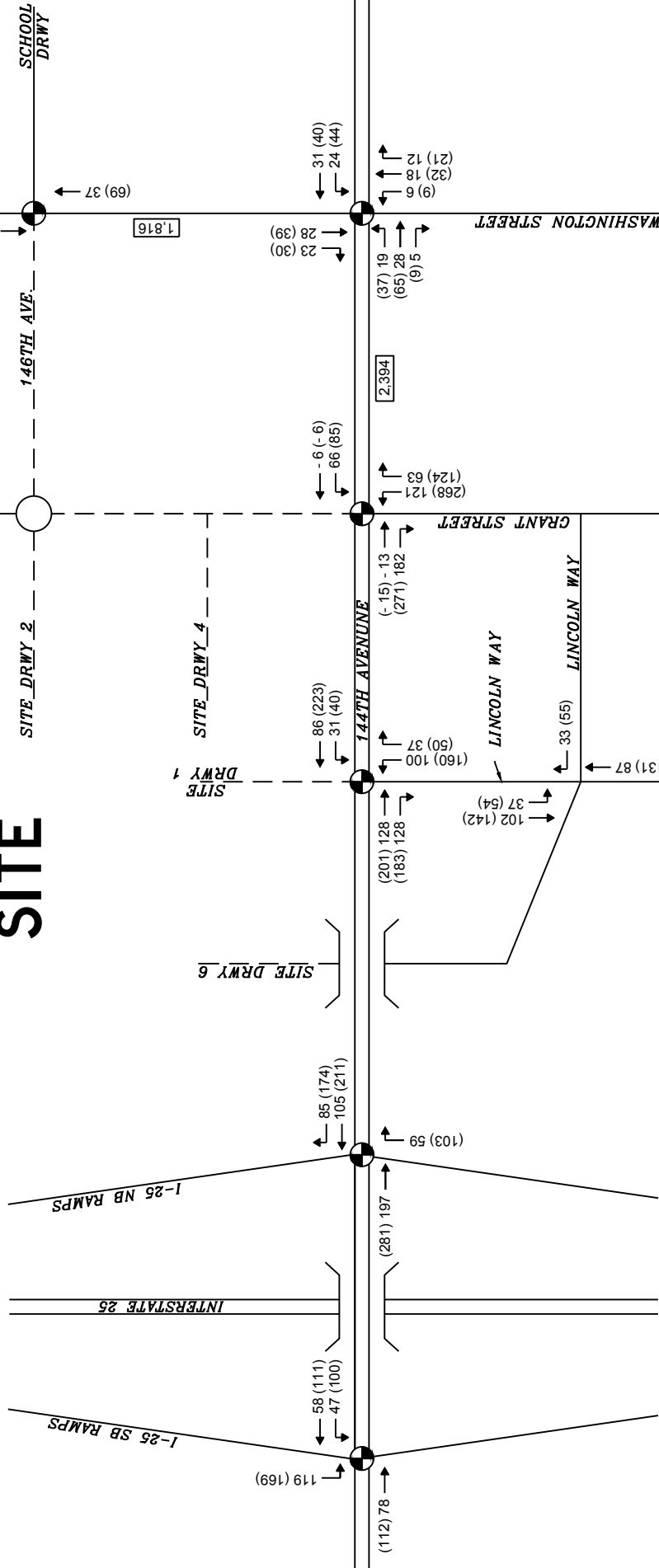
<p><b>LANGAN</b></p> <p>300 Kimball Drive Parsippany, NJ 07054 T: 973-560-4900 F: 973-560-4901 www.langan.com</p> <p>Longan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., S.A. Longan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Longan Engineering and Environmental Services, Inc. Longan CT, Inc. Longan International LLC Collectively known as Langan</p> <p>NIJ CERTIFICATE OF AUTHORIZATION No. 24GA27996403</p>	<p>Project</p> <p><b>PROJECT RIO</b></p> <p>CITY OF THORNTON</p> <p>ADAMS COUNTY</p> <p>COLORADO</p>	<p>Drawing Title</p> <p><b>2037</b></p> <p><b>ADJACENT DEVELOPMENT</b></p> <p><b>NEW SITE-GENERATED TRAFFIC</b></p> <p><b>(THE GROVE)</b></p>	<p>Drawing No.</p> <p><b>FIGURE</b></p> <p><b>B-7</b></p>
	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>	<p>Scale</p> <p>N.T.S.</p>
	<p>Submission Date</p> <p>FEBRUARY 2017</p>		<p>Sheet 7 of 9</p>



- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE

- SITE\_DRWY\_3
- SITE\_DRWY\_5
- SITE\_DRWY\_2
- SITE\_DRWY\_4
- SITE\_DRWY\_6



<p><b>LANGAN</b></p> <p>300 Kimball Drive Parsippany, NJ 07054</p> <p>T: 973-560-4900 F: 973-560-4901 www.langan.com</p> <p>Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., S.A. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Langan Engineering and Environmental Services, Inc. Langan CT, Inc. Langan International LLC Collectively known as Langan</p>	<p>Project</p> <p><b>PROJECT RIO</b></p> <p>CITY OF THORNTON</p> <p>ADAMS COUNTY</p> <p>COLORADO</p>	<p>Drawing Title</p> <p><b>2018 TOTAL ADJACENT DEVELOPMENT SITE-GENERATED TRIPS</b></p>	<p>Drawing No.</p> <p><b>FIGURE B-8</b></p>
	<p>Project No.</p> <p>100612301</p>	<p>Date</p> <p>02/09/2017</p>	<p>Scale</p> <p>N.T.S.</p>
<p>Submission Date</p> <p>FEBRUARY 2017</p>		<p>Sheet <b>8</b> of <b>9</b></p>	





- LEGEND**
- DIVIDED ROADWAY
  - EXISTING ROADWAY
  - - - SITE DRIVEWAY
  - ← AM (PM) PEAK HOUR
  - XXXX AVERAGE DAILY TRAFFIC
  - ⊙ TRAFFIC SIGNAL

# SITE

SITE\_DRWY\_3

1487H AVE.

SITE\_DRWY\_5

SITE\_DRWY\_2

146TH AVE.

SITE\_DRWY\_1

SITE\_DRWY\_4

SITE\_DRWY\_6

I-25 NB RAMP

INTERSTATE 25

I-25 SB RAMP

144TH AVENUE

LINCOLN WAY

LINCOLN WAY

GRANT STREET

WASHINGTON STREET

SCHOOL DRWY

1,816

51 (69)

1,816

23 (30)

(37) 19

(65) 28

(26) 15

(27) 18

(32) 18

(21) 12

(27) 18

(31) 40

(24) 44

(0) (3)

(72) (94)

(268) 121

(132) 68

(-6) -8

(271) 182

(86) (223)

(37) (49)

(135) 85

(59) 42

(23) (39)

(122) 82

(201) 128

(156) 110

(96) (133)

(25) (36)

(85) (174)

(90) (186)

(76) 41

(281) 197

(58) (111)

(32) (75)

(112) 78

(119) (169)

## LANGAN

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Collectively known as Langan

NIJ CERTIFICATE OF AUTHORIZATION No. 24G427966403

Project

### PROJECT RIO

CITY OF THORNTON

ADAMS COUNTY

COLORADO

Drawing Title

**2037 TOTAL  
ADJACENT  
DEVELOPMENT  
SITE-GENERATED  
TRIPS**

Project No.

100612301

Date

02/09/2017

Scale

N.T.S.

Drawn By

EJV

Checked By

N.T.S.

Submission Date

FEBRUARY 2017

Drawing No.

## FIGURE

## B-9

Sheet 9 of 9

**APPENDIX C**  
**TRAFFIC COUNTS**



(303) 216-2439  
www.alltrafficdata.net

I-25 SB Ramp & 144TH Avenue  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 1 - 144th and I25 SB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	Groups Printed- Lights - Buses - Trucks										Int. Total					
	I-25 SB Ramp Southbound					144TH AVE Westbound						144TH AVE Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Thru	Right		App. Total	Right	App. Total		
05:00 AM	2	0	9	11	25	38	63	63	10	17	27	17	27			
05:15 AM	3	0	17	20	31	42	73	73	14	37	51	37	51			
05:30 AM	11	0	17	28	51	79	130	130	21	32	53	32	53			
05:45 AM	8	0	20	28	52	94	146	146	33	45	78	45	78			
Total	24	0	63	87	159	253	412	412	78	131	209	131	209			
06:00 AM	4	0	24	28	69	83	152	152	56	59	115	59	115			
06:15 AM	12	2	32	46	56	125	181	181	43	68	111	68	111			
06:30 AM	13	0	50	63	78	163	241	241	63	63	126	63	126			
06:45 AM	21	1	47	69	87	210	297	297	78	77	155	77	155			
Total	50	3	153	206	290	581	871	871	240	267	507	267	507			
07:00 AM	13	0	41	54	81	189	270	270	93	90	183	90	183			
07:15 AM	17	0	46	63	77	187	264	264	111	68	179	68	179			
07:30 AM	33	0	82	115	85	239	324	324	146	70	216	70	216			
07:45 AM	65	0	168	233	70	270	340	340	158	45	203	45	203			
Total	128	0	337	465	313	885	1198	1198	508	273	781	273	781			
08:00 AM	95	1	164	260	68	271	339	339	129	52	181	52	181			
08:15 AM	51	1	142	194	38	212	250	250	90	73	163	73	163			
08:30 AM	23	1	63	87	33	197	230	230	69	64	133	64	133			
08:45 AM	20	2	50	72	45	165	210	210	73	64	137	64	137			
Total	189	5	419	613	184	845	1029	1029	361	253	614	253	614			
04:00 PM	33	2	83	118	45	242	287	287	264	100	364	100	364			
04:15 PM	41	0	72	113	53	243	296	296	248	108	356	108	356			
04:30 PM	44	0	62	106	48	245	293	293	237	111	348	111	348			
04:45 PM	44	1	85	130	62	277	339	339	223	111	334	111	334			
Total	162	3	302	467	208	1007	1215	1215	972	430	1402	430	1402			
05:00 PM	63	0	93	156	48	226	274	274	268	132	400	132	400			
05:15 PM	60	1	95	156	53	266	319	319	288	136	424	136	424			
05:30 PM	49	0	91	140	51	249	300	300	273	103	376	103	376			
05:45 PM	40	0	90	130	49	251	300	300	242	100	342	100	342			
Total	212	1	369	582	201	992	1193	1193	1071	471	1542	471	1542			

\*\*\* BREAK \*\*\*



(303) 216-2439  
www.alltrafficdata.net

I-25 SB Ramp & 144TH Avenue  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 1 - 144th and I25 SB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	Groups Printed- Lights - Buses - Trucks																
	I-25 SB Ramp Southbound					144TH AVE Westbound					144TH AVE Eastbound						
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 PM	47	0	52	99	51	207	258	258	225	94	319	676					
06:15 PM	37	0	56	93	40	240	280	280	194	87	281	654					
06:30 PM	30	0	64	94	32	204	236	236	203	74	277	607					
06:45 PM	26	0	57	83	20	216	236	236	169	77	246	565					
<b>Total</b>	<b>140</b>	<b>0</b>	<b>229</b>	<b>369</b>	<b>143</b>	<b>867</b>	<b>1010</b>	<b>1010</b>	<b>791</b>	<b>332</b>	<b>1123</b>	<b>2502</b>					
07:00 PM	23	0	35	58	20	149	169	169	160	81	241	468					
07:15 PM	26	0	30	56	12	156	168	168	164	54	218	442					
07:30 PM	20	0	44	64	17	129	146	146	170	50	220	430					
07:45 PM	14	0	29	43	23	107	130	130	151	68	219	392					
<b>Total</b>	<b>83</b>	<b>0</b>	<b>138</b>	<b>221</b>	<b>72</b>	<b>541</b>	<b>613</b>	<b>613</b>	<b>645</b>	<b>253</b>	<b>898</b>	<b>1732</b>					
<b>Grand Total</b>	<b>988</b>	<b>12</b>	<b>2010</b>	<b>3010</b>	<b>1570</b>	<b>5971</b>	<b>7541</b>	<b>7541</b>	<b>4666</b>	<b>2410</b>	<b>7076</b>	<b>17627</b>					
Approch %	32.8	0.4	66.8		20.8	79.2			65.9	34.1							
Total %	5.6	0.1	11.4	17.1	8.9	33.9	42.8	42.8	26.5	13.7	40.1						
% Lights	966	11	1994	2971	1549	5890	7439	7439	4630	2378	7008	17418					
% Buses	97.8	91.7	99.2	98.7	98.7	98.6	98.6	98.6	99.2	98.7	99	98.8					
% Trucks	1.1	1	13	25	14	70	84	84	32	23	55	164					
	1.1	8.3	0.6	0.8	0.9	1.2	1.1	1.1	0.7	1	0.8	0.9					
	1.1	0	3	14	7	11	18	18	4	9	13	45					
	1.1	0	0.1	0.5	0.4	0.2	0.2	0.2	0.1	0.4	0.2	0.3					



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I-25 SB Ramp & 144TH Avenue  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 1 - 144th and I25 SB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	I-25 SB Ramp Southbound				144TH AVE Westbound				144TH AVE Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total	
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 06:30 AM												
06:30 AM	13	0	50	63	78	163	241	63	63	126	430	
06:45 AM	21	1	47	69	87	210	297	78	77	155	521	
07:00 AM	13	0	41	54	81	189	270	93	90	183	507	
07:15 AM	17	0	46	63	77	187	264	111	68	179	506	
Total Volume	64	1	184	249	323	749	1072	345	298	643	1964	
% App. Total	25.7	0.4	73.9	.902	30.1	69.9	.902	53.7	46.3	.878	.942	
PHF	.762	.250	.920		.928	.892		.777	.828			
Lights	63	1	183	247	317	728	1045	338	289	627	1919	
% Lights	98.4	100	99.5	99.2	98.1	97.2	97.5	98.0	97.0	97.5	97.7	
Buses	0	0	1	1	3	19	22	6	7	13	36	
% Buses	0	0	0.5	0.4	0.9	2.5	2.1	1.7	2.3	2.0	1.8	
Trucks	1	0	0	1	3	2	5	1	2	3	9	
% Trucks	1.6	0	0	0.4	0.9	0.3	0.5	0.3	0.7	0.5	0.5	
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 05:00 PM												
05:00 PM	63	0	93	156	48	226	274	268	132	400	830	
05:15 PM	60	1	95	156	53	266	319	288	136	424	899	
05:30 PM	49	0	91	140	51	249	300	273	103	376	816	
05:45 PM	40	0	90	130	49	251	300	242	100	342	772	
Total Volume	212	1	369	582	201	992	1193	1071	471	1542	3317	
% App. Total	36.4	0.2	63.4	.933	16.8	83.2	.935	69.5	30.5	.909	.922	
PHF	.841	.250	.971		.948	.932		.930	.866			
Lights	211	1	367	579	200	989	1189	1068	466	1534	3302	
% Lights	99.5	100	99.5	99.5	99.5	99.7	99.7	99.7	98.9	99.5	99.5	
Buses	1	0	2	3	1	3	4	3	3	6	13	
% Buses	0.5	0	0.5	0.5	0.5	0.3	0.3	0.3	0.6	0.4	0.4	
Trucks	0	0	0	0	0	0	0	0	2	2	2	
% Trucks	0	0	0	0	0	0	0	0	0.4	0.1	0.1	



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144TH Avenue and I-25 NB Ramps  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 2 - 144th and I25 NB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	144TH AVE Westbound						I-25 NB Ramp Northbound						144TH AVE Eastbound							
	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
05:00 AM	43	8	51	18	0	1	19	5	6	11	19	5	6	11	19	5	6	11	19	
05:15 AM	48	10	58	20	0	7	27	10	10	20	27	10	10	20	27	10	10	20	27	
05:30 AM	79	16	95	47	0	14	61	13	16	29	61	13	16	29	61	13	16	29	61	
05:45 AM	105	24	129	42	0	16	58	10	25	35	58	10	25	35	58	10	25	35	58	
Total	275	58	333	127	0	38	165	38	57	95	165	38	57	95	165	38	57	95	165	
06:00 AM	93	37	130	41	1	17	59	25	30	55	59	25	30	55	59	25	30	55	59	
06:15 AM	127	33	160	59	0	25	84	37	21	58	84	37	21	58	84	37	21	58	84	
06:30 AM	162	31	193	72	0	38	110	35	43	78	110	35	43	78	110	35	43	78	110	
06:45 AM	206	35	241	93	0	30	123	44	57	101	123	44	57	101	123	44	57	101	123	
Total	588	136	724	265	1	110	376	141	151	292	376	141	151	292	376	141	151	292	376	
07:00 AM	197	46	243	78	0	32	110	44	55	99	110	44	55	99	110	44	55	99	110	
07:15 AM	174	71	245	85	0	38	123	60	87	147	123	60	87	147	123	60	87	147	123	
07:30 AM	207	54	261	112	0	46	158	51	115	166	158	51	115	166	158	51	115	166	158	
07:45 AM	251	68	319	84	0	46	130	49	182	231	130	49	182	231	130	49	182	231	130	
Total	829	239	1068	359	0	162	521	204	439	643	521	204	439	643	521	204	439	643	521	
08:00 AM	274	57	331	86	0	25	111	57	155	212	111	57	155	212	111	57	155	212	111	
08:15 AM	177	42	219	80	0	29	109	37	99	136	109	37	99	136	109	37	99	136	109	
08:30 AM	149	24	173	89	0	35	124	46	62	108	124	46	62	108	124	46	62	108	124	
08:45 AM	141	17	158	75	0	32	107	35	59	94	107	35	59	94	107	35	59	94	107	
Total	741	140	881	330	0	121	451	175	375	550	451	175	375	550	451	175	375	550	451	
*** BREAK ***																				
04:00 PM	190	47	237	89	2	75	166	70	223	293	166	70	223	293	166	70	223	293	166	
04:15 PM	206	40	246	101	0	71	172	66	211	277	172	66	211	277	172	66	211	277	172	
04:30 PM	186	36	222	109	0	77	186	71	205	276	186	71	205	276	186	71	205	276	186	
04:45 PM	210	37	247	106	1	105	212	61	209	270	212	61	209	270	212	61	209	270	212	
Total	792	160	952	405	3	328	736	268	848	1116	736	268	848	1116	736	268	848	1116	736	
05:00 PM	178	43	221	108	0	61	169	82	244	326	169	82	244	326	169	82	244	326	169	
05:15 PM	201	36	237	110	0	95	205	75	274	349	205	75	274	349	205	75	274	349	205	
05:30 PM	182	35	217	119	0	105	224	63	312	405	224	63	312	405	224	63	312	405	224	
05:45 PM	194	37	231	109	0	86	195	67	281	359	195	67	281	359	195	67	281	359	195	
Total	755	151	906	446	0	347	793	287	981	1268	793	287	981	1268	793	287	981	1268	793	



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144TH Avenue and I-25 NB Ramps  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 2 - 144th and I25 NB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	144TH AVE Westbound						I-25 NB Ramp Northbound						144TH AVE Eastbound						
	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:00 PM	142	27	169	112	1	91	204	59	215		204	59	215		274	59	215		274
06:15 PM	146	31	177	122	1	92	215	55	177		215	55	177		232	55	177		232
06:30 PM	147	21	168	97	0	80	177	53	179		177	53	179		232	53	179		232
06:45 PM	140	24	164	100	1	71	172	41	164		172	41	164		205	41	164		205
Total	575	103	678	431	3	334	768	208	735		768	208	735		943	208	735		943
07:00 PM	88	29	117	86	0	62	148	36	135		148	36	135		171	36	135		171
07:15 PM	98	22	120	82	0	84	166	43	167		166	43	167		210	43	167		210
07:30 PM	91	22	113	50	0	46	96	35	136		96	35	136		171	35	136		171
07:45 PM	68	21	89	58	0	59	117	37	152		117	37	152		189	37	152		189
Total	345	94	439	276	0	251	527	151	590		527	151	590		741	151	590		741
Grand Total	4900	1081	5981	2639	7	1691	4337	1472	4176		4337	1472	4176		5648	1472	4176		5648
Approch %	81.9	18.1		60.8	0.2	39		26.1	73.9			26.1	73.9			26.1	73.9		
Total %	30.7	6.8	37.5	16.5	0	10.6	27.2	9.2	26.2		27.2	9.2	26.2		35.4	9.2	26.2		35.4
% Lights	4847	1064	5911	2597	7	1667	4271	1448	4138		4271	1448	4138		5586	1448	4138		5586
% Buses	98.9	98.4	98.8	98.4	100	98.6	98.5	98.4	99.1		98.5	98.4	99.1		98.9	98.4	99.1		98.8
% Buses	42	15	57	36	0	19	55	16	31		55	16	31		47	16	31		47
% Buses	0.9	1.4	1	1.4	0	1.1	1.3	1.1	0.7		1.3	1.1	0.7		0.8	1.1	0.7		0.8
% Trucks	11	2	13	6	0	5	11	8	7		11	8	7		15	8	7		15
% Trucks	0.2	0.2	0.2	0.2	0	0.3	0.3	0.5	0.2		0.3	0.5	0.2		0.3	0.5	0.2		0.3



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144TH Avenue and I-25 NB Ramps  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 2 - 144th and I25 NB Ramps  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	144TH AVE Westbound				I-25 NB Ramp Northbound				144TH AVE Eastbound											
	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 06:30 AM																				
06:30 AM	162	31	193	72	0	38	110	35	43	78	381	35	43	78	381					
06:45 AM	206	35	241	93	0	30	123	44	57	101	465	44	57	101	465					
07:00 AM	197	46	243	78	0	32	110	44	55	99	452	44	55	99	452					
07:15 AM	174	71	245	85	0	38	123	60	87	147	515	60	87	147	515					
Total Volume	739	183	922	328	0	138	466	183	242	425	1813	183	242	425	1813					
% App. Total	80.2	19.8	941	70.4	0	29.6	947	43.1	56.9	723	880	43.1	56.9	723	880					
PHF	.897	.644	.941	.882	.000	.908	.947	.763	.695	.723	.880	.763	.695	.723	.880					
Lights	729	176	905	314	0	132	446	180	238	418	1769	180	238	418	1769					
% Lights	98.6	96.2	98.2	95.7	0	95.7	95.7	98.4	98.3	98.4	97.6	98.4	98.3	98.4	97.6					
Buses	8	5	13	11	0	5	16	2	3	5	34	2	3	5	34					
% Buses	1.1	2.7	1.4	3.4	0	3.6	3.4	1.1	1.2	1.2	1.9	1.1	1.2	1.2	1.9					
Trucks	2	2	4	3	0	1	4	1	1	2	10	1	1	2	10					
% Trucks	0.3	1.1	0.4	0.9	0	0.7	0.9	0.5	0.4	0.5	0.6	0.5	0.4	0.5	0.6					
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 05:00 PM																				
05:00 PM	178	43	221	108	0	61	169	82	244	326	716	82	244	326	716					
05:15 PM	201	36	237	110	0	95	205	75	274	349	791	75	274	349	791					
05:30 PM	182	35	217	119	0	105	224	63	249	312	753	63	249	312	753					
05:45 PM	194	37	231	109	0	86	195	67	214	281	707	67	214	281	707					
Total Volume	755	151	906	446	0	347	793	287	981	1268	2967	287	981	1268	2967					
% App. Total	83.3	16.7	956	56.2	0	43.8	885	22.6	77.4	908	938	22.6	77.4	908	938					
PHF	.939	.878	.956	.937	.000	.826	.885	.875	.895	.908	.938	.875	.895	.908	.938					
Lights	751	151	902	446	0	347	793	284	979	1263	2958	284	979	1263	2958					
% Lights	99.5	100	99.6	100	0	100	100	99.0	99.8	99.6	99.7	99.0	99.8	99.6	99.7					
Buses	4	0	4	0	0	0	0	3	2	5	9	3	2	5	9					
% Buses	0.5	0	0.4	0	0	0	0	1.0	0.2	0.4	0.3	1.0	0.2	0.4	0.3					
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					





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144TH Avenue and Lincoln Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 3 - 144TH and Lincoln St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	Groups Printed- Lights - Buses - Trucks														
	144TH AVE Westbound					Lincoln Street Northbound					144TH AVE Eastbound				
	Left	Thru	App. Total	Left	Right	Thru	App. Total	Left	Right	Thru	App. Total	Right	Thru	App. Total	Int. Total
05:00 AM	1	43	44	5	1	6	6	5	4	9	9	4	5	9	59
05:15 AM	4	54	58	8	2	10	10	6	12	18	18	12	6	18	86
05:30 AM	6	87	93	14	3	17	17	15	15	30	30	15	15	30	140
05:45 AM	4	108	112	24	1	25	25	15	19	34	34	19	15	34	171
Total	15	292	307	51	7	58	58	41	50	91	91	50	41	91	456
06:00 AM	6	91	97	21	4	25	25	40	16	56	56	16	40	56	178
06:15 AM	10	141	151	21	5	26	26	27	18	45	45	18	27	45	222
06:30 AM	4	196	200	19	6	25	25	43	27	70	70	27	43	70	295
06:45 AM	16	219	235	22	3	25	25	72	23	95	95	23	72	95	355
Total	36	647	683	83	18	101	101	182	84	266	266	84	182	266	1050
07:00 AM	17	222	239	29	9	38	38	85	30	115	115	30	85	115	392
07:15 AM	8	207	215	27	11	38	38	95	18	113	113	18	95	113	366
07:30 AM	12	197	209	28	13	41	41	138	28	166	166	28	138	166	416
07:45 AM	14	295	309	23	12	35	35	173	26	199	199	26	173	199	543
Total	51	921	972	107	45	152	152	491	102	593	593	102	491	593	1717
08:00 AM	15	260	275	21	9	30	30	102	23	125	125	23	102	125	430
08:15 AM	21	213	234	23	9	32	32	97	43	140	140	43	97	140	406
08:30 AM	13	186	199	37	10	47	47	89	39	128	128	39	89	128	374
08:45 AM	18	159	177	25	7	32	32	81	30	111	111	30	81	111	320
Total	67	818	885	106	35	141	141	369	135	504	504	135	369	504	1530
*** BREAK ***															
04:00 PM	20	185	205	82	27	109	109	221	73	294	294	73	221	294	608
04:15 PM	17	170	187	70	28	98	98	243	91	334	334	91	243	334	619
04:30 PM	24	151	175	76	26	102	102	245	83	328	328	83	245	328	605
04:45 PM	19	193	212	55	24	79	79	278	73	351	351	73	278	351	642
Total	80	699	779	283	105	388	388	987	320	1307	1307	320	987	1307	2474
05:00 PM	19	157	176	84	52	136	136	276	99	375	375	99	276	375	687
05:15 PM	26	171	197	71	23	94	94	306	67	373	373	67	306	373	664
05:30 PM	19	146	165	58	26	84	84	247	93	340	340	93	247	340	589
05:45 PM	7	134	141	53	32	85	85	235	88	323	323	88	235	323	549
Total	71	608	679	266	133	399	399	1064	347	1411	1411	347	1064	1411	2489



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144TH Avenue and Lincoln Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 3 - 144TH and Lincoln St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	144TH AVE Westbound				Lincoln Street Northbound				144TH AVE Eastbound				Int. Total
	Left	Thru	App. Total		Left	Right	App. Total		Thru	Right	App. Total		
06:00 PM	20	108	128		67	35	102		228	90	318		548
06:15 PM	24	124	148		73	30	103		194	68	262		513
06:30 PM	16	116	132		65	27	92		172	58	230		454
06:45 PM	11	83	94		54	25	79		120	53	173		346
<b>Total</b>	<b>71</b>	<b>431</b>	<b>502</b>		<b>259</b>	<b>117</b>	<b>376</b>		<b>714</b>	<b>269</b>	<b>983</b>		<b>1861</b>
07:00 PM	15	82	97		44	21	65		136	52	188		350
07:15 PM	7	64	71		42	23	65		144	49	193		329
07:30 PM	10	72	82		40	21	61		131	32	163		306
07:45 PM	11	84	95		33	25	58		111	42	153		306
<b>Total</b>	<b>43</b>	<b>302</b>	<b>345</b>		<b>159</b>	<b>90</b>	<b>249</b>		<b>522</b>	<b>175</b>	<b>697</b>		<b>1291</b>
<b>Grand Total</b>	<b>434</b>	<b>4718</b>	<b>5152</b>		<b>1314</b>	<b>550</b>	<b>1864</b>		<b>4370</b>	<b>1482</b>	<b>5852</b>		<b>12868</b>
Apprch %	8.4	91.6		70.5	29.5			74.7	25.3				
Total %	3.4	36.7	40	10.2	4.3	14.5		34	11.5	45.5			
% Lights	429	4679	5108	1290	548	1838		4340	1467	5807			12753
% Lights	98.8	99.2	99.1	98.2	99.6	98.6		99.3	99	99.2			99.1
% Buses	5	35	40	22	2	24		27	13	40			104
% Buses	1.2	0.7	0.8	1.7	0.4	1.3		0.6	0.9	0.7			0.8
Trucks	0	4	4	2	0	2		3	2	5			11
% Trucks	0	0.1	0.1	0.2	0	0.1		0.1	0.1	0.1			0.1



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144TH Avenue and Lincoln Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 3 - 144TH and Lincoln St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	144TH AVE Westbound			Lincoln Street Northbound			144TH AVE Eastbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:30 AM										
06:30 AM	4	196	200	19	6	25	43	27	70	295
06:45 AM	16	219	235	22	3	25	72	23	95	355
07:00 AM	17	222	239	29	9	38	85	30	115	392
07:15 AM	8	207	215	27	11	38	95	18	113	366
Total Volume	45	844	889	97	29	126	295	98	393	1408
% App. Total	5.1	94.9		77	23		75.1	24.9		
PHF	.662	.950	.930	.836	.659	.829	.776	.817	.854	.898
Lights	45	833	878	94	28	122	291	93	384	1384
% Lights	100	98.7	98.8	96.9	96.6	96.8	98.6	94.9	97.7	98.3
Buses	0	11	11	3	1	4	4	5	9	24
% Buses	0	1.3	1.2	3.1	3.4	3.2	1.4	5.1	2.3	1.7
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	19	157	176	84	52	136	276	99	375	687
05:15 PM	26	171	197	71	23	94	306	67	373	664
05:30 PM	19	146	165	58	26	84	247	93	340	589
05:45 PM	7	134	141	53	32	85	235	88	323	549
Total Volume	71	608	679	266	133	399	1064	347	1411	2489
% App. Total	10.5	89.5		66.7	33.3		75.4	24.6		
PHF	.683	.889	.862	.792	.639	.733	.869	.876	.941	.906
Lights	71	605	676	266	133	399	1060	347	1407	2482
% Lights	100	99.5	99.6	100	100	100	99.6	100	99.7	99.7
Buses	0	2	2	0	0	0	3	0	3	5
% Buses	0	0.3	0.3	0	0	0	0.3	0	0.2	0.2
Trucks	0	1	1	0	0	0	1	0	1	2
% Trucks	0	0.2	0.1	0	0	0	0.1	0	0.1	0.1



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144TH Avenue and Grant Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 4 - 144th and Grant St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	144TH Ave Westbound			Grant Street Northbound			144TH Ave Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
05:00 AM	0	45	45	3	0	3	5	0	5	53
05:15 AM	1	55	56	5	2	7	11	1	12	75
05:30 AM	2	88	90	10	2	12	19	1	20	122
05:45 AM	3	102	105	6	2	8	23	2	25	138
<b>Total</b>	<b>6</b>	<b>290</b>	<b>296</b>	<b>24</b>	<b>6</b>	<b>30</b>	<b>58</b>	<b>4</b>	<b>62</b>	<b>388</b>
06:00 AM	0	120	120	17	1	18	40	3	43	181
06:15 AM	2	142	144	15	3	18	27	2	29	191
06:30 AM	1	172	173	17	8	25	58	4	62	260
06:45 AM	1	222	223	12	8	20	71	7	78	321
<b>Total</b>	<b>4</b>	<b>656</b>	<b>660</b>	<b>61</b>	<b>20</b>	<b>81</b>	<b>196</b>	<b>16</b>	<b>212</b>	<b>953</b>
07:00 AM	1	202	203	17	14	31	75	2	77	311
07:15 AM	6	212	218	25	14	39	103	7	110	367
07:30 AM	10	245	255	24	13	37	164	7	171	463
07:45 AM	11	295	306	18	9	27	193	3	196	529
<b>Total</b>	<b>28</b>	<b>954</b>	<b>982</b>	<b>84</b>	<b>50</b>	<b>134</b>	<b>535</b>	<b>19</b>	<b>554</b>	<b>1670</b>
08:00 AM	2	283	285	11	5	16	153	8	161	462
08:15 AM	11	190	201	10	8	18	89	4	93	312
08:30 AM	4	146	150	3	4	7	77	2	79	236
08:45 AM	5	138	143	6	2	8	57	2	59	210
<b>Total</b>	<b>22</b>	<b>757</b>	<b>779</b>	<b>30</b>	<b>19</b>	<b>49</b>	<b>376</b>	<b>16</b>	<b>392</b>	<b>1220</b>
*** BREAK ***										
04:00 PM	15	164	179	16	19	35	245	7	252	466
04:15 PM	23	177	200	5	19	24	238	16	254	478
04:30 PM	15	175	190	4	17	21	228	11	239	450
04:45 PM	18	172	190	5	13	18	245	16	261	469
<b>Total</b>	<b>71</b>	<b>688</b>	<b>759</b>	<b>30</b>	<b>68</b>	<b>98</b>	<b>956</b>	<b>50</b>	<b>1006</b>	<b>1863</b>
05:00 PM	18	176	194	10	18	28	253	14	267	489
05:15 PM	14	185	199	14	8	22	318	6	324	545
05:30 PM	13	160	173	7	8	15	304	15	319	507
05:45 PM	10	155	165	8	12	20	230	19	249	434
<b>Total</b>	<b>55</b>	<b>676</b>	<b>731</b>	<b>39</b>	<b>46</b>	<b>85</b>	<b>1105</b>	<b>54</b>	<b>1159</b>	<b>1975</b>



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144TH Avenue and Grant Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 4 - 144th and Grant St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	144TH Ave Westbound			Grant Street Northbound			144TH Ave Eastbound			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
06:00 PM	10	142	152	6	11	17	239	18	257	426
06:15 PM	3	131	134	7	16	23	224	17	241	398
06:30 PM	8	112	120	8	10	18	219	13	232	370
06:45 PM	6	116	122	5	7	12	185	20	205	339
<b>Total</b>	<b>27</b>	<b>501</b>	<b>528</b>	<b>26</b>	<b>44</b>	<b>70</b>	<b>867</b>	<b>68</b>	<b>935</b>	<b>1533</b>
07:00 PM	10	80	90	6	10	16	177	12	189	295
07:15 PM	3	77	80	8	3	11	179	14	193	284
07:30 PM	5	63	68	2	6	8	161	8	169	245
07:45 PM	6	59	65	4	11	15	166	8	174	254
<b>Total</b>	<b>24</b>	<b>279</b>	<b>303</b>	<b>20</b>	<b>30</b>	<b>50</b>	<b>683</b>	<b>42</b>	<b>725</b>	<b>1078</b>
<b>Grand Total</b>	<b>237</b>	<b>4801</b>	<b>5038</b>	<b>314</b>	<b>283</b>	<b>597</b>	<b>4776</b>	<b>269</b>	<b>5045</b>	<b>10680</b>
Apprch %	4.7	95.3		52.6	47.4		94.7	5.3		
Total %	2.2	45	47.2	2.9	2.6	5.6	44.7	2.5	47.2	
% Lights	234	4755	4989	313	278	591	4749	266	5015	10595
% Buses	98.7	99	99	99.7	98.2	99	99.4	98.9	99.4	99.2
% Trucks	3	41	44	1	5	6	23	3	26	76
	1.3	0.9	0.9	0.3	1.8	1	0.5	1.1	0.5	0.7
% Trucks	0	5	5	0	0	0	4	0	4	9
	0	0.1	0.1	0	0	0	0.1	0	0.1	0.1





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144TH Avenue and Washington Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 5 - 144th and Washington St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	Groups Printed- Lights - Buses - Trucks																
	Washington Street Southbound				144TH AVE Westbound				Washington Street Northbound				144TH AVE Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	0	1	3	4	0	37	1	38	5	2	1	8	0	6	0	6	56
05:15 AM	0	3	7	10	3	40	3	46	4	4	0	8	0	8	2	10	74
05:30 AM	0	6	13	19	0	61	1	62	14	11	1	26	4	12	3	19	126
05:45 AM	0	7	10	17	1	80	0	81	11	6	0	17	4	5	10	19	134
Total	0	17	33	50	4	218	5	227	34	23	2	59	8	31	15	54	390
06:00 AM	0	4	14	18	3	80	1	84	4	12	1	17	11	25	6	42	161
06:15 AM	1	11	16	28	1	115	4	120	24	11	0	35	12	20	6	38	221
06:30 AM	1	30	21	52	28	141	3	172	19	16	1	36	16	24	14	54	314
06:45 AM	1	28	29	58	31	181	7	219	15	18	6	39	19	43	22	84	400
Total	3	73	80	156	63	517	15	595	62	57	8	127	58	112	48	218	1096
07:00 AM	0	24	38	62	14	172	12	198	23	22	6	51	22	45	26	93	404
07:15 AM	3	41	29	73	14	154	17	185	21	31	3	55	38	55	31	124	437
07:30 AM	10	63	44	117	25	135	73	233	26	93	6	125	78	58	19	155	630
07:45 AM	47	110	128	285	22	146	71	239	32	98	8	138	97	62	30	189	851
Total	60	238	239	537	75	607	173	855	102	244	23	369	235	220	106	561	2322
08:00 AM	29	83	98	210	14	126	31	171	37	63	8	108	40	56	21	117	606
08:15 AM	7	34	35	76	18	173	15	206	32	26	6	64	15	67	23	105	451
08:30 AM	3	23	24	50	7	106	16	129	42	26	7	75	13	55	23	91	345
08:45 AM	5	27	38	70	7	113	11	131	29	21	3	53	31	48	20	99	353
Total	44	167	195	406	46	518	73	637	140	136	24	300	99	226	87	412	1755
*** BREAK ***																	
04:00 PM	17	56	37	110	9	111	14	134	55	60	18	133	40	156	62	258	635
04:15 PM	25	57	48	130	10	98	21	129	46	43	17	106	53	175	59	287	652
04:30 PM	26	62	34	122	15	96	20	131	45	56	20	121	46	171	58	275	649
04:45 PM	25	63	57	145	8	105	14	127	42	69	18	129	60	170	82	312	713
Total	93	238	176	507	42	410	69	521	188	228	73	489	199	672	261	1132	2649
05:00 PM	21	81	41	143	13	91	9	113	53	69	20	142	57	197	78	332	730
05:15 PM	24	68	59	151	4	101	16	121	36	44	18	98	54	175	81	310	680
05:30 PM	21	63	33	117	11	92	8	111	40	42	13	95	42	143	85	270	593
05:45 PM	13	45	34	92	10	76	9	95	37	35	13	85	29	171	66	266	538
Total	79	257	167	503	38	360	42	440	166	190	64	420	182	686	310	1178	2541



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144TH Avenue and Washington Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 5 - 144th and Washington St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	Groups Printed- Lights - Buses - Trucks																			
	Washington Street Southbound						Washington Street Northbound						144TH AVE Eastbound							
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:00 PM	14	47	22	83	5	73	13	91	35	51	14	100	38	149	70	257	38	149	70	257
06:15 PM	11	39	28	78	6	95	13	114	31	51	13	95	43	145	48	236	43	145	48	236
06:30 PM	5	32	24	61	3	72	7	82	39	15	12	66	28	141	48	217	28	141	48	217
06:45 PM	8	35	14	57	7	58	4	69	19	18	12	49	14	82	39	135	14	82	39	135
<b>Total</b>	<b>38</b>	<b>153</b>	<b>88</b>	<b>279</b>	<b>21</b>	<b>298</b>	<b>37</b>	<b>356</b>	<b>124</b>	<b>135</b>	<b>51</b>	<b>310</b>	<b>123</b>	<b>517</b>	<b>205</b>	<b>845</b>	<b>123</b>	<b>517</b>	<b>205</b>	<b>845</b>
07:00 PM	7	29	15	51	6	57	5	68	19	14	4	37	22	117	31	170	22	117	31	170
07:15 PM	6	16	14	36	5	44	3	52	17	13	9	39	17	117	39	173	17	117	39	173
07:30 PM	8	29	21	58	2	49	0	51	18	12	7	37	23	91	42	156	23	91	42	156
07:45 PM	12	36	41	89	2	40	4	46	17	12	12	41	17	95	31	143	17	95	31	143
<b>Total</b>	<b>33</b>	<b>110</b>	<b>91</b>	<b>234</b>	<b>15</b>	<b>190</b>	<b>12</b>	<b>217</b>	<b>71</b>	<b>51</b>	<b>32</b>	<b>154</b>	<b>79</b>	<b>420</b>	<b>143</b>	<b>642</b>	<b>79</b>	<b>420</b>	<b>143</b>	<b>642</b>
<b>Grand Total</b>	<b>350</b>	<b>1253</b>	<b>1069</b>	<b>2672</b>	<b>304</b>	<b>3118</b>	<b>426</b>	<b>3848</b>	<b>887</b>	<b>1064</b>	<b>277</b>	<b>2228</b>	<b>983</b>	<b>2884</b>	<b>1175</b>	<b>5042</b>	<b>983</b>	<b>2884</b>	<b>1175</b>	<b>5042</b>
Approch %	13.1	46.9	40		7.9	81	11.1		39.8	47.8	12.4		19.5	57.2	23.3		19.5	57.2	23.3	
Total %	2.5	9.1	7.8	19.4	2.2	22.6	3.1	27.9	6.4	7.7	2	16.2	7.1	20.9	8.5	36.6	7.1	20.9	8.5	36.6
% Lights	350	1245	1055	2650	303	3098	425	3826	882	1043	274	2199	971	2869	1167	5007	971	2869	1167	5007
% Buses	100	99.4	98.7	99.2	99.7	99.4	99.8	99.4	99.4	98	98.9	98.7	98.8	99.5	99.3	99.3	98.8	99.5	99.3	99.3
% Trucks	0	0	11	19	1	17	1	19	4	20	2	26	9	15	7	31	9	15	7	31
	0	0.6	1	0.7	0.3	0.5	0.2	0.5	0.5	1.9	0.7	1.2	0.9	0.5	0.6	0.6	0.9	0.5	0.6	0.6
	0	0	3	3	0	3	0	3	1	1	1	3	3	0	1	4	3	0	1	4
% Trucks	0	0	0.3	0.1	0	0.1	0	0.1	0.1	0.1	0.4	0.1	0.3	0	0.1	0.1	0.3	0	0.1	0.1





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144TH Avenue and Washington Street  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 5 - 144th and Washington St  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	Washington Street Southbound					144TH AVE Westbound					Washington Street Northbound					144TH AVE Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:30 AM																					
06:30 AM	1	30	21	52		28	141	3	172		19	16	1	36		16	24	14	54		314
06:45 AM	1	28	29	58		31	181	7	219		15	18	6	39		19	43	22	84		400
07:00 AM	0	24	38	62		14	172	12	198		23	22	6	51		22	45	26	93		404
07:15 AM	3	41	29	73		14	154	17	185		21	31	3	55		38	55	31	124		437
Total Volume	5	123	117	245		87	648	39	774		78	87	16	181		95	167	93	355		1555
% App. Total	2	50.2	47.8			11.2	83.7	5			43.1	48.1	8.8			26.8	47	26.2			1555
PHF	.417	.750	.770	.839		.702	.895	.574	.884		.848	.702	.667	.823		.625	.759	.750	.716		.890
Lights	5	121	115	241		87	640	39	766		78	82	16	176		92	165	91	348		1531
% Lights	100	98.4	98.3	98.4		100	98.8	100	99.0		100	94.3	100	97.2		96.8	98.8	97.8	98.0		98.5
Buses	0	2	1	3		0	7	0	7		0	4	0	4		3	2	2	7		21
% Buses	0	1.6	0.9	1.2		0	1.1	0	0.9		0	4.6	0	2.2		3.2	1.2	2.2	2.0		1.4
Trucks	0	0	1	1		0	1	0	1		0	1	0	1		0	0	0	0		3
% Trucks	0	0	0.9	0.4		0	0.2	0	0.1		0	1.1	0	0.6		0	0	0	0		0.2
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	21	81	41	143		13	91	9	113		53	69	20	142		57	197	78	332		730
05:15 PM	24	68	59	151		4	101	16	121		36	44	18	98		54	175	81	310		680
05:30 PM	21	63	33	117		11	92	8	111		40	42	13	95		42	143	85	270		593
05:45 PM	13	45	34	92		10	76	9	95		37	35	13	85		29	171	66	266		538
Total Volume	79	257	167	503		38	360	42	440		166	190	64	420		182	686	310	1178		2541
% App. Total	15.7	51.1	33.2			8.6	81.8	9.5			39.5	45.2	15.2			15.4	58.2	26.3			2541
PHF	.823	.793	.708	.833		.731	.891	.656	.909		.783	.688	.800	.739		.798	.871	.912	.887		.870
Lights	79	257	167	503		38	357	42	437		166	190	64	420		180	685	308	1173		2533
% Lights	100	100	100	100		100	99.2	100	99.3		100	100	100	100		98.9	99.9	99.4	99.6		99.7
Buses	0	0	0	0		0	1	0	1		0	0	0	0		1	1	1	3		4
% Buses	0	0	0	0		0	0.3	0	0.2		0	0	0	0		0.5	0.1	0.3	0.3		0.2
Trucks	0	0	0	0		0	2	0	2		0	0	0	0		1	0	1	2		4
% Trucks	0	0	0	0		0	0.6	0	0.5		0	0	0	0		0.5	0	0.3	0.2		0.2



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Washington Street and School Driveway  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 6 - Washington St and School Driveway  
Site Code : 0000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	Washington Street Southbound				School Driveway Westbound				Washington Street Northbound				Int. Total
	Left	Thru	App. Total		Left	Right	App. Total		Thru	Right	App. Total		
05:00 AM	0	4	4		0	0	0		3	0	3		7
05:15 AM	0	10	10		0	0	0		7	0	7		17
05:30 AM	0	20	20		0	0	0		14	1	15		35
05:45 AM	0	18	18		0	0	0		9	1	10		28
<b>Total</b>	<b>0</b>	<b>52</b>	<b>52</b>		<b>0</b>	<b>0</b>	<b>0</b>		<b>33</b>	<b>2</b>	<b>35</b>		<b>87</b>
06:00 AM	1	18	19		0	0	0		20	1	21		40
06:15 AM	1	28	29		1	2	3		27	2	29		61
06:30 AM	0	53	53		0	0	0		35	0	35		88
06:45 AM	0	63	63		1	0	1		32	0	32		96
<b>Total</b>	<b>2</b>	<b>162</b>	<b>164</b>		<b>2</b>	<b>2</b>	<b>4</b>		<b>114</b>	<b>3</b>	<b>117</b>		<b>285</b>
07:00 AM	1	56	57		0	0	0		35	9	44		101
07:15 AM	1	60	61		1	2	3		38	6	44		108
07:30 AM	15	64	79		32	7	39		57	31	88		206
07:45 AM	27	55	82		151	22	173		34	43	77		332
<b>Total</b>	<b>44</b>	<b>235</b>	<b>279</b>		<b>184</b>	<b>31</b>	<b>215</b>		<b>164</b>	<b>89</b>	<b>253</b>		<b>747</b>
08:00 AM	9	54	63		86	18	104		45	13	58		225
08:15 AM	0	52	52		5	2	7		40	2	42		101
08:30 AM	1	41	42		2	0	2		45	0	45		89
08:45 AM	2	55	57		2	1	3		53	1	54		114
<b>Total</b>	<b>12</b>	<b>202</b>	<b>214</b>		<b>95</b>	<b>21</b>	<b>116</b>		<b>183</b>	<b>16</b>	<b>199</b>		<b>529</b>
*** BREAK ***													
04:00 PM	2	75	77		19	3	22		83	2	85		184
04:15 PM	0	91	91		15	0	15		97	1	98		204
04:30 PM	4	79	83		22	4	26		85	7	92		201
04:45 PM	4	96	100		33	2	35		103	13	116		251
<b>Total</b>	<b>10</b>	<b>341</b>	<b>351</b>		<b>89</b>	<b>9</b>	<b>98</b>		<b>368</b>	<b>23</b>	<b>391</b>		<b>840</b>
05:00 PM	2	88	90		34	3	37		88	16	104		231
05:15 PM	4	105	109		28	6	34		72	13	85		228
05:30 PM	3	89	92		16	4	20		67	8	75		187
05:45 PM	1	82	83		6	0	6		59	3	62		151
<b>Total</b>	<b>10</b>	<b>364</b>	<b>374</b>		<b>84</b>	<b>13</b>	<b>97</b>		<b>286</b>	<b>40</b>	<b>326</b>		<b>797</b>



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Washington Street and School Driveway  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 6 - Washington St and School Driveway  
Site Code : 0000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	Washington Street Southbound				School Driveway Westbound				Washington Street Northbound				Int. Total
	Left	Thru	App. Total		Left	Right	App. Total		Thru	Right	App. Total		
06:00 PM	5	80	85		2	1	3		63	5	68		156
06:15 PM	5	71	76		6	0	6		56	3	59		141
06:30 PM	1	59	60		0	0	0		44	3	47		107
06:45 PM	0	52	52		8	0	8		29	7	36		96
<b>Total</b>	<b>11</b>	<b>262</b>	<b>273</b>		<b>16</b>	<b>1</b>	<b>17</b>		<b>192</b>	<b>18</b>	<b>210</b>		<b>500</b>
07:00 PM	0	43	43		7	0	7		34	4	38		88
07:15 PM	0	25	25		0	0	0		31	3	34		59
07:30 PM	0	34	34		7	0	7		34	2	36		77
07:45 PM	1	37	38		5	6	11		34	2	36		85
<b>Total</b>	<b>1</b>	<b>139</b>	<b>140</b>		<b>19</b>	<b>6</b>	<b>25</b>		<b>133</b>	<b>11</b>	<b>144</b>		<b>309</b>
<b>Grand Total</b>	<b>90</b>	<b>1757</b>	<b>1847</b>		<b>489</b>	<b>83</b>	<b>572</b>		<b>1473</b>	<b>202</b>	<b>1675</b>		<b>4094</b>
Approch %	4.9	95.1		85.5	14.5			12.1	87.9	12.1			
Total %	2.2	42.9	45.1	11.9	2	14	40.9	4.9	36	4.9	40.9		
% Lights	89	1737	1826	488	81	569	1644	201	1443	201	1644		4039
% Lights	98.9	98.9	98.9	99.8	97.6	99.5	98.1	99.5	98	99.5	98.1		98.7
% Buses	1.1	18	19	1	2	3	28	1	27	1	28		50
% Buses	1.1	1	1	0.2	2.4	0.5	1.7	0.5	1.8	0.5	1.7		1.2
% Trucks	0	2	2	0	0	0	3	0	3	0	3		5
% Trucks	0	0.1	0.1	0	0	0	0.2	0	0.2	0	0.2		0.1



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Washington Street and School Driveway  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 6 - Washington St and School Driveway  
Site Code : 0000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	Washington Street Southbound			School Driveway Westbound			Washington Street Northbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:30 AM										
06:30 AM	0	53	53	0	0	0	35	0	35	88
06:45 AM	0	63	63	1	0	1	32	0	32	96
07:00 AM	1	56	57	0	0	0	35	9	44	101
07:15 AM	1	60	61	1	2	3	38	6	44	108
Total Volume	2	232	234	2	2	4	140	15	155	393
% App. Total	0.9	99.1	.929	.500	.250	.333	.921	.417	.881	.910
PHF										
Lights	2	227	229	2	1	3	134	15	149	381
% Lights	100	97.8	97.9	100	50.0	75.0	95.7	100	96.1	96.9
Buses	0	5	5	0	1	1	5	0	5	11
% Buses	0	2.2	2.1	0	50.0	25.0	3.6	0	3.2	2.8
Trucks	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0.7	0	0.6	0.3
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	2	88	90	34	3	37	88	16	104	231
05:15 PM	4	105	109	28	6	34	72	13	85	228
05:30 PM	3	89	92	16	4	20	67	8	75	187
05:45 PM	1	82	83	6	0	6	59	3	62	151
Total Volume	10	364	374	84	13	97	286	40	326	797
% App. Total	2.7	97.3	.858	.618	.542	.655	.813	.625	.784	.863
PHF										
Lights	10	364	374	84	13	97	282	40	322	793
% Lights	100	100	100	100	100	100	98.6	100	98.8	99.5
Buses	0	0	0	0	0	0	3	0	3	3
% Buses	0	0	0	0	0	0	1.0	0	0.9	0.4
Trucks	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0.3	0	0.3	0.1



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Lincoln Street and Lincoln Way  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 7 - Lincoln Street and Lincoln Way  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 1

Start Time	Groups Printed- Lights - Buses - Trucks																
	Lincoln Street Southbound				Lincoln Way Westbound				Lincoln Street Northbound				Lincoln Way Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	2
05:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	1	2
05:30 AM	0	3	0	3	0	0	1	1	0	0	0	0	5	0	0	5	9
05:45 AM	0	5	0	5	0	0	0	0	0	1	0	1	7	1	0	8	14
<b>Total</b>	0	9	0	9	0	0	2	2	0	1	0	1	14	1	0	15	27
06:00 AM	0	1	1	2	0	0	2	2	0	0	0	0	5	1	0	6	10
06:15 AM	0	3	0	3	0	0	4	4	0	0	0	0	1	0	0	1	8
06:30 AM	0	3	1	4	0	0	2	2	0	1	0	1	3	0	0	3	10
06:45 AM	0	9	3	12	0	0	1	1	0	1	0	1	4	0	0	4	18
<b>Total</b>	0	16	5	21	0	0	9	9	0	2	0	2	13	1	0	14	46
07:00 AM	0	5	0	5	0	0	3	3	0	1	0	0	3	0	0	3	12
07:15 AM	1	4	1	6	0	0	7	7	0	0	0	0	3	0	0	3	16
07:30 AM	1	11	0	13	0	0	2	2	0	4	0	4	1	1	0	2	21
07:45 AM	2	5	0	7	0	0	2	2	1	2	0	3	1	0	1	2	14
<b>Total</b>	4	25	2	31	0	0	14	14	1	7	0	8	8	1	1	10	63
08:00 AM	2	11	2	15	0	0	0	0	0	2	0	2	2	0	0	2	20
08:15 AM	1	16	3	20	0	0	2	2	0	3	1	4	5	0	0	5	31
08:30 AM	4	16	2	22	0	0	1	1	0	5	0	5	3	0	0	3	31
08:45 AM	2	11	3	16	0	0	2	2	0	5	0	5	2	0	0	2	25
<b>Total</b>	9	54	10	73	1	0	5	6	0	15	1	16	12	0	0	12	107
*** BREAK ***																	
04:00 PM	1	40	2	43	1	0	7	8	0	49	0	49	2	0	0	2	102
04:15 PM	3	46	4	53	0	1	8	9	0	40	0	40	0	0	2	2	104
04:30 PM	5	40	5	50	0	0	8	8	0	36	0	36	2	0	0	2	96
04:45 PM	6	48	4	58	3	0	8	6	1	37	0	38	1	0	0	1	103
<b>Total</b>	15	174	15	204	4	1	26	31	1	162	0	163	5	0	2	7	405
05:00 PM	2	46	10	58	1	0	9	10	0	57	1	58	5	1	0	6	132
05:15 PM	3	33	2	38	0	1	5	6	1	32	1	34	2	1	0	3	81
05:30 PM	4	50	4	58	0	2	5	5	0	31	0	31	3	0	0	3	99
05:45 PM	2	34	2	38	1	0	1	2	0	43	1	44	1	0	0	1	85
<b>Total</b>	11	163	18	192	2	3	20	25	1	163	3	167	11	2	0	13	397



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Lincoln Street and Lincoln Way  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 7 - Lincoln Street and Lincoln Way  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 2

Start Time	Groups Printed- Lights - Buses - Trucks															
	Lincoln Street Southbound				Lincoln Way Westbound				Lincoln Street Northbound				Lincoln Way Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:00 PM	4	40	7	51	0	0	3	3	0	45	1	46	0	0	0	0
06:15 PM	7	37	1	45	3	0	4	7	0	37	1	38	4	0	0	4
06:30 PM	2	30	2	34	2	0	9	11	0	33	1	34	0	0	0	0
06:45 PM	2	30	4	36	2	0	2	4	0	39	1	40	1	0	0	1
Total	15	137	14	166	7	0	18	25	0	154	4	158	5	0	0	5
07:00 PM	1	27	2	30	0	0	4	4	0	29	1	30	1	0	0	1
07:15 PM	2	27	2	31	1	0	2	3	0	35	1	36	1	0	0	1
07:30 PM	1	17	1	19	0	0	3	3	0	24	1	25	0	0	0	0
07:45 PM	2	20	1	23	1	0	2	3	0	19	0	19	1	0	0	1
Total	6	91	6	103	2	0	11	13	0	107	3	110	4	0	0	4
Grand Total	60	669	70	799	16	4	105	125	3	611	11	625	72	5	3	80
Approch %	7.5	83.7	8.8		12.8	3.2	84		0.5	97.8	1.8		90	6.2	3.8	
Total %	3.7	41.1	4.3	49	1	0.2	6.4	7.7	0.2	37.5	0.7	38.4	4.4	0.3	0.2	4.9
% Lights	59	663	70	792	16	4	102	122	3	604	11	618	72	5	3	80
% Buses	98.3	99.1	100	99.1	100	100	97.1	97.6	100	98.9	100	98.9	100	100	100	100
% Trucks	1	6	0	7	0	0	3	3	0	7	0	7	0	0	0	0
	1.7	0.9	0	0.9	0	0	2.9	2.4	0	1.1	0	1.1	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Lincoln Street and Lincoln Way  
Manual Turning Movement Count  
Weekday AM and PM Peak Hour  
Thursday, 12 January 2017

File Name : 7 - Lincoln Street and Lincoln Way  
Site Code : 00000000  
Start Date : 1/12/2017  
Page No : 3

Start Time	Lincoln Street Southbound			Lincoln Way Westbound			Lincoln Street Northbound			Lincoln Way Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Peak Hour Analysis From 06:30 AM to 07:15 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 06:30 AM													
06:30 AM	0	3	1	0	0	2	0	1	0	3	0	0	10
06:45 AM	0	9	3	0	0	1	0	1	0	4	0	0	18
07:00 AM	0	5	0	0	0	3	0	1	0	3	0	0	12
07:15 AM	1	4	1	0	0	7	0	0	0	3	0	0	16
Total Volume	1	21	5	0	0	13	0	3	0	13	0	0	56
% App. Total	3.7	77.8	18.5	0	0	100	0	100	0	100	0	0	100
PHF	.250	.583	.417	.000	.000	.464	.000	.750	.000	.813	.000	.000	.778
Lights	1	20	5	0	0	12	0	2	0	13	0	0	53
% Lights	100	95.2	100	0	0	92.3	0	66.7	0	100	0	0	94.6
Buses	0	1	0	0	0	1	0	1	0	0	0	0	3
% Buses	0	4.8	0	0	0	7.7	0	33.3	0	0	0	0	5.4
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Analysis From 05:00 PM to 07:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	2	46	10	1	0	9	0	57	1	5	1	0	132
05:15 PM	3	33	2	0	1	5	1	32	1	2	1	0	81
05:30 PM	4	50	4	0	2	5	0	31	0	3	0	0	99
05:45 PM	2	34	2	1	0	1	0	43	1	1	0	0	85
Total Volume	11	163	18	2	3	20	1	163	3	11	2	0	397
% App. Total	5.7	84.9	9.4	0.6	1.2	8.0	0.6	97.6	1.8	84.6	15.4	0	100
PHF	.688	.815	.450	.500	.375	.556	.250	.715	.750	.550	.500	.000	.752
Lights	11	163	18	2	3	20	1	163	3	11	2	0	397
% Lights	100	100	100	100	100	100	100	100	100	100	100	0	100
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0

**APPENDIX D**  
**TIMING DIRECTIVES**



City of Westminster, CO

509 - 144TH @ I25 SB - Econolite Type - ASC3

Configuration Phase Sequence

Controller Sequence (MM)1-1-1

Hardware Alternate Sequence Enable: Yes

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B	B		B		B		B								
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.

Sequence 12

Ring 1		2	1		4	3		10	9		14	13		.	.	.	.	.	.	.	.
Ring 2		5	6		8	7		11	12		16	15		.	.	.	.	.	.	.	.

Sequence 13

Ring 1		1	2		3	4		9	10		13	14		.	.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.	.

Sequence 14

Ring 1		2	1		3	4		10	9		13	14		.	.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.	.

Sequence 15

Ring 1		1	2		4	3		9	10		14	13		.	.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.	.

Sequence 16

Ring 1		2	1		4	3		10	9		14	13		.	.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.	.

Phases In Use / Exclusive PED (MM)1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases in Use	X	X		X		X										
Exclusive PED																

Phase Compatibility (MM)1-1-2

Phase	Compatible Phase
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		SB		WB										
Overlap	A	B	C	D	E	F	G	H	I	J	L	K	L	M	N	O
Description																

Administration (MM)1-7-1

Enable CU/Cabinet Interlock No  
CRC

Request Download No  
Controller Data

Controller Database CRC 80A3

Enable Automatic Backup to No  
Datakey

City of Westminster, CO

509 - 144TH @ I25 SB - Econolite Type - ASC3

**Controller Timing Plan (MM)2-1**

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	<b>WBLT</b>	<b>EB</b>		<b>SB</b>		<b>WB</b>										
Min Green	6	15	0	5	0	15	0	0	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	4	0	4	0	4	0	0	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	7	0	25	0	7	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	3.0	5.0	1.5	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	12	22	0	12	0	22	0	0	35	35	35	35	35	35	35	35
Max 2	25	35	40	50	0	35	0	0	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.6	3.0	3.6	3.0	4.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.5	2.3	1.0	3.2	1.0	2.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
---------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

## City of Westminster, CO

509 - 144TH @ I25 SB - Econolite Type - ASC3

**Controller Start/Fash (MM) 2-5****Startup**

Phase	Phase Setting
2	Y
6	Y

## Overlap

A  
B  
C  
D

Flash > Mon:	No
Flash Time:	0
All Red:	0
Power Start Sequence:	1
MUTCD Enabled:	No
MUTCD Yellow to Green:	n/a

**Automatic Flash**

## Entry Phase

2  
6

## Exit Phase

2  
6

## Overlap Exit

A  
B  
C  
D

Flash > Mon:	No
Exit Flash Interval:	W
Minimum Auto Flash:	8
Minimumin Recall:	No
Cycle Through Phase:	No

City of Westminster, CO

509 - 144TH @ I25 SB - Econolite Type - ASC3

**Controller Options**

**Controller Options (MM)2-6-1**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Green Phase																
Guaranteed Passage																
Non Act 1		X				X										
Non Act 2				X				X								
Dual Entry		X		X		X		X								
Conditional Service																
Conditional Reservice																
Ped Reservice																
Rest In Walk																
Flashing Walk																
Ped Clear Yellow																
Ped Clear Red																
IGRN + Veh Ext																

Ped Clear Protect: Off

Red Revert: 2.0

MUTCD 3 Seconds Don't Walk: No

Act Pre-Time (MM)2-7

Pre-Time Mode Enable: No      Free Input Enables Pre-Timed: Yes

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed Phase																

### Phase Recall Options (MM)2-8

#### Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X				X										
Ped Recall																
Max Recall		X				X										
Soft Recall																
No Rest																
AI Calc																

City of Westminster, CO

509 - 144TH @ I25 SB - Econolite Type - ASC3

**Coordination Options**

**Coordination Options (MM)3-1**

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell/Add Time	0		
Delay Coord Walk to LZ	No	Force Off	Fixed
Offset Reference	Lead	Use Ped Time	Yes
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Initial Green	No
Re-Sync Count	0	Multisync	No

**Auto Perm Minimum Green (Seconds) (MM)3-4**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Split Demand (MM)3-5**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0



**Pattern - 2**

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits in	Seconds
Cycle	100	Std (COS)	121	Offsets in	Seconds
Offset Value	32s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	2		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		SB		WB										
Splits (Split Pat 2)	23	41	0	36	0	64	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	64s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

**Pattern - 3**

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits in	Seconds
Cycle	80	Std (COS)	131	Offsets in	Seconds
Offset Value	75s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	2		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		SB		WB										
Splits (Split Pat 3)	16	44	0	20	0	60	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	80s	60s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

**Pattern - 5**

Split Pattern	5	TS2 (Pat-Off)	1-2	Splits in	Seconds
Cycle	100	Std (COS)	151	Offsets in	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

**Split Preference Phases**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	WBLT	EB		SB		WB										
Splits (Split Pat 5)	20	44	0	36	0	64	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	64s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

**Split Pattern Data**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

City of Westminster, CO

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**Preemptor**

**Preempt Plan (MM)4-1**

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Vehicle		X														
Dwell Ped																
Dwell Overlap																
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Detector Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	0	CLR > GRN	No
Term Overlap Asap	No	PC Through Yellow	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	Flash Exit Color	Green	Exit Option	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	6	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min	Pmt Ext	Max	Yellow	Red

	Dwell		Time		
Dwell / Cycle-Exit	0	0.0	120	25.5	25.5

Preempt Active Out On      Preempt Active Dwell      No  
 Other Priority Preempt On      Non-Priority Preempt      No  
 Inhibit Extension Time 0.0      Ped Priority Return      Off  
 Veh Priority Return Off      Queue Delay      Off  
 Conditional Delay Off

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Track Clear Vehicle																
Track Clear Overlap																
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Vehicle	X					X										
Dwell Ped																
Dwell Overlap																
Cycling Vehicle																
Cycling Ped																
Cycling Overlap																
Exit Phase		X				X										
Exit Calls																
Special Funciton																

Enable Yes      Preempt Override Yes      Interlock Enable No  
 Detector Lock Yes      Delay 0      Inhibit 0  
 Override Flash No      Duration 0      CLR > GRN No  
 Term Overlap Asap No      PC Through Yellow Yes      Terminate Phase No  
 Ped Dark No      Track Clear Rsrv No      Dwell Flash Off  
 Linked Pmt 0      Flash Exit Color Green      Exit Option Off  
 Exit Timing Plan 0      Reservice 0      Fault Type Hard

Ring	1	2	3	4
Free During Preempt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	6	0	25.5	25.5
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	25.5	25.5
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	120	25.5	25.5

Preempt Active Out On                      Preempt Active Dwell                      No

Other Priority Preempt                      On                      Non-Priority Preempt                      No

Inhibit Extension Time                      0.0                      Ped Priority Return                      Off

Veh Priority Return                      Off                      Queue Delay                      Off

Conditional Delay                      Off

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return % Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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**Time Base Clock/Calendar**

Clock/Calendar Options (MM)5-1

Enable Action Plan: 0  
Sync Reference Time: 12:00 AM  
Sync Reference: Reference Time  
Day Light Savings: No  
Time Reset Input Set Time: 3:30:00  
Standard Time From GMT: 0

**Action Plan - 2**

Pattern	2	Override System	No
Timing Plan	0	Sequence	2
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase            1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall      X

Max 2

Max 3

CS Inhibit

Omit

Special  
Function

Auxilliary  
Function

                  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

**Action Plan - 3**

Pattern	3	Override System	No
Timing Plan	0	Sequence	2
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		



Phase 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special

Function

Auxilliary

Function

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

**Action Plan - 4**

Pattern	3	Override System	No
Timing Plan	0	Sequence	2
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase            1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall        X

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special  
Function

Auxilliary  
Function

                  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

**Action Plan - 5**

Pattern	5	Override System	No
Timing Plan	0	Sequence	1
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special

Function

Auxilliary

Function

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

## City of Westminster, CO

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**Time Base Day Plan/Schedule****Day Plan (MM)5-3****Day Plan - 1**

Event	Action Plan	Start Time
1	99	5:15 AM
2	1	6:00 AM
3	3	8:30 AM
4	5	3:00 PM
5	3	7:00 PM
6	99	10:00 PM
7	99	12:00 AM
8	2	7:00 AM
9	4	11:30 AM
10	3	1:30 PM

**Day Plan - 2**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	10:00 AM
3	3	6:00 PM
4	99	10:00 PM
5	99	12:00 AM

**Day Plan - 3**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	12:00 PM
3	3	6:00 PM
4	99	10:00 PM
5	99	12:00 AM

**Day Plan - 4**

Event	Action Plan	Start Time
1	1	6:00 AM
2	2	7:00 AM
3	3	8:30 AM
4	4	11:30 AM

5	3	1:30 PM
6	5	3:00 PM
7	3	7:00 PM
8	99	10:00 PM

**Day Plan - 5**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	10:00 AM
3	3	6:00 PM
4	99	10:00 PM

**Schedule (MM)5-4**

**Schedule Number - 1**

Day Plan Number: 1

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 2**

Day Plan Number: 2

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
							X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 3**

Day Plan Number: 3

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 4**

Day Plan Number: 4

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
												X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 5**

Day Plan Number: 5

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
												X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		



## City of Westminster, CO

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**Time Base Exceptions**

## Exception Day Program (MM)5-5

Day	Fixed/Float	Month	Day of Week/Month	Week of Month/Year	Day Plan
1	FIXED	11	24	2016	5
2	FIXED	11	25	2016	5
3	FIXED	11	26	2016	5
4	FIXED	11	27	2016	5
5	FIXED	11	28	2016	1
6	FIXED	12	24	2016	5
7	FIXED	12	25	2016	5
8	FIXED	12	26	2016	5

City of Westminster, CO

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**Configuration Phase Sequence**

**Controller Sequence (MM)1-1-1**

Hardware Alternate Sequence Enable: Yes

**Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)**

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B	B		B		B		B								
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.

Sequence 12

Ring 1		2	1		4	3		10	9		14	13		.	.	.	.	.	.	.
Ring 2		5	6		8	7		11	12		16	15		.	.	.	.	.	.	.

Sequence 13

Ring 1		1	2		3	4		9	10		13	14		.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.

Sequence 14

Ring 1		2	1		3	4		10	9		13	14		.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.

Sequence 15

Ring 1		1	2		4	3		9	10		14	13		.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.

Sequence 16

Ring 1		2	1		4	3		10	9		14	13		.	.	.	.	.	.	.
Ring 2		6	5		8	7		12	11		16	15		.	.	.	.	.	.	.

Phases In Use / Exclusive PED (MM)1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases in Use	X	X		X		X										
Exclusive PED																

Phase Compatibility (MM)1-1-2

Phase	Compatible Phase
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		NB		EB										
Overlap	A	B	C	D	E	F	G	H	I	J	L	K	L	M	N	O
Description																

Administration (MM)1-7-1

Enable CU/Cabinet Interlock No  
CRC

Request Download No  
Controller Data

Controller Database CRC B1CE

Enable Automatic Backup to No  
Datakey

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**Controller Timing Plan (MM)2-1**

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	<b>EBLT</b>	<b>WB</b>		<b>NB</b>		<b>EB</b>										
Min Green	5	15	5	5	8	15	5	8	5	5	5	5	5	5	5	5
BK Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	4	0	4	0	4	0	7	0	10	0	10	0	10	0	10
Walk 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	7	0	25	0	7	0	24	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	10.0	3.0	5.0	2.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max 1	12	30	0	12	15	30	0	20	35	35	35	35	35	35	35	35
Max 2	25	35	0	50	0	35	0	0	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Stp	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.6	3.0	3.6	3.0	4.6	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.5	2.3	1.0	3.2	2.0	2.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
---------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

## City of Westminster, CO

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**Controller Start/Fash (MM) 2-5****Startup**

Phase	Phase Setting
2	Y
6	Y

## Overlap

A  
B  
C  
D

Flash > Mon:	No
Flash Time:	0
All Red:	0
Power Start Sequence:	1
MUTCD Enabled:	No
MUTCD Yellow to Green:	n/a

**Automatic Flash**

## Entry Phase

2  
6

## Exit Phase

2  
6

## Overlap Exit

A  
B  
C  
D

Flash > Mon:	No
Exit Flash Interval:	W
Minimum Auto Flash:	8
Minimumin Recall:	No
Cycle Through Phase:	No

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**Controller Options**

**Controller Options (MM)2-6-1**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Green Phase																
Guaranteed Passage																
Non Act 1		X				X										
Non Act 2				X				X								
Dual Entry		X		X		X		X								
Conditional Service																
Conditional Reservice																
Ped Reservice																
Rest In Walk																
Flashing Walk																
Ped Clear Yellow																
Ped Clear Red																
IGRN + Veh Ext																

Ped Clear Protect: Off

Red Revert: 2.0

MUTCD 3 Seconds Don't Walk: No

Act Pre-Time (MM)2-7

Pre-Time Mode Enable: No      Free Input Enables Pre-Timed: Yes

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed Phase																

### Phase Recall Options (MM)2-8

#### Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X				X										
Ped Recall																
Max Recall		X														
Soft Recall																
No Rest																
AI Calc																



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**Coordination Options**

**Coordination Options (MM)3-1**

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	PTN
Splits In	Seconds	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell/Add Time	0		
Delay Coord Walk to LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	Yes
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Initial Green	No
Re-Sync Count	0	Multisync	No

**Auto Perm Minimum Green (Seconds) (MM)3-4**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Split Demand (MM)3-5**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demand 1																
Demand 2																

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

**Pattern - 2**

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits in	Seconds
Cycle	100	Std (COS)	121	Offsets in	Seconds
Offset Value	42s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		NB		EB										
Splits (Split Pat 2)	20	40	0	40	0	60	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	60s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

**Pattern - 3**

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits in	Seconds
Cycle	80	Std (COS)	131	Offsets in	Seconds
Offset Value	3s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		NB		EB										
Splits (Split Pat 3)	18	42	0	20	0	60	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	80s	60s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern Data

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

**Pattern - 5**

Split Pattern	5	TS2 (Pat-Off)	1-2	Splits in	Seconds
Cycle	100	Std (COS)	151	Offsets in	Seconds
Offset Value	34s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	0		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

**Split Preference Phases**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	EBLT	WB		NB		EB										
Splits (Split Pat 5)	22	33	0	45	0	55	0	0	0	0	0	0	0	0	0	0
Preference 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Preference 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Disp.	-	0	0	0
Split Sum	100s	55s	0s	0s

Misc. Data

Veh. Permissive 1	0	Veh. Permissive 2	0	Veh. Permissive 2 Disp.	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

**Split Pattern Data**

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coordinated Phases		X				X										
Vehicle Recalls																
Ped Recalls																
Max Recalls																
Phase Omit									X	X	X	X	X	X	X	X
Special Function Output																

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**Preemptor**

**Preempt Plan (MM)4-1**

No Enabled Preempts

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**Time Base Clock/Calendar**

Clock/Calendar Options (MM)5-1

Enable Action Plan: 0  
Sync Reference Time: 12:00 AM  
Sync Reference: Reference Time  
Day Light Savings: No  
Time Reset Input Set Time: 3:30:00  
Standard Time From GMT: 0

**Action Plan - 2**

Pattern	2	Override System	No
Timing Plan	0	Sequence	1
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase            1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special  
Function

Auxilliary  
Function

                  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100

**Action Plan - 3**

Pattern	3	Override System	No
Timing Plan	0	Sequence	1
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

Phase 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Ped Recall

Walk 2

Veh Ext 2

Veh Recall

Max Recall

Max 2

Max 3

CS Inhibit

Omit

Special

Function

Auxilliary

Function

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

LP 1-15

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

LP 91-100



**Action Plan - 5**

Pattern	5	Override System	No
Timing Plan	0	Sequence	1
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		
Phase	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
Ped Recall			
Walk 2			
Veh Ext 2			
Veh Recall			
Max Recall			
Max 2			
Max 3			
CS Inhibit			
Omit			
Special Function			
Auxilliary Function			
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		
LP 1-15			
LP 16-30			
LP 31-45			
LP 46-60			
LP 61-75			
LP 76-90			
LP 91-100			

**Action Plan - 98**

Pattern	254 - FREE	Override System	No
Timing Plan	0	Sequence	0
Veh Det Plan	0	Detector Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Diming Enable	No	Veh Priority Return	No
Ped Priority Return	No	Queue Delay	No
Preempt Cond Delay	No		

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**Time Base Day Plan/Schedule****Day Plan (MM)5-3****Day Plan - 1**

Event	Action Plan	Start Time
1	99	5:15 AM
2	1	6:00 AM
3	3	8:30 AM
4	5	3:00 PM
5	3	7:00 PM
6	99	10:00 PM
7	99	12:00 AM
8	2	7:00 AM

**Day Plan - 2**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	10:00 AM
3	3	6:00 PM
4	99	10:00 PM
5	99	12:00 AM

**Day Plan - 3**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	12:00 PM
3	3	6:00 PM
4	99	10:00 PM
5	99	12:00 AM

**Day Plan - 4**

Event	Action Plan	Start Time
1	1	6:00 AM
2	2	7:00 AM
3	3	8:30 AM
4	3	11:45 AM
5	3	1:15 PM
6	5	3:00 PM

7	3	7:00 PM
8	99	12:00 AM

**Day Plan - 5**

Event	Action Plan	Start Time
1	3	7:00 AM
2	5	10:00 AM
3	3	6:00 PM
4	99	10:00 PM

**Schedule (MM)5-4**

**Schedule Number - 1**

Day Plan Number: 1

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 2**

Day Plan Number: 2

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
							X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 3**

Day Plan Number: 3

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	X	X	X	X	X	X	X	X	X	X	X	

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 4**

Day Plan Number: 4

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
												X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
		X	X	X	X	X	

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

**Schedule Number - 5**

Day Plan Number: 5

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
												X

Day of Week	Sun	Mon	Tue	Wed	Thur	Fri	Sat
	X						X

Day of Month	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

## City of Westminster, CO

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**Time Base Exceptions**

## Exception Day Program (MM)5-5

Day	Fixed/Float	Month	Day of Week/Month	Week of Month/Year	Day Plan
1	FIXED	11	24	2016	5
2	FIXED	11	25	2016	5
3	FIXED	11	26	2016	5
4	FIXED	11	27	2016	5
5	FIXED	11	28	2016	1
6	FIXED	12	24	2016	5
7	FIXED	12	25	2016	5
8	FIXED	12	26	2016	5

**Intersection Name:** 144th Avenue @ Lincoln Street  
**Controller:** 151.2 **Channel:** 40  
**System:** TransCore TransSuite TCS  
**Controller Type:** Econolite ASC/3 2070-1C 32.63  
**Revision -** **Version -**  
**TransCore Unified Controller Manager 16.2.2**

Drop: 1


**Zero Tables**

- Time Base Schedule Data 2
- Time Base Schedule Data 3
- Time Base Schedule Data 4
- Time Base Schedule Data 5
- Day Plan Event Data 4
- Day Plan Event Data 5
- Day Plan Event Data 6
- Day Plan Event Data 7
- Day Plan Event Data 8
- Day Plan Event Data 9
- Day Plan Event Data 10
- Day Plan Event Data 11
- Day Plan Event Data 12
- Day Plan Event Data 13
- Day Plan Event Data 14
- Day Plan Event Data 15
- Day Plan Event Data 16

**Non-Zero Tables**

- Ring Sequence Order
- TP 1 Phase Data 1-8
- TP 1 Phase Data 9-16
- TP 2 Phase Data 1-8
- TP 2 Phase Data 9-16
- TP 3 Phase Data 1-8
- TP 3 Phase Data 9-16
- TP 4 Phase Data 1-8
- TP 4 Phase Data 9-16
- Phase Recall Options
- Time Base Schedule Data 1
- Day Plan Event Data 1
- Day Plan Event Data 2
- Day Plan Event Data 3



# RING SEQUENCE ORDER

Sequence 1																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 2																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 3																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 4																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 5																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 6																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 7																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 8																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## TIMING PLAN 1 (PH 1-8)

TIMING PLAN 1								
PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN	5	5	5	15	5	5	5	15
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	5	0	5	0	0	0	5
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	31	0	8	0	0	0	18
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	15	30	25	35	30	7	15	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	4.0	3.5	4.0	4.5	4.0	3.5	4.0	4.5
RED CLEAR	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## TIMING PLAN 1 (PH 9-16)

TIMING PLAN 1								
PHASE	9	10	11	12	13	14	15	16
MINIMUM GREEN	5	5	5	5	5	5	5	5
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	16	0	16	0	16	0	16
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED CLEAR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**PHASE RECALL OPTIONS**

<b>Phase Timing</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Lock Det</b>	NONE	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,
<b>Veh Recall</b>	P4, P8	NONE	NONE	NONE
<b>Ped Recall</b>	NONE	NONE	NONE	NONE
<b>Max Recall</b>	P4, P8	NONE	NONE	NONE
<b>Soft Recall</b>	NONE	NONE	NONE	NONE
<b>No Rest Here</b>	NONE	NONE	NONE	NONE
<b>Added Init Calc</b>	NONE	NONE	NONE	NONE

## TIME BASE SCHEDULE DATA (1 - 10)

<b>Schedule Number</b>	<b>1</b>
<b>Day Plan</b>	1
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	MON, TUE, WED, THU, FRI
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>2</b>
<b>Day Plan</b>	2
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SAT
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>3</b>
<b>Day Plan</b>	3
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SUN
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>4</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>5</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>6</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>7</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>8</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>9</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>10</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE

**DAY PLAN 1-2**

Plan 1										
Event	1	2	3	4	5	6	7	8	9	10
Hour	6	7	8	15	19	0	0	0	0	0
Minute	0	0	30	0	0	0	0	0	0	0
Action Plan	1	12	2	3	99	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Plan 2										
Event	1	2	3	4	5	6	7	8	9	10
Hour	7	10	18	20	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	4	5	4	99	0	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

**Action Plan - 1**

Pattern	1
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 3**

Pattern	3
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.



**Action Plan - 12**

<b>Pattern</b>	12
<b>Veh Detector Plan</b>	1
<b>Flash</b>	No
<b>Red Rest</b>	No
<b>Controller Seq</b>	1
<b>Timing Plan</b>	1
<b>Sys Override</b>	No
<b>Det Log</b>	None
<b>Veh Det Diag Plan</b>	0
<b>Ped Det Diag Plan</b>	0
<b>Dimming Enable</b>	No
<b>TSP Inhibit</b>	0
<b>Veh Priority Return</b>	No
<b>Queue Delay</b>	No

<b>Ped Recall</b>	None
<b>Walk 2</b>	None
<b>Veh Ext 2</b>	None
<b>Veh Recall</b>	None
<b>Max Recall</b>	None
<b>Max2</b>	None
<b>Max3</b>	None
<b>CS Inhibit</b>	None
<b>Phase Omit</b>	None
<b>Spc Function</b>	None
<b>Aux Function</b>	None

<b>Ped Priority Return</b>	No
<b>Pmt Conditional</b>	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.







### Split Pattern - 1

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	31	29
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	60
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 2

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	16	44
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	60
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 3

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	25	15	50
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	25	0	0	75
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 10

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	20	30
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	50
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 11

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	25	25	30
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	25	0	0	55
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 12

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	16	64
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	80
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

Intersection Name: 144th Avenue @ Grant Street  
Controller 152.2 Channel: 40  
System: TransCore TransSuite TCS  
Controller Type: Econolite ASC/3 2070-1C 32.63  
Revision - Version -  
TransCore Unified Controller Manager 16.2.2

Drop: 2


**Zero Tables**

- Time Base Schedule Data 2
- Time Base Schedule Data 3
- Time Base Schedule Data 4
- Time Base Schedule Data 5
- Day Plan Event Data 4
- Day Plan Event Data 5
- Day Plan Event Data 6
- Day Plan Event Data 7
- Day Plan Event Data 8
- Day Plan Event Data 9
- Day Plan Event Data 10
- Day Plan Event Data 11
- Day Plan Event Data 12
- Day Plan Event Data 13
- Day Plan Event Data 14
- Day Plan Event Data 15
- Day Plan Event Data 16

**Non-Zero Tables**

- Ring Sequence Order
- TP 1 Phase Data 1-8
- TP 1 Phase Data 9-16
- TP 2 Phase Data 1-8
- TP 2 Phase Data 9-16
- TP 3 Phase Data 1-8
- TP 3 Phase Data 9-16
- TP 4 Phase Data 1-8
- TP 4 Phase Data 9-16
- Phase Recall Options
- Time Base Schedule Data 1
- Day Plan Event Data 1
- Day Plan Event Data 2
- Day Plan Event Data 3

# RING SEQUENCE ORDER

Sequence 1																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 2																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 3																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 4																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 5																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 6																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 7																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 8																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## TIMING PLAN 1 (PH 1-8)

TIMING PLAN 1								
PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN	5	5	5	15	5	5	5	15
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	5	0	5	0	5	0	5
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	28	0	31	0	26	0	26
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	15	7	20	30	30	7	15	30
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	4.0	3.5	4.0	4.5	4.0	3.5	4.0	4.5
RED CLEAR	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## TIMING PLAN 1 (PH 9-16)

TIMING PLAN 1								
PHASE	9	10	11	12	13	14	15	16
MINIMUM GREEN	5	5	5	5	5	5	5	5
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	16	0	16	0	16	0	16
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED CLEAR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**PHASE RECALL OPTIONS**

<b>Phase Timing</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Lock Det</b>	NONE	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,
<b>Veh Recall</b>	P4, P8	NONE	NONE	NONE
<b>Ped Recall</b>	NONE	NONE	NONE	NONE
<b>Max Recall</b>	P4, P8	NONE	NONE	NONE
<b>Soft Recall</b>	NONE	NONE	NONE	NONE
<b>No Rest Here</b>	NONE	NONE	NONE	NONE
<b>Added Init Calc</b>	NONE	NONE	NONE	NONE

## TIME BASE SCHEDULE DATA (1 - 10)

<b>Schedule Number</b>	<b>1</b>
<b>Day Plan</b>	1
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	MON, TUE, WED, THU, FRI
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>2</b>
<b>Day Plan</b>	2
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SAT
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>3</b>
<b>Day Plan</b>	3
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SUN
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>4</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>5</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>6</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>7</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>8</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>9</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>10</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE

**DAY PLAN 1-2**

Plan 1										
Event	1	2	3	4	5	6	7	8	9	10
Hour	6	7	8	15	19	0	0	0	0	0
Minute	0	0	30	0	0	0	0	0	0	0
Action Plan	1	12	2	3	99	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Plan 2										
Event	1	2	3	4	5	6	7	8	9	10
Hour	7	10	18	20	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	4	5	4	99	0	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

**Action Plan - 1**

Pattern	1
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 3**

Pattern	3
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 12**

Pattern	12
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.









### Split Pattern - 1

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	21	27	32
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	21	0	0	59
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 2

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	16	44
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	20	0	60
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 3

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	16	64
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	80
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 10

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	21	20	29
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	21	0	0	49
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 11

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	21	20	39
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	59
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 12

Coord Phases	4, 8			
Phase	1	2	3	4
Split	0	20	16	64
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	20	0	0	80
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

Intersection Name: Washington Street @ 144th Avenue

Controller 113.3 Channel: 40 Drop: 3

System: TransCore TransSuite TCS

Controller Type: Econolite ASC/3 2070-1C 32.63

Revision - Version -

TransCore Unified Controller Manager 16.2.2


### Zero Tables

- Time Base Schedule Data 2
- Time Base Schedule Data 3
- Time Base Schedule Data 4
- Time Base Schedule Data 5
- Day Plan Event Data 4
- Day Plan Event Data 5
- Day Plan Event Data 6
- Day Plan Event Data 7
- Day Plan Event Data 8
- Day Plan Event Data 9
- Day Plan Event Data 10
- Day Plan Event Data 11
- Day Plan Event Data 12
- Day Plan Event Data 13
- Day Plan Event Data 14
- Day Plan Event Data 15
- Day Plan Event Data 16

### Non-Zero Tables

- Ring Sequence Order
- TP 1 Phase Data 1-8
- TP 1 Phase Data 9-16
- TP 2 Phase Data 1-8
- TP 2 Phase Data 9-16
- TP 3 Phase Data 1-8
- TP 3 Phase Data 9-16
- TP 4 Phase Data 1-8
- TP 4 Phase Data 9-16
- Phase Recall Options
- Time Base Schedule Data 1
- Day Plan Event Data 1
- Day Plan Event Data 2
- Day Plan Event Data 3

# RING SEQUENCE ORDER

Sequence 1																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 2																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 3																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 4																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 5																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 6																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 7																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 8																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0	0	0	0
Ring 2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## TIMING PLAN 1 (PH 1-8)

TIMING PLAN 1								
PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN	5	5	5	10	5	5	5	10
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	5	0	5	0	5	0	5
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	23	0	22	0	23	0	22
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	20	35	25	40	15	35	25	40
MAX2	0	0	0	0	0	0	0	0
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	4.0	5.0	4.0	4.5	4.0	5.0	4.0	4.5
RED CLEAR	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



## TIMING PLAN 1 (PH 9-16)

TIMING PLAN 1								
PHASE	9	10	11	12	13	14	15	16
MINIMUM GREEN	5	5	5	5	5	5	5	5
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	16	0	16	0	16	0	16
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED CLEAR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**PHASE RECALL OPTIONS**

<b>Phase Timing</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Lock Det</b>	NONE	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,
<b>Veh Recall</b>	NONE	NONE	NONE	NONE
<b>Ped Recall</b>	NONE	NONE	NONE	NONE
<b>Max Recall</b>	NONE	NONE	NONE	NONE
<b>Soft Recall</b>	NONE	NONE	NONE	NONE
<b>No Rest Here</b>	NONE	NONE	NONE	NONE
<b>Added Init Calc</b>	NONE	NONE	NONE	NONE

## TIME BASE SCHEDULE DATA (1 - 10)

<b>Schedule Number</b>	<b>1</b>
<b>Day Plan</b>	1
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	MON, TUE, WED, THU, FRI
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>2</b>
<b>Day Plan</b>	2
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SAT
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>3</b>
<b>Day Plan</b>	3
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SUN
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>4</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>5</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>6</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>7</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>8</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>9</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>10</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE

**DAY PLAN 1-2**

Plan 1										
Event	1	2	3	4	5	6	7	8	9	10
Hour	6	7	8	15	19	0	0	0	0	0
Minute	0	0	30	0	0	0	0	0	0	0
Action Plan	1	12	2	3	99	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Plan 2										
Event	1	2	3	4	5	6	7	8	9	10
Hour	7	10	18	20	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	4	5	4	99	0	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

**Action Plan - 1**

Pattern	1
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 3**

Pattern	3
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 12**

Pattern	12
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.









### Split Pattern - 1

Coord Phases	4, 8			
Phase	1	2	3	4
Split	18	20	15	27
Mode	None	None	None	Min Veh Recall
Phase	5	6	7	8
Split	18	20	15	27
Mode	None	None	None	Min Veh Recall
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 2

Coord Phases	4, 8			
Phase	1	2	3	4
Split	15	24	15	26
Mode	None	None	None	None
Phase	5	6	7	8
Split	15	24	15	26
Mode	None	None	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 3

Coord Phases	4, 8			
Phase	1	2	3	4
Split	16	35	16	33
Mode	None	None	None	None
Phase	5	6	7	8
Split	16	35	16	33
Mode	None	None	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 10

Coord Phases	4, 8			
Phase	1	2	3	4
Split	16	19	13	22
Mode	None	None	None	None
Phase	5	6	7	8
Split	16	19	13	22
Mode	None	None	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 11

Coord Phases	4, 8			
Phase	1	2	3	4
Split	18	20	15	27
Mode	None	None	None	None
Phase	5	6	7	8
Split	18	20	15	27
Mode	None	None	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 12

Coord Phases	4, 8			
Phase	1	2	3	4
Split	12	34	15	39
Mode	None	None	None	None
Phase	5	6	7	8
Split	15	31	25	29
Mode	None	None	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

Intersection Name: Washington Street @ 146th Avenue

Controller 154.2 Channel: 40 Drop: 4

System: TransCore TransSuite TCS

Controller Type: Econolite ASC/3 2070-1C 32.63

Revision - Version -

TransCore Unified Controller Manager 16.2.2


### Zero Tables

- Time Base Schedule Data 2
- Time Base Schedule Data 3
- Time Base Schedule Data 4
- Time Base Schedule Data 5
- Day Plan Event Data 5
- Day Plan Event Data 6
- Day Plan Event Data 7
- Day Plan Event Data 8
- Day Plan Event Data 9
- Day Plan Event Data 10
- Day Plan Event Data 11
- Day Plan Event Data 12
- Day Plan Event Data 13
- Day Plan Event Data 14
- Day Plan Event Data 15
- Day Plan Event Data 16

### Non-Zero Tables

- Ring Sequence Order
- TP 1 Phase Data 1-8
- TP 1 Phase Data 9-16
- TP 2 Phase Data 1-8
- TP 2 Phase Data 9-16
- TP 3 Phase Data 1-8
- TP 3 Phase Data 9-16
- TP 4 Phase Data 1-8
- TP 4 Phase Data 9-16
- Phase Recall Options
- Time Base Schedule Data 1
- Day Plan Event Data 1
- Day Plan Event Data 2
- Day Plan Event Data 3
- Day Plan Event Data 4

## RING SEQUENCE ORDER

Sequence 1																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 2																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 3																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 4																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 5																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 6																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 7																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sequence 8																			
Barrier Mode?		Yes																	
Barrier			X			X			X			X							
Ring 1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0	0	0	0
Ring 2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0	0	0	0
Ring 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ring 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## TIMING PLAN 1 (PH 1-8)

TIMING PLAN 1								
PHASE	1	2	3	4	5	6	7	8
MINIMUM GREEN	5	15	5	5	5	15	5	5
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	5	0	5	0	5	0	5
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	14	0	33	0	13	0	34
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	3.0	3.0	5.0	3.0	3.0	3.0	3.0	3.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	25	45	50	35	15	45	15	50
MAX2	0	0	0	0	0	0	0	0
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	4.0	5.0	4.0	3.0	3.0	5.0	3.0	3.0
RED CLEAR	1.0	1.0	1.0	1.5	1.0	1.0	1.0	1.5
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## TIMING PLAN 1 (PH 9-16)

TIMING PLAN 1								
PHASE	9	10	11	12	13	14	15	16
MINIMUM GREEN	5	5	5	5	5	5	5	5
BICYCLE MINIMUM GREEN	0	0	0	0	0	0	0	0
CONDITIONAL SERVICE MINUM GREEN	0	0	0	0	0	0	0	0
DELAYED GREEN	0	0	0	0	0	0	0	0
WALK	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE	0	16	0	16	0	16	0	16
PEDESTRIAN CLEARANCE 2	0	0	0	0	0	0	0	0
PEDESTRIAN CLEARANCE MAX	0	0	0	0	0	0	0	0
PEDESTRIAN CARRY OVER	0	0	0	0	0	0	0	0
VEHICLE EXTENSION	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
VEHICLE EXTENSION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX1	35	35	35	35	35	35	35	35
MAX2	40	40	40	40	40	40	40	40
MAX3	0	0	0	0	0	0	0	0
DYNAMIC MAX	0	0	0	0	0	0	0	0
DYNAMIC MAX STEP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YELLOW CHANGE	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
RED CLEAR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
RED MAX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACTUATIONS BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
SECONDS PER ACTIONS ADDED TO INITIAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAXIMUM ADDED INITIAL GREEN	0	0	0	0	0	0	0	0
TIME BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
CARS WAITING BEFORE GAP REDUCTION	0	0	0	0	0	0	0	0
STEP TO REDUCE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIME TO REDUCE TO MINIMUM	0	0	0	0	0	0	0	0
MINIMUM GAP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



## PHASE RECALL OPTIONS

Phase Timing	1	2	3	4
<b>Lock Det</b>	NONE	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,	P1, P2, P3, P4, P5,
<b>Veh Recall</b>	P2, P6	NONE	NONE	NONE
<b>Ped Recall</b>	NONE	NONE	NONE	NONE
<b>Max Recall</b>	NONE	NONE	NONE	NONE
<b>Soft Recall</b>	NONE	NONE	NONE	NONE
<b>No Rest Here</b>	NONE	NONE	NONE	NONE
<b>Added Init Calc</b>	NONE	NONE	NONE	NONE

## TIME BASE SCHEDULE DATA (1 - 10)

<b>Schedule Number</b>	<b>1</b>
<b>Day Plan</b>	1
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	MON, TUE, THU, FRI
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>2</b>
<b>Day Plan</b>	2
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SAT
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>3</b>
<b>Day Plan</b>	3
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	SUN
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>4</b>
<b>Day Plan</b>	4
<b>Month</b>	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
<b>Day DOW</b>	WED
<b>Day DOM</b>	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
<b>Schedule Number</b>	<b>5</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>6</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>7</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>8</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>9</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE
<b>Schedule Number</b>	<b>10</b>
<b>Day Plan</b>	0
<b>Month</b>	NONE
<b>Day DOW</b>	NONE
<b>Day DOM</b>	NONE

## DAY PLAN 1-2

Plan 1										
Event	1	2	3	4	5	6	7	8	9	10
Hour	6	7	7	8	8	11	11	15	16	19
Minute	0	0	30	20	30	0	35	0	5	0
Action Plan	1	12	6	12	2	7	2	8	3	99

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Plan 2										
Event	1	2	3	4	5	6	7	8	9	10
Hour	7	10	18	20	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	4	5	4	99	0	0	0	0	0	0

Event	11	12	13	14	15	16	17	18	19	20
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	21	22	23	24	25	26	27	28	29	30
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	31	32	33	34	35	36	37	38	39	40
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

Event	41	42	43	44	45	46	47	48	49	50
Hour	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0
Action Plan	0	0	0	0	0	0	0	0	0	0

**Action Plan - 1**

Pattern	1
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 3**

Pattern	3
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 6**

Pattern	6
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.

**Action Plan - 12**

Pattern	12
Veh Detector Plan	1
Flash	No
Red Rest	No
Controller Seq	1
Timing Plan	1
Sys Override	No
Det Log	None
Veh Det Diag Plan	0
Ped Det Diag Plan	0
Dimming Enable	No
TSP Inhibit	0
Veh Priority Return	No
Queue Delay	No

Ped Recall	None
Walk 2	None
Veh Ext 2	None
Veh Recall	None
Max Recall	None
Max2	None
Max3	None
CS Inhibit	None
Phase Omit	None
Spc Function	None
Aux Function	None

Ped Priority Return	No
Pmt Conditional	No

LP 1-5	.	.	.	.	.
LP 6-10	.	.	.	.	.
LP 11-15	.	.	.	.	.
LP 16-20	.	.	.	.	.
LP 21-25	.	.	.	.	.
LP 26-30	.	.	.	.	.
LP 31-35	.	.	.	.	.
LP 36-40	.	.	.	.	.
LP 41-45	.	.	.	.	.
LP 46-50	.	.	.	.	.
LP 51-55	.	.	.	.	.
LP 56-60	.	.	.	.	.
LP 61-65	.	.	.	.	.
LP 66-70	.	.	.	.	.
LP 71-75	.	.	.	.	.
LP 76-80	.	.	.	.	.
LP 81-85	.	.	.	.	.
LP 86-90	.	.	.	.	.
LP 91-95	.	.	.	.	.
LP 96-100	.	.	.	.	.











### Split Pattern - 1

Coord Phases	2, 6			
Phase	1	2	3	4
Split	15	34	20	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	38	11	20
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 2

Coord Phases	2, 6			
Phase	1	2	3	4
Split	15	34	20	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	38	11	20
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 3

Coord Phases	2, 6			
Phase	1	2	3	4
Split	20	49	20	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	58	11	20
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 4

Coord Phases	2, 6			
Phase	1	2	3	4
Split	13	30	16	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	32	11	16
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 5

Coord Phases	2, 6			
Phase	1	2	3	4
Split	15	34	20	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	38	11	20
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 6

Coord Phases	2, 6			
Phase	1	2	3	4
Split	15	27	47	11
Mode	None	Min Veh Recall	None	None
Phase	5	6	7	8
Split	11	31	11	47
Mode	None	Min Veh Recall	None	None
Phase	9	10	11	12
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
Phase	13	14	15	16
Split	0	0	0	0
Mode	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 10

Coord Phases	None			
<b>Phase</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	None	None	None	None
<b>Phase</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	None	None	None	None
<b>Phase</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
<b>Phase</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 11

Coord Phases	None			
<b>Phase</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	None	None	None	None
<b>Phase</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	None	None	None	None
<b>Phase</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
<b>Phase</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

### Split Pattern - 12

Coord Phases	2, 6			
<b>Phase</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Split</b>	20	49	20	11
<b>Mode</b>	None	Min Veh Recall	None	None
<b>Phase</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Split</b>	11	58	11	20
<b>Mode</b>	None	Min Veh Recall	None	None
<b>Phase</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted
<b>Phase</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
<b>Split</b>	0	0	0	0
<b>Mode</b>	Phase Omitted	Phase Omitted	Phase Omitted	Phase Omitted

**APPENDIX E**  
**CAPACITY PRINTOUTS**

## Level of Service Criteria

Level of Service (LOS) is the term used to denote different operating conditions that occur on a given road segment under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed, travel delay and freedom to maneuver. LOS designations range from A to F and provide an index of operational qualities of a road segment or an intersection. LOS A represents the best operating conditions; LOS F represents the worst.

LOS designations are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection. For unsignalized intersections, the analysis considers the operation of all movements that conflict with other movements, such as main-line left turns and traffic exiting a side street. The evaluation criteria used to analyze the study area intersections are based on the 2010 Highway Capacity Manual (HCM), published by the Transportation Research Board and the latest version of the Synchro software.

The HCM defines LOS for signalized intersections as follows:

<b><u>LOS</u></b>	<b><u>Control Delay per Vehicle</u></b>
A	$\leq 10$ sec
B	$> 10$ and $\leq 20$ sec
C	$> 20$ and $\leq 35$ sec
D	$> 35$ and $\leq 55$ sec
E	$> 55$ and $\leq 80$ sec
F	$> 80$ sec

The HCM defines LOS for unsignalized intersections as follows:

<b><u>LOS</u></b>	<b><u>Delay Range (sec/veh)</u></b>
A	$\leq 10$ sec
B	$> 10$ and $\leq 15$ sec
C	$> 15$ and $\leq 25$ sec
D	$> 25$ and $\leq 35$ sec
E	$> 35$ and $\leq 50$ sec
F	$> 50$ sec



**2017 EXISTING**

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	345	298	323	749	0	0	0	0	64	0	184
Future Volume (vph)	0	345	298	323	749	0	0	0	0	64	0	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.63	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3591	1599	3467	3610	0	0	0	0	3433	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3591	1599	3467	3610	0	0	0	0	3433	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			317									196
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
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
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	0	367	317	344	797	0	0	0	0	68	0	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	367	317	344	797	0	0	0	0	68	0	196
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

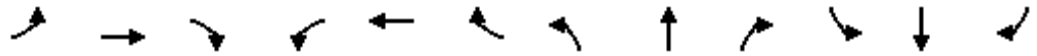
2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	41.0		23.0		64.0				36.0			
Total Split (%)	41.0%		23.0%		64.0%				36.0%			
Maximum Green (s)	34.0		18.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead		Lag									
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	59.3		100.0		18.0		83.7		6.1		100.0	
Actuated g/C Ratio	0.59		1.00		0.18		0.84		0.06		1.00	
v/c Ratio	0.17		0.20		0.55		0.26		0.33		0.12	
Control Delay	10.2		0.3		46.1		4.7		48.8		0.2	
Queue Delay	0.0		0.0		0.0		0.0		0.0		0.0	
Total Delay	10.2		0.3		46.1		4.7		48.8		0.2	
LOS	B		A		D		A		D		A	
Approach Delay	5.6				17.2						12.7	
Approach LOS	A				B						B	
90th %ile Green (s)	55.3		18.0		78.3				7.7			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	56.3		18.0		79.3				6.7			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	57.1		18.0		80.1				5.9			
50th %ile Term Code	Coord		Hold		Coord				Gap			
30th %ile Green (s)	57.8		18.0		80.8				5.2			
30th %ile Term Code	Coord		Hold		Coord				Gap			
10th %ile Green (s)	70.0		18.0		93.0				0.0			
10th %ile Term Code	Coord		Hold		Coord				Skip			
Stops (vph)	151		0		309		241		59		0	
Fuel Used(gal)	5		2		8		7		2		2	
CO Emissions (g/hr)	373		166		571		470		132		135	
NOx Emissions (g/hr)	73		32		111		92		26		26	
VOC Emissions (g/hr)	86		39		132		109		31		31	
Dilemma Vehicles (#)	17		0		0		10		0		0	
Queue Length 50th (ft)	55		0		114		89		21		0	
Queue Length 95th (ft)	82		0		162		108		43		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	2129		1599		624		3021		995		1615	
Starvation Cap Reductn	0		0		0		0		0		0	
Spillback Cap Reductn	0		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2017 Existing Traffic Volumes  
 AM Peak Hour

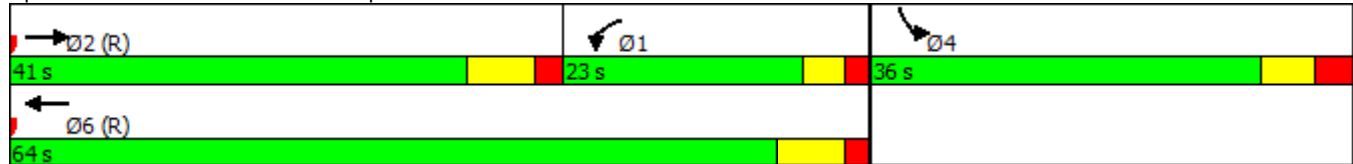


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.17	0.20	0.55	0.26					0.07		0.12

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 32 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 12.8  
 Intersection Capacity Utilization 42.9%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↘	↑↑					↘↘		↗
Traffic Volume (vph)	0	1071	471	201	992	0	0	0	0	212	0	369
Future Volume (vph)	0	1071	471	201	992	0	0	0	0	212	0	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.91	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5187	1615	3502	3610	0	0	0	0	3502	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	5187	1615	3502	3610	0	0	0	0	3502	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			476									401
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1164	512	218	1078	0	0	0	0	230	0	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1164	512	218	1078	0	0	0	0	230	0	401
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		
Permitted Phases			Free									Free

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

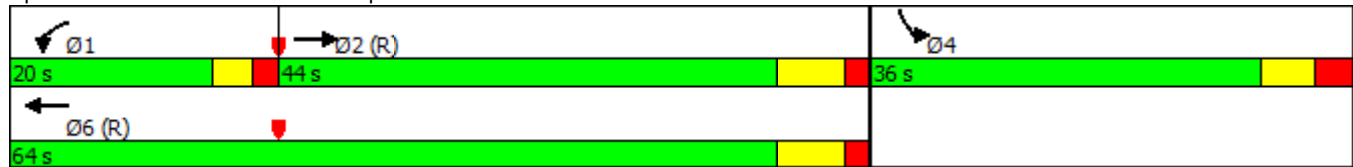


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4		
Switch Phase												
Minimum Initial (s)		15.0		6.0	15.0					5.0		
Minimum Split (s)		22.0		11.0	22.0					12.0		
Total Split (s)		44.0		20.0	64.0					36.0		
Total Split (%)		44.0%		20.0%	64.0%					36.0%		
Maximum Green (s)		37.0		15.0	57.0					29.0		
Yellow Time (s)		5.0		3.0	5.0					4.0		
All-Red Time (s)		2.0		2.0	2.0					3.0		
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		
Total Lost Time (s)		7.0		5.0	7.0					7.0		
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		5.0	3.0					1.5		
Recall Mode		C-Max		None	C-Max					None		
Act Effct Green (s)		57.1	100.0	13.4	75.5					10.5		100.0
Actuated g/C Ratio		0.57	1.00	0.13	0.76					0.10		1.00
v/c Ratio		0.39	0.32	0.47	0.40					0.62		0.25
Control Delay		12.9	0.5	47.7	9.3					50.2		0.4
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		12.9	0.5	47.7	9.3					50.2		0.4
LOS		B	A	D	A					D		A
Approach Delay		9.1			15.7							18.5
Approach LOS		A			B							B
90th %ile Green (s)		50.7		16.4	72.1					13.9		
90th %ile Term Code		Coord		Gap	Coord					Gap		
70th %ile Green (s)		54.5		14.6	74.1					11.9		
70th %ile Term Code		Coord		Gap	Coord					Gap		
50th %ile Green (s)		57.1		13.4	75.5					10.5		
50th %ile Term Code		Coord		Gap	Coord					Gap		
30th %ile Green (s)		59.8		12.1	76.9					9.1		
30th %ile Term Code		Coord		Gap	Coord					Gap		
10th %ile Green (s)		63.5		10.3	78.8					7.2		
10th %ile Term Code		Coord		Gap	Coord					Gap		
Stops (vph)		568	0	192	413					197		0
Fuel Used(gal)		18	4	5	11					6		4
CO Emissions (g/hr)		1285	265	360	769					442		273
NOx Emissions (g/hr)		250	51	70	150					86		53
VOC Emissions (g/hr)		298	61	83	178					103		63
Dilemma Vehicles (#)		54	0	0	117					0		0
Queue Length 50th (ft)		141	0	76	96					73		0
Queue Length 95th (ft)		201	0	105	347					108		0
Internal Link Dist (ft)		1142			540			294			448	
Turn Bay Length (ft)												
Base Capacity (vph)		2962	1615	535	2724					1015		1615
Starvation Cap Reductn		0	0	0	0					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.39	0.32	0.41	0.40					0.23		0.25

Intersection Summary
























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	13.2
Intersection LOS:	B
Intersection Capacity Utilization	51.5%
ICU Level of Service	A
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 					
Traffic Volume (vph)	183	242	0	0	739	183	328	0	138	0	0	0
Future Volume (vph)	183	242	0	0	739	183	328	0	138	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.89	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3467	3610	0	0	6764	1599	3467	0	1599	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3467	3610	0	0	6764	1599	3467	0	1599	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						208			175			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		620			720			465			385	
Travel Time (s)		9.4			10.9			7.9			6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%	1%	0%	1%	0%	0%	0%
Adj. Flow (vph)	208	275	0	0	840	208	373	0	157	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	275	0	0	840	208	373	0	157	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	20.0	60.0			40.0		40.0					
Total Split (%)	20.0%	60.0%			40.0%		40.0%					
Maximum Green (s)	15.0	53.0			33.0		33.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	16.2	70.7			49.6	100.0	15.3		100.0			
Actuated g/C Ratio	0.16	0.71			0.50	1.00	0.15		1.00			
v/c Ratio	0.37	0.11			0.25	0.13	0.71		0.10			
Control Delay	38.8	0.8			19.5	0.2	47.5		0.1			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	38.8	0.8			19.5	0.2	47.5		0.1			
LOS	D	A			B	A	D		A			
Approach Delay		17.1			15.6			33.4				
Approach LOS		B			B			C				
90th %ile Green (s)	19.8	66.4			41.6		19.6					
90th %ile Term Code	Gap	Coord			Coord		Gap					
70th %ile Green (s)	17.2	68.9			46.7		17.1					
70th %ile Term Code	Gap	Coord			Coord		Gap					
50th %ile Green (s)	16.0	70.7			49.7		15.3					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	14.8	72.5			52.7		13.5					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	13.0	75.1			57.1		10.9					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	124	15			421	0	300		0			
Fuel Used(gal)	4	1			12	1	10		2			
CO Emissions (g/hr)	260	84			812	60	721		124			
NOx Emissions (g/hr)	51	16			158	12	140		24			
VOC Emissions (g/hr)	60	19			188	14	167		29			
Dilemma Vehicles (#)	0	5			43	0	0		0			
Queue Length 50th (ft)	51	2			76	0	118		0			
Queue Length 95th (ft)	55	4			144	0	154		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	575	2553			3352	1599	1144		1599			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2017 Existing Traffic Volumes  
 AM Peak Hour

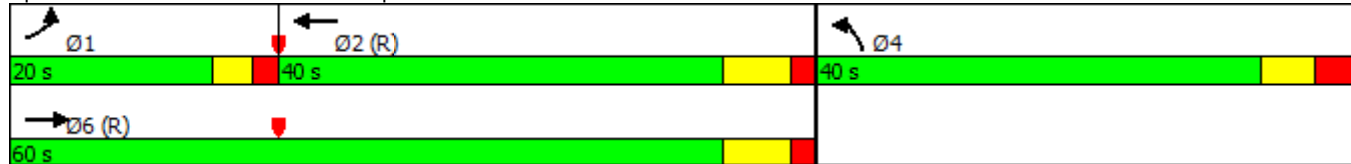


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.36	0.11			0.25	0.13	0.33		0.10			

Intersection Summary
























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	42 (42%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	20.6
Intersection LOS:	C
Intersection Capacity Utilization	42.9%
ICU Level of Service	A
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 					
Traffic Volume (vph)	287	981	0	0	755	151	446	0	347	0	0	0
Future Volume (vph)	287	981	0	0	755	151	446	0	347	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.68	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3502	3610	0	0	5168	1615	3502	0	1615	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3502	3610	0	0	5168	1615	3502	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						175			369			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
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
Adj. Flow (vph)	305	1044	0	0	803	161	474	0	369	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	305	1044	0	0	803	161	474	0	369	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					
Permitted Phases						Free			Free			

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

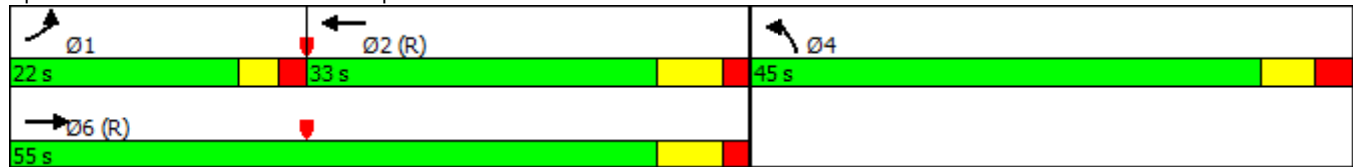


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	22.0	55.0			33.0		45.0					
Total Split (%)	22.0%	55.0%			33.0%		45.0%					
Maximum Green (s)	17.0	48.0			26.0		38.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	19.2	67.8			43.6	100.0	18.2		100.0			
Actuated g/C Ratio	0.19	0.68			0.44	1.00	0.18		1.00			
v/c Ratio	0.45	0.43			0.36	0.10	0.74		0.23			
Control Delay	27.8	3.3			26.0	0.1	45.9		0.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	27.8	3.3			26.0	0.1	45.9		0.3			
LOS	C	A			C	A	D		A			
Approach Delay		8.8			21.7			25.9				
Approach LOS		A			C			C				
90th %ile Green (s)	23.6	62.8			34.2		23.2					
90th %ile Term Code	Gap	Coord			Coord		Gap					
70th %ile Green (s)	20.8	65.7			39.9		20.3					
70th %ile Term Code	Gap	Coord			Coord		Gap					
50th %ile Green (s)	19.4	67.8			43.4		18.2					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	17.0	69.8			47.8		16.2					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	15.0	72.7			52.7		13.3					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	220	505			618	0	408		0			
Fuel Used(gal)	6	11			15	1	14		4			
CO Emissions (g/hr)	385	761			1064	50	971		312			
NOx Emissions (g/hr)	75	148			207	10	189		61			
VOC Emissions (g/hr)	89	176			246	11	225		72			
Dilemma Vehicles (#)	0	46			5	0	0		0			
Queue Length 50th (ft)	55	2			137	0	148		0			
Queue Length 95th (ft)	59	24			226	0	191		0			
Internal Link Dist (ft)		540			640			385				305
Turn Bay Length (ft)												
Base Capacity (vph)	685	2446			2253	1615	1330		1615			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.45	0.43			0.36	0.10	0.36		0.23			

Intersection Summary

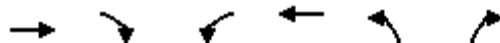
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	34 (34%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	17.3
Intersection Capacity Utilization	51.5%
Analysis Period (min)	15
* User Entered Value	
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

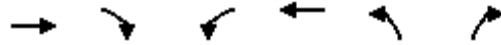
2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↙↘	↑↑↑	↙↘	↑
Traffic Volume (vph)	295	98	45	844	97	29
Future Volume (vph)	295	98	45	844	97	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		109				32
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	328	109	50	938	108	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	328	109	50	938	108	32
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour

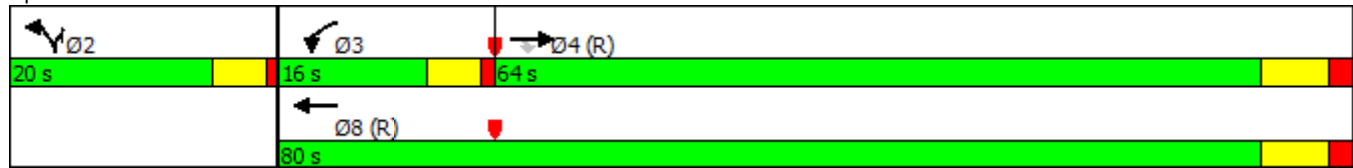


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	15.0	15.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	69.8	69.8	6.8	79.5	8.5	8.5
Actuated g/C Ratio	0.70	0.70	0.07	0.80	0.08	0.08
v/c Ratio	0.13	0.09	0.21	0.23	0.36	0.19
Control Delay	5.3	1.2	46.4	3.8	46.3	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	1.2	46.4	3.8	46.3	17.4
LOS	A	A	D	A	D	B
Approach Delay	4.3			6.0	39.7	
Approach LOS	A			A	D	
90th %ile Green (s)	64.0	64.0	8.3	77.3	10.7	10.7
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	66.2	66.2	7.4	78.6	9.4	9.4
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	67.7	67.7	6.8	79.5	8.5	8.5
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	69.3	69.3	6.2	80.5	7.5	7.5
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	81.8	81.8	0.0	81.8	6.2	6.2
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	82	4	46	211	89	10
Fuel Used(gal)	3	1	1	7	2	0
CO Emissions (g/hr)	190	37	84	503	146	25
NOx Emissions (g/hr)	37	7	16	98	28	5
VOC Emissions (g/hr)	44	9	20	117	34	6
Dilemma Vehicles (#)	13	0	0	87	0	0
Queue Length 50th (ft)	31	0	16	21	34	0
Queue Length 95th (ft)	50	12	37	109	59	28
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2519	1159	385	4125	525	269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.09	0.13	0.23	0.21	0.12

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.36
Intersection Signal Delay:	8.5
Intersection Capacity Utilization	33.4%
Analysis Period (min)	15
Intersection LOS:	A
ICU Level of Service	A

Splits and Phases: 15: Lincoln St & 144th Ave





Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑↑	↔	↑
Traffic Volume (vph)	1064	347	71	608	266	133
Future Volume (vph)	1064	347	71	608	266	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		381				146
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1169	381	78	668	292	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1169	381	78	668	292	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

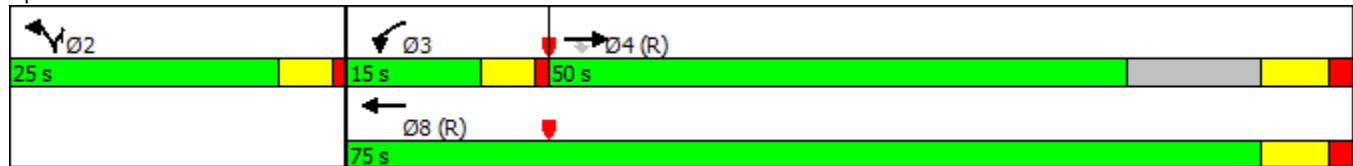


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	50.0	50.0	15.0	75.0	25.0	25.0
Total Split (%)	50.0%	50.0%	15.0%	75.0%	25.0%	25.0%
Maximum Green (s)	43.0	43.0	10.0	68.0	20.0	20.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	64.0	64.0	7.6	74.4	13.6	13.6
Actuated g/C Ratio	0.64	0.64	0.08	0.74	0.14	0.14
v/c Ratio	0.51	0.33	0.29	0.17	0.61	0.42
Control Delay	7.5	1.2	50.5	6.9	46.2	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.2	50.5	6.9	46.2	10.4
LOS	A	A	D	A	D	B
Approach Delay	5.9			11.4	34.3	
Approach LOS	A			B	C	
90th %ile Green (s)	56.3	56.3	9.5	70.8	17.2	17.2
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	59.5	59.5	8.4	72.9	15.1	15.1
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	61.8	61.8	7.6	74.4	13.6	13.6
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	64.1	64.1	6.8	75.9	12.1	12.1
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	78.1	78.1	0.0	78.1	9.9	9.9
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	291	13	70	200	242	21
Fuel Used(gal)	10	2	2	6	6	1
CO Emissions (g/hr)	714	130	135	431	398	93
NOx Emissions (g/hr)	139	25	26	84	77	18
VOC Emissions (g/hr)	165	30	31	100	92	21
Dilemma Vehicles (#)	47	0	0	54	0	0
Queue Length 50th (ft)	117	1	27	54	91	0
Queue Length 95th (ft)	132	2	52	73	129	53
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2308	1170	350	3860	700	439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.33	0.22	0.17	0.42	0.33

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	98 (98%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay:	12.0
Intersection Capacity Utilization	48.0%
Analysis Period (min)	15
	Intersection LOS: B
	ICU Level of Service A

Splits and Phases: 15: Lincoln St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	307	20	9	808	71	44
Future Volume (vph)	307	20	9	808	71	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		23				51
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	357	23	10	940	83	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	357	23	10	940	83	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour

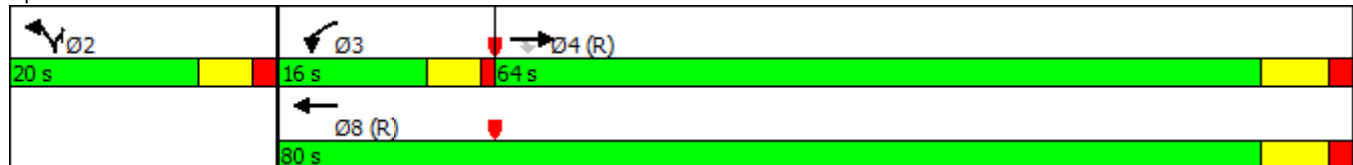


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	80.7	80.7	5.8	83.0	7.8	7.8
Actuated g/C Ratio	0.81	0.81	0.06	0.83	0.08	0.08
v/c Ratio	0.12	0.02	0.05	0.31	0.31	0.30
Control Delay	2.2	0.8	35.7	3.0	46.1	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	0.8	35.7	3.0	46.1	16.9
LOS	A	A	D	A	D	B
Approach Delay	2.1			3.4	35.0	
Approach LOS	A			A	C	
90th %ile Green (s)	65.9	65.9	6.4	77.3	9.7	9.7
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	78.4	78.4	0.0	78.4	8.6	8.6
70th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
50th %ile Green (s)	79.2	79.2	0.0	79.2	7.8	7.8
50th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
30th %ile Green (s)	80.1	80.1	0.0	80.1	6.9	6.9
30th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
10th %ile Green (s)	93.0	93.0	0.0	93.0	0.0	0.0
10th %ile Term Code	Coord	Coord	Skip	Coord	Skip	Skip
Stops (vph)	36	1	11	170	64	12
Fuel Used(gal)	2	0	0	8	2	1
CO Emissions (g/hr)	141	8	18	553	112	37
NOx Emissions (g/hr)	27	1	4	108	22	7
VOC Emissions (g/hr)	33	2	4	128	26	8
Dilemma Vehicles (#)	12	0	0	47	0	0
Queue Length 50th (ft)	14	0	3	60	26	0
Queue Length 95th (ft)	27	1	m9	98	46	32
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2914	1308	385	2996	490	269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.02	0.03	0.31	0.17	0.19

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization:	37.3%
ICU Level of Service:	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 20: Grant St & 144th Ave



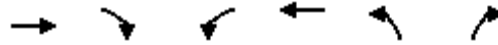
Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖↗	↑↑	↖↗	↗
Traffic Volume (vph)	1105	54	55	676	39	46
Future Volume (vph)	1105	54	55	676	39	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		59				51
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1214	59	60	743	43	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1214	59	60	743	43	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour



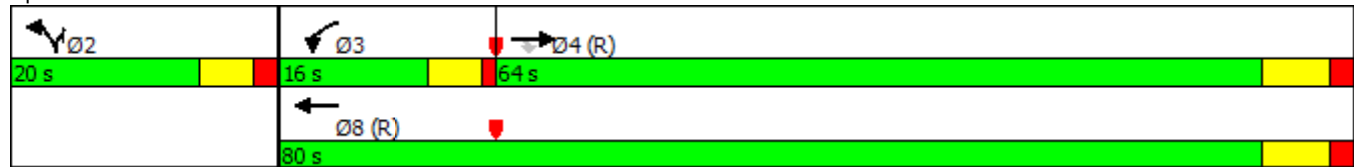
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	73.8	73.8	7.1	83.8	6.9	6.9
Actuated g/C Ratio	0.74	0.74	0.07	0.84	0.07	0.07
v/c Ratio	0.46	0.05	0.24	0.25	0.18	0.32
Control Delay	4.5	0.7	40.4	1.9	45.1	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	0.7	40.4	1.9	45.1	18.2
LOS	A	A	D	A	D	B
Approach Delay	4.3			4.8	30.5	
Approach LOS	A			A	C	
90th %ile Green (s)	64.3	64.3	8.8	78.1	8.9	8.9
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	67.0	67.0	7.8	79.8	7.2	7.2
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	68.3	68.3	7.1	80.4	6.6	6.6
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	69.5	69.5	6.4	80.9	6.1	6.1
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	93.0	93.0	0.0	93.0	0.0	0.0
10th %ile Term Code	Coord	Coord	Skip	Coord	Skip	Skip
Stops (vph)	570	5	40	126	37	13
Fuel Used(gal)	13	0	1	6	1	1
CO Emissions (g/hr)	924	22	92	438	62	39
NOx Emissions (g/hr)	180	4	18	85	12	8
VOC Emissions (g/hr)	214	5	21	102	14	9
Dilemma Vehicles (#)	5	0	0	6	0	0
Queue Length 50th (ft)	140	2	13	7	13	0
Queue Length 95th (ft)	150	m2	m29	8	30	36
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2664	1207	385	3026	490	269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.05	0.16	0.25	0.09	0.19



Intersection Summary

























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.46
Intersection Signal Delay:	5.6
Intersection LOS:	A
Intersection Capacity Utilization	45.5%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	167	93	87	648	39	78	87	16	5	123	117
Future Volume (vph)	95	167	93	87	648	39	78	87	16	5	123	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			207			207			207
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Adj. Flow (vph)	107	188	104	98	728	44	88	98	18	6	138	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	188	104	98	728	44	88	98	18	6	138	131
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	25.0	39.0	39.0	15.0	29.0	29.0	15.0	34.0	34.0	12.0	31.0	31.0
Total Split (%)	25.0%	39.0%	39.0%	15.0%	29.0%	29.0%	15.0%	34.0%	34.0%	12.0%	31.0%	31.0%
Maximum Green (s)	20.0	32.0	32.0	10.0	22.0	22.0	10.0	27.0	27.0	7.0	24.0	24.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	8.4	56.3	56.3	8.2	53.9	53.9	7.9	16.5	16.5	5.7	8.0	8.0
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.54	0.54	0.08	0.16	0.16	0.06	0.08	0.08
v/c Ratio	0.36	0.09	0.11	0.34	0.37	0.05	0.32	0.17	0.04	0.03	0.33	0.41
Control Delay	57.9	7.0	1.6	46.2	15.4	0.1	46.1	35.7	0.2	49.6	44.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	7.0	1.6	46.2	15.4	0.1	46.1	35.7	0.2	49.6	44.9	4.5
LOS	E	A	A	D	B	A	D	D	A	D	D	A
Approach Delay		19.2			18.1			37.1			25.8	
Approach LOS		B			B			D			C	
90th %ile Green (s)	10.7	46.1	46.1	10.3	45.7	45.7	9.9	13.5	13.5	6.1	9.7	9.7
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	9.3	49.6	49.6	9.0	49.3	49.3	8.7	22.4	22.4	0.0	8.7	8.7
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
50th %ile Green (s)	8.4	51.9	51.9	8.2	51.7	51.7	7.9	20.9	20.9	0.0	8.0	8.0
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
30th %ile Green (s)	7.5	54.3	54.3	7.3	54.1	54.1	7.1	19.4	19.4	0.0	7.3	7.3
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
10th %ile Green (s)	6.2	79.7	79.7	0.0	68.5	68.5	0.0	6.3	6.3	0.0	6.3	6.3
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Skip	Hold	Hold	Skip	Gap	Gap
Stops (vph)	92	64	14	80	369	0	72	72	0	8	110	3
Fuel Used(gal)	3	2	1	3	15	0	4	4	0	0	4	1
CO Emissions (g/hr)	202	149	57	204	1035	35	248	253	21	17	288	75
NOx Emissions (g/hr)	39	29	11	40	201	7	48	49	4	3	56	15
VOC Emissions (g/hr)	47	34	13	47	240	8	58	59	5	4	67	17
Dilemma Vehicles (#)	0	7	0	0	32	0	0	4	0	0	5	0
Queue Length 50th (ft)	37	13	0	30	141	0	27	26	0	2	31	0
Queue Length 95th (ft)	59	38	0	54	207	0	51	53	0	9	42	6
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	700	2033	976	352	1944	965	350	964	587	245	1244	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

2017 Existing Traffic Volumes  
 AM Peak Hour

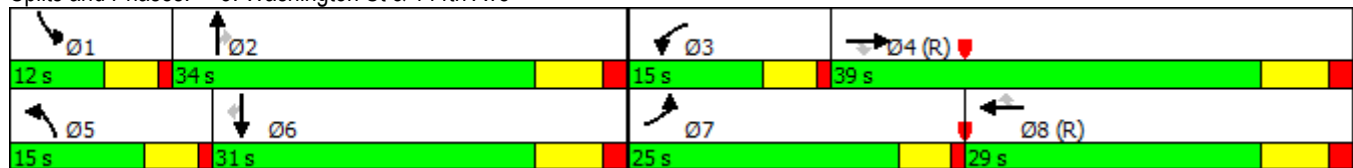


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.15	0.09	0.11	0.28	0.37	0.05	0.25	0.10	0.03	0.02	0.11	0.24

Intersection Summary

























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	45 (45%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.41
Intersection Signal Delay:	21.8
Intersection LOS:	C
Intersection Capacity Utilization	50.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	686	310	38	360	42	166	190	64	79	257	167
Future Volume (vph)	182	686	310	38	360	42	166	190	64	79	257	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			356			153			153			192
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	209	789	356	44	414	48	191	218	74	91	295	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	789	356	44	414	48	191	218	74	91	295	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2017 Existing Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	16.0	33.0	33.0	16.0	33.0	33.0	16.0	35.0	35.0	16.0	35.0	35.0
Total Split (%)	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	16.0%	35.0%	35.0%	16.0%	35.0%	35.0%
Maximum Green (s)	11.0	26.0	26.0	11.0	26.0	26.0	11.0	28.0	28.0	11.0	28.0	28.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.3	52.4	52.4	6.7	43.5	43.5	10.0	15.4	15.4	8.0	11.2	11.2
Actuated g/C Ratio	0.11	0.52	0.52	0.07	0.44	0.44	0.10	0.15	0.15	0.08	0.11	0.11
v/c Ratio	0.53	0.42	0.35	0.19	0.27	0.06	0.55	0.39	0.20	0.33	0.51	0.55
Control Delay	32.9	31.6	16.9	45.5	19.8	0.1	48.8	40.9	1.2	50.7	39.4	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	31.6	16.9	45.5	19.8	0.1	48.8	40.9	1.2	50.7	39.4	10.2
LOS	C	C	B	D	B	A	D	D	A	D	D	B
Approach Delay		27.9			20.2			37.9				31.5
Approach LOS		C			C			D				C
90th %ile Green (s)	14.4	42.4	42.4	8.1	36.1	36.1	11.0	15.5	15.5	10.0	14.5	14.5
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	12.6	45.6	45.6	7.3	40.3	40.3	11.0	14.3	14.3	8.8	12.1	12.1
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	11.3	47.6	47.6	6.7	43.0	43.0	10.7	13.7	13.7	8.0	11.0	11.0
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	10.0	61.5	61.5	0.0	46.5	46.5	9.5	12.4	12.4	7.1	10.0	10.0
30th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	8.2	64.7	64.7	0.0	51.5	51.5	7.8	21.3	21.3	0.0	8.5	8.5
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
Stops (vph)	169	612	146	35	227	0	155	167	0	76	236	48
Fuel Used(gal)	5	17	5	1	9	1	8	8	1	3	8	3
CO Emissions (g/hr)	316	1155	343	89	617	37	537	580	86	198	590	177
NOx Emissions (g/hr)	61	225	67	17	120	7	105	113	17	39	115	34
VOC Emissions (g/hr)	73	268	80	21	143	9	125	134	20	46	137	41
Dilemma Vehicles (#)	0	5	0	0	18	0	0	8	0	0	9	0
Queue Length 50th (ft)	67	277	116	13	87	0	60	67	0	26	67	0
Queue Length 95th (ft)	98	325	184	29	133	0	91	99	0	51	91	18
Internal Link Dist (ft)		930			445			543				1142
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	418	1890	1015	385	1553	788	385	1010	562	385	1452	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

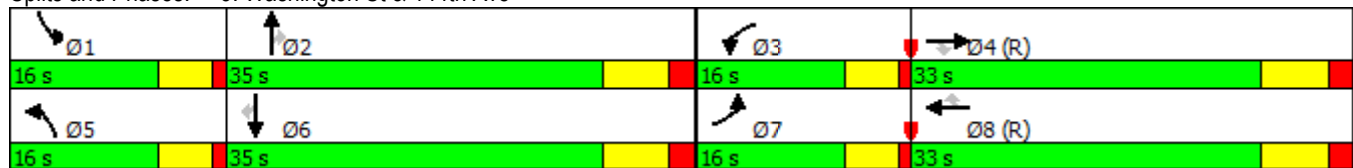
2017 Existing Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.50	0.42	0.35	0.11	0.27	0.06	0.50	0.22	0.13	0.24	0.20	0.33

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	93 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	28.9
Intersection LOS:	C
Intersection Capacity Utilization	52.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	2	0	140	15	2	232	0
Future Volume (vph)	0	0	0	2	0	2	0	140	15	2	232	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					799				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	2	0	2	0	154	16	2	255	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	2	0	0	154	16	2	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2017 Existing Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				7.6	6.0			94.0	94.0	5.7	96.2	
Actuated g/C Ratio				0.08	0.06			0.94	0.94	0.06	0.96	
v/c Ratio				0.01	0.00			0.05	0.01	0.02	0.05	
Control Delay				42.5	0.0			0.3	0.0	45.0	0.6	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				42.5	0.0			0.3	0.0	45.0	0.6	
LOS				D	A			A	A	D	A	
Approach Delay					21.3			0.3			0.9	
Approach LOS					C			A			A	
90th %ile Green (s)	0.0	0.0		7.8	7.8		0.0	70.1	70.1	6.1	81.2	81.2
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
70th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
50th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
30th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				3	0			2	0	3	12	
Fuel Used(gal)				0	0			1	0	0	4	
CO Emissions (g/hr)				2	0			79	8	7	245	
NOx Emissions (g/hr)				0	0			15	2	1	48	
VOC Emissions (g/hr)				1	0			18	2	2	57	
Dilemma Vehicles (#)				0	0			0	0	0	3	
Queue Length 50th (ft)				0	0			0	0	1	0	
Queue Length 95th (ft)				4	0			3	0	9	13	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	921			3360	1533	270	4992	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

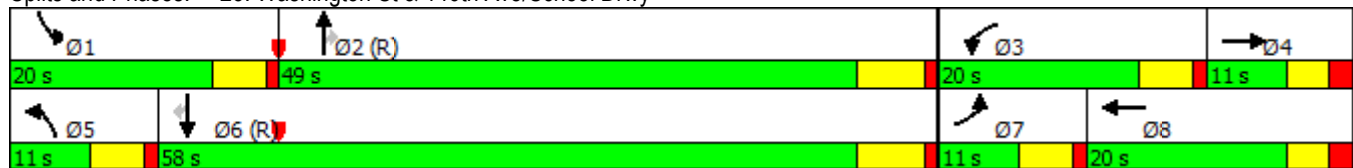
2017 Existing Traffic Volumes  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio				0.00	0.00			0.05	0.01	0.01	0.05	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	12 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.05
Intersection Signal Delay:	0.9
Intersection LOS:	A
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2017 Existing Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	84	0	13	0	286	40	10	364	0
Future Volume (vph)	0	0	0	84	0	13	0	286	40	10	364	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					588				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	98	0	15	0	333	47	12	423	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	98	15	0	0	333	47	12	423	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2017 Existing Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				10.1	9.6			80.2	80.2	6.3	82.7	
Actuated g/C Ratio				0.10	0.10			0.80	0.80	0.06	0.83	
v/c Ratio				0.28	0.02			0.12	0.04	0.11	0.10	
Control Delay				43.1	0.1			0.4	0.1	45.8	2.3	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				43.1	0.1			0.4	0.1	45.8	2.3	
LOS				D	A			A	A	D	A	
Approach Delay					37.4			0.4			3.5	
Approach LOS					D			A			A	
90th %ile Green (s)	0.0	0.0		12.2	12.2		0.0	64.2	64.2	7.6	76.8	76.8
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		11.0	11.0		0.0	78.0	78.0	0.0	78.0	78.0
70th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		10.1	10.1		0.0	78.9	78.9	0.0	78.9	78.9
50th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		9.3	9.3		0.0	79.7	79.7	0.0	79.7	79.7
30th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				75	0			6	0	11	67	
Fuel Used(gal)				1	0			2	0	0	7	
CO Emissions (g/hr)				85	2			164	22	31	457	
NOx Emissions (g/hr)				17	0			32	4	6	89	
VOC Emissions (g/hr)				20	1			38	5	7	106	
Dilemma Vehicles (#)				0	0			1	0	0	16	
Queue Length 50th (ft)				30	0			2	0	7	17	
Queue Length 95th (ft)				52	0			4	m0	25	26	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	742			2893	1342	270	4288	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	
Reduced v/c Ratio				0.19	0.02			0.12	0.04	0.04	0.10	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	58 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.28
Intersection Signal Delay:	6.4
Intersection LOS:	A
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



**Intersection**

Int Delay, s/veh 4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	13	0	3	0	1	21	5
Future Vol, veh/h	13	0	0	0	0	13	0	3	0	1	21	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	0	0	0	17	0	4	0	1	27	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	45	37	30	37	40	4	33	0	0	4	0	0
Stage 1	33	33	-	4	4	-	-	-	-	-	-	-
Stage 2	12	4	-	33	36	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	962	859	1050	973	856	1085	1592	-	-	1631	-	-
Stage 1	988	872	-	1024	897	-	-	-	-	-	-	-
Stage 2	1014	897	-	988	869	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	947	858	1050	972	855	1085	1592	-	-	1631	-	-
Mov Cap-2 Maneuver	947	858	-	972	855	-	-	-	-	-	-	-
Stage 1	988	871	-	1024	897	-	-	-	-	-	-	-
Stage 2	998	897	-	987	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	8.4	0	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1592	-	-	947	-	1085	1631	-	-
HCM Lane V/C Ratio	-	-	-	0.018	-	0.015	0.001	-	-
HCM Control Delay (s)	0	-	-	8.9	0	8.4	7.2	0	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0	0	-	-

**Intersection**

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	11	2	0	2	3	20	1	163	3	11	163	18
Future Vol, veh/h	11	2	0	2	3	20	1	163	3	11	163	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	3	0	3	4	27	1	217	4	15	217	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	494	479	229	480	491	217	241	0	0	217	0	0
Stage 1	259	259	-	220	220	-	-	-	-	-	-	-
Stage 2	235	220	-	260	271	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	489	489	815	499	481	828	1337	-	-	1365	-	-
Stage 1	750	697	-	787	725	-	-	-	-	-	-	-
Stage 2	773	725	-	749	689	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	465	482	815	492	474	828	1337	-	-	1365	-	-
Mov Cap-2 Maneuver	465	482	-	492	474	-	-	-	-	-	-	-
Stage 1	749	688	-	786	724	-	-	-	-	-	-	-
Stage 2	743	724	-	736	680	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	10.2	0	0.4
HCM LOS	B	B		













Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1337	-	-	468	492	755	1365	-	-
HCM Lane V/C Ratio	0.001	-	-	0.037	0.005	0.041	0.011	-	-
HCM Control Delay (s)	7.7	0	-	13	12.4	10	7.7	0	-
HCM Lane LOS	A	A	-	B	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	-	-

## **2018 BACKGROUND AND FUTURE**



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	433	306	379	828	0	0	0	0	185	0	189
Future Volume (vph)	0	433	306	379	828	0	0	0	0	185	0	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.77	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	4389	1599	3467	3610	0	0	0	0	3433	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	4389	1599	3467	3610	0	0	0	0	3433	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			326									201
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
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
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	0	461	326	403	881	0	0	0	0	197	0	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	461	326	403	881	0	0	0	0	197	0	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

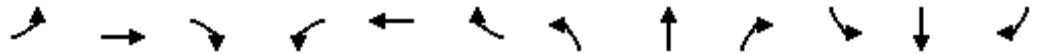
2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	41.0		23.0		64.0				36.0			
Total Split (%)	41.0%		23.0%		64.0%				36.0%			
Maximum Green (s)	34.0		18.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	53.3		100.0		18.0		76.3		9.7		100.0	
Actuated g/C Ratio	0.53		1.00		0.18		0.76		0.10		1.00	
v/c Ratio	0.20		0.20		0.65		0.32		0.59		0.12	
Control Delay	12.8		0.3		47.6		6.3		50.4		0.2	
Queue Delay	0.0		0.0		0.0		0.0		0.0		0.0	
Total Delay	12.8		0.3		47.6		6.3		50.4		0.2	
LOS	B		A		D		A		D		A	
Approach Delay	7.6				19.3						25.0	
Approach LOS	A				B						C	
90th %ile Green (s)	50.1		18.0		73.1				12.9			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	52.0		18.0		75.0				11.0			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	53.3		18.0		76.3				9.7			
50th %ile Term Code	Coord		Max		Coord				Gap			
30th %ile Green (s)	54.6		18.0		77.6				8.4			
30th %ile Term Code	Coord		Hold		Coord				Gap			
10th %ile Green (s)	56.5		18.0		79.5				6.5			
10th %ile Term Code	Coord		Hold		Coord				Gap			
Stops (vph)	217		0		365		292		172		0	
Fuel Used(gal)	7		2		10		8		6		2	
CO Emissions (g/hr)	508		171		681		561		387		139	
NOx Emissions (g/hr)	99		33		132		109		75		27	
VOC Emissions (g/hr)	118		40		158		130		90		32	
Dilemma Vehicles (#)	22		0		0		13		0		0	
Queue Length 50th (ft)	63		0		135		90		62		0	
Queue Length 95th (ft)	92		0		188		108		96		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	2339		1599		624		2754		995		1615	
Starvation Cap Reductn	0		0		0		0		0		0	
Spillback Cap Reductn	0		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2018 Background Traffic Volumes  
 AM Peak Hour

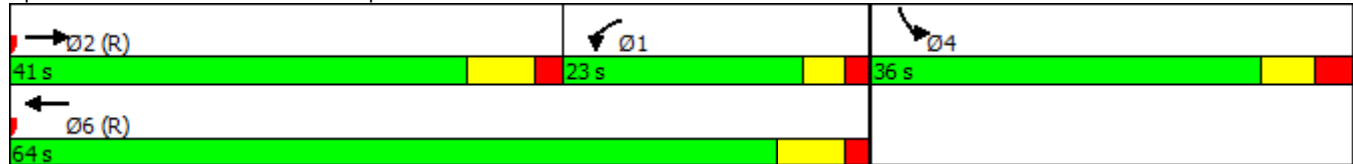


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.20	0.20	0.65	0.32					0.20		0.12

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 32 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 16.5  
 Intersection Capacity Utilization 44.4%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↘	↑↑					↖↖		↗
Traffic Volume (vph)	0	1213	484	307	1131	0	0	0	0	387	0	379
Future Volume (vph)	0	1213	484	307	1131	0	0	0	0	387	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.88	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5016	1615	3502	3610	0	0	0	0	3502	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	5016	1615	3502	3610	0	0	0	0	3502	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			417									412
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1318	526	334	1229	0	0	0	0	421	0	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1318	526	334	1229	0	0	0	0	421	0	412
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		
Permitted Phases			Free									Free

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour

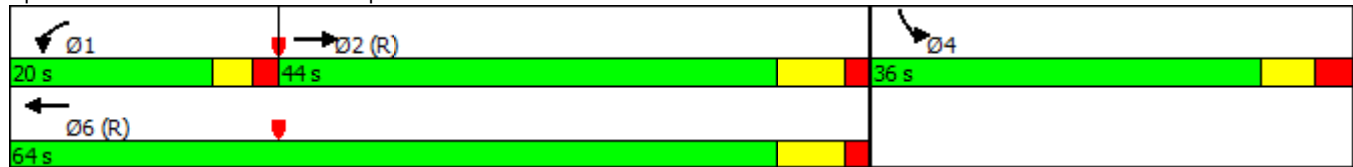


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4		
Switch Phase												
Minimum Initial (s)		15.0		6.0	15.0					5.0		
Minimum Split (s)		22.0		11.0	22.0					12.0		
Total Split (s)		44.0		20.0	64.0					36.0		
Total Split (%)		44.0%		20.0%	64.0%					36.0%		
Maximum Green (s)		37.0		15.0	57.0					29.0		
Yellow Time (s)		5.0		3.0	5.0					4.0		
All-Red Time (s)		2.0		2.0	2.0					3.0		
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		
Total Lost Time (s)		7.0		5.0	7.0					7.0		
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		5.0	3.0					1.5		
Recall Mode		C-Max		None	C-Max					None		
Act Effct Green (s)		48.3	100.0	16.6	70.0					16.0		100.0
Actuated g/C Ratio		0.48	1.00	0.17	0.70					0.16		1.00
v/c Ratio		0.54	0.33	0.57	0.49					0.75		0.26
Control Delay		20.2	0.5	38.2	16.1					48.6		0.4
Queue Delay		0.0	0.0	0.0	0.4					0.0		0.0
Total Delay		20.2	0.5	38.2	16.5					48.6		0.4
LOS		C	A	D	B					D		A
Approach Delay		14.6			21.2							24.7
Approach LOS		B			C							C
90th %ile Green (s)		39.3		21.1	65.4					20.6		
90th %ile Term Code		Coord		Gap	Coord					Gap		
70th %ile Green (s)		45.1		18.0	68.1					17.9		
70th %ile Term Code		Coord		Gap	Coord					Gap		
50th %ile Green (s)		48.5		16.5	70.0					16.0		
50th %ile Term Code		Coord		Gap	Coord					Gap		
30th %ile Green (s)		51.9		14.9	71.8					14.2		
30th %ile Term Code		Coord		Gap	Coord					Gap		
10th %ile Green (s)		56.8		12.7	74.5					11.5		
10th %ile Term Code		Coord		Gap	Coord					Gap		
Stops (vph)		830	0	258	666					359		0
Fuel Used(gal)		25	4	7	17					11		4
CO Emissions (g/hr)		1743	272	477	1157					798		280
NOx Emissions (g/hr)		339	53	93	225					155		55
VOC Emissions (g/hr)		404	63	111	268					185		65
Dilemma Vehicles (#)		61	0	0	145					0		0
Queue Length 50th (ft)		214	0	100	167					133		0
Queue Length 95th (ft)		310	0	120	503					175		0
Internal Link Dist (ft)		1142			540			294			448	
Turn Bay Length (ft)												
Base Capacity (vph)		2423	1615	599	2525					1015		1615
Starvation Cap Reductn		0	0	0	693					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.54	0.33	0.56	0.67					0.41		0.26

Intersection Summary













Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	19.0
Intersection LOS:	B
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	484	306	393	829	0	0	0	0	341	0	189
Future Volume (vph)	0	484	306	393	829	0	0	0	0	341	0	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.86	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	4902	1599	3400	3610	0	0	0	0	3467	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	4902	1599	3400	3610	0	0	0	0	3467	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			326									201
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
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
Heavy Vehicles (%)	0%	0%	1%	3%	0%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	515	326	418	882	0	0	0	0	363	0	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	515	326	418	882	0	0	0	0	363	0	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	41.0		23.0		64.0				36.0			
Total Split (%)	41.0%		23.0%		64.0%				36.0%			
Maximum Green (s)	34.0		18.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead		Lag									
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	48.5		100.0		18.0		71.5		14.5		100.0	
Actuated g/C Ratio	0.48		1.00		0.18		0.72		0.14		1.00	
v/c Ratio	0.22		0.20		0.68		0.34		0.72		0.12	
Control Delay	15.6		0.3		51.0		7.8		49.2		0.2	
Queue Delay	0.0		0.0		0.0		0.0		0.0		0.0	
Total Delay	15.6		0.3		51.0		7.8		49.2		0.2	
LOS	B		A		D		A		D		A	
Approach Delay	9.7				21.7						31.7	
Approach LOS	A				C						C	
90th %ile Green (s)	44.2		18.0		67.2				18.8			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	46.8		18.0		69.8				16.2			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	48.5		18.0		71.5				14.5			
50th %ile Term Code	Coord		Max		Coord				Gap			
30th %ile Green (s)	50.3		18.0		73.3				12.7			
30th %ile Term Code	Coord		Hold		Coord				Gap			
10th %ile Green (s)	52.8		18.0		75.8				10.2			
10th %ile Term Code	Coord		Hold		Coord				Gap			
Stops (vph)	269		0		392		301		316		0	
Fuel Used(gal)	9		2		11		8		10		2	
CO Emissions (g/hr)	610		171		736		587		706		139	
NOx Emissions (g/hr)	119		33		143		114		137		27	
VOC Emissions (g/hr)	141		40		171		136		164		32	
Dilemma Vehicles (#)	24		0		0		13		0		0	
Queue Length 50th (ft)	70		0		148		89		115		0	
Queue Length 95th (ft)	103		0		199		106		155		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	2378		1599		612		2581		1005		1615	
Starvation Cap Reductn	0		0		0		0		0		0	
Spillback Cap Reductn	0		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	



Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
 AM Peak Hour

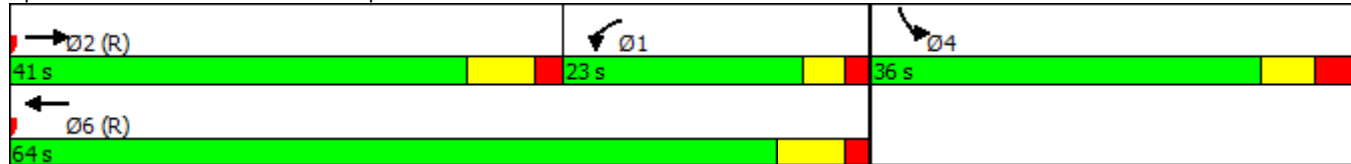


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.22	0.20	0.68	0.34					0.36		0.12

Intersection Summary













Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 32 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 20.0  
 Intersection Capacity Utilization 49.3%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	1267	484	748	1185	0	0	0	0	552	0	379
Future Volume (vph)	0	1267	484	748	1185	0	0	0	0	552	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.87	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	4959	1615	3502	3610	0	0	0	0	3467	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	4959	1615	3502	3610	0	0	0	0	3467	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			394									412
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	1377	526	813	1288	0	0	0	0	600	0	412
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1377	526	813	1288	0	0	0	0	600	0	412
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	Right	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	37.0		27.0		64.0				36.0			
Total Split (%)	37.0%		27.0%		64.0%				36.0%			
Maximum Green (s)	30.0		22.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	37.7		100.0		22.0		64.7		21.3		100.0	
Actuated g/C Ratio	0.38		1.00		0.22		0.65		0.21		1.00	
v/c Ratio	0.74		0.33		1.06		0.55		0.81		0.26	
Control Delay	30.6		0.5		76.8		12.3		46.6		0.4	
Queue Delay	0.4		0.0		0.0		0.0		0.0		0.0	
Total Delay	31.0		0.5		76.8		12.3		46.6		0.4	
LOS	C		A		E		B		D		A	
Approach Delay	22.5				37.2						27.8	
Approach LOS	C				D						C	
90th %ile Green (s)	32.4		22.0		59.4				26.6			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	35.5		22.0		62.5				23.5			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	37.6		22.0		64.6				21.4			
50th %ile Term Code	Coord		Max		Coord				Gap			
30th %ile Green (s)	39.9		22.0		66.9				19.1			
30th %ile Term Code	Coord		Max		Coord				Gap			
10th %ile Green (s)	43.1		22.0		70.1				15.9			
10th %ile Term Code	Coord		Max		Coord				Gap			
Stops (vph)	1052		0		610		559		509		0	
Fuel Used(gal)	31		4		22		15		16		4	
CO Emissions (g/hr)	2168		272		1558		1026		1121		280	
NOx Emissions (g/hr)	422		53		303		200		218		55	
VOC Emissions (g/hr)	502		63		361		238		260		65	
Dilemma Vehicles (#)	63		0		0		97		0		0	
Queue Length 50th (ft)	285		0		~291		168		188		0	
Queue Length 95th (ft)	376		0		#391		261		234		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	1869		1615		770		2335		1005		1615	
Starvation Cap Reductn	0		0		0		0		0		0	
Spillback Cap Reductn	137		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
 PM Peak Hour

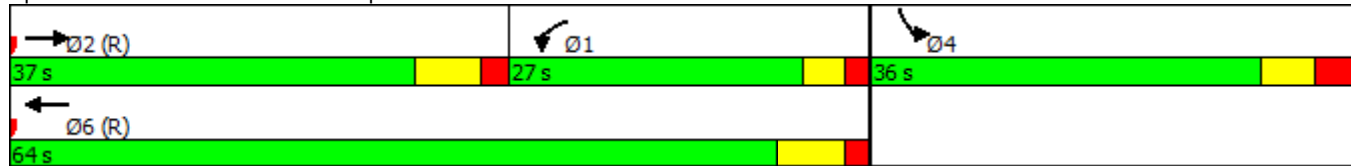


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.80	0.33	1.06	0.55					0.60		0.26

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 29.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 77.4%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕			↖↗	↖	↖↗		↖			
Traffic Volume (vph)	188	446	0	0	865	273	337	0	201	0	0	0
Future Volume (vph)	188	446	0	0	865	273	337	0	201	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.89	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3467	3610	0	0	6764	1599	3467	0	1599	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3467	3610	0	0	6764	1599	3467	0	1599	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						310			228			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%	1%	0%	1%	0%	0%	0%
Adj. Flow (vph)	214	507	0	0	983	310	383	0	228	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	507	0	0	983	310	383	0	228	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	20.0	60.0			40.0		40.0					
Total Split (%)	20.0%	60.0%			40.0%		40.0%					
Maximum Green (s)	15.0	53.0			33.0		33.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	16.3	70.4			49.2	100.0	15.6		100.0			
Actuated g/C Ratio	0.16	0.70			0.49	1.00	0.16		1.00			
v/c Ratio	0.38	0.20			0.30	0.19	0.71		0.14			
Control Delay	45.9	0.9			23.5	0.3	47.4		0.2			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	45.9	0.9			23.5	0.3	47.4		0.2			
LOS	D	A			C	A	D		A			
Approach Delay		14.2			17.9			29.8				
Approach LOS		B			B			C				
90th %ile Green (s)	20.0	66.0			41.0		20.0					
90th %ile Term Code	Gap	Coord			Coord		Gap					
70th %ile Green (s)	17.3	68.6			46.3		17.4					
70th %ile Term Code	Gap	Coord			Coord		Gap					
50th %ile Green (s)	16.1	70.4			49.3		15.6					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	14.9	72.3			52.4		13.7					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	13.1	74.9			56.8		11.1					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	149	30			575	0	309		0			
Fuel Used(gal)	4	2			15	1	11		3			
CO Emissions (g/hr)	305	157			1071	90	741		181			
NOx Emissions (g/hr)	59	31			208	18	144		35			
VOC Emissions (g/hr)	71	36			248	21	172		42			
Dilemma Vehicles (#)	0	9			97	0	0		0			
Queue Length 50th (ft)	54	4			118	0	120		0			
Queue Length 95th (ft)	74	6			185	0	157		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	578	2542			3325	1599	1144		1599			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2018 Background Traffic Volumes  
 AM Peak Hour

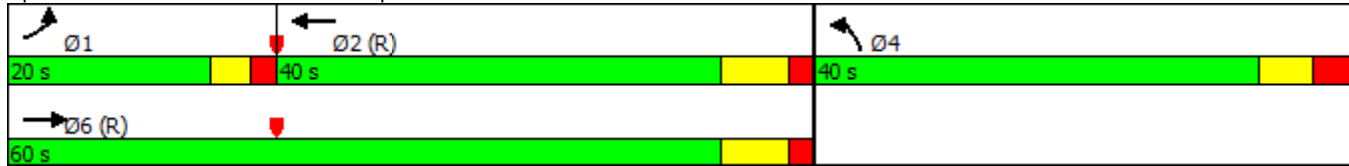


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.37	0.20			0.30	0.19	0.33		0.14			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 42 (42%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 19.7  
 Intersection Capacity Utilization 44.4%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	1289	0	0	987	329	458	0	460	0	0	0
Future Volume (vph)	295	1289	0	0	987	329	458	0	460	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.73	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3502	3610	0	0	5548	1615	3502	0	1615	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3502	3610	0	0	5548	1615	3502	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						350			489			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
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
Adj. Flow (vph)	314	1371	0	0	1050	350	487	0	489	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	314	1371	0	0	1050	350	487	0	489	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					
Permitted Phases						Free			Free			



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	22.0	55.0			33.0		45.0					
Total Split (%)	22.0%	55.0%			33.0%		45.0%					
Maximum Green (s)	17.0	48.0			26.0		38.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	19.4	67.4			43.0	100.0	18.6		100.0			
Actuated g/C Ratio	0.19	0.67			0.43	1.00	0.19		1.00			
v/c Ratio	0.46	0.56			0.44	0.22	0.75		0.30			
Control Delay	36.6	4.8			26.2	0.3	45.7		0.5			
Queue Delay	0.0	0.2			0.0	0.0	0.0		0.0			
Total Delay	36.6	5.0			26.2	0.3	45.7		0.5			
LOS	D	A			C	A	D		A			
Approach Delay		10.9			19.7			23.0				
Approach LOS		B			B			C				
90th %ile Green (s)	23.9	62.3			33.4		23.7					
90th %ile Term Code	Gap	Coord			Coord		Gap					
70th %ile Green (s)	21.0	65.3			39.3		20.7					
70th %ile Term Code	Gap	Coord			Coord		Gap					
50th %ile Green (s)	19.6	67.4			42.8		18.6					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	17.2	69.5			47.3		16.5					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	15.1	72.4			52.3		13.6					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	182	197			832	0	419		0			
Fuel Used(gal)	6	9			20	2	14		6			
CO Emissions (g/hr)	395	623			1414	109	996		415			
NOx Emissions (g/hr)	77	121			275	21	194		81			
VOC Emissions (g/hr)	92	144			328	25	231		96			
Dilemma Vehicles (#)	0	119			4	0	0		0			
Queue Length 50th (ft)	65	54			176	0	152		0			
Queue Length 95th (ft)	103	83			279	0	195		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	691	2432			2386	1615	1330		1615			
Starvation Cap Reductn	0	316			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.45	0.65			0.44	0.22	0.37		0.30			

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	34 (34%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	16.9
Intersection LOS:	B
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15
* User Entered Value	

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	653	0	0	880	278	337	0	619	0	0	0
Future Volume (vph)	188	653	0	0	880	278	337	0	619	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.90	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3467	3574	0	0	6772	1583	3467	0	1583	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3467	3574	0	0	6772	1583	3467	0	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						316			547			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	0%	0%	1%	2%	1%	0%	2%	0%	0%	0%
Adj. Flow (vph)	214	742	0	0	1000	316	383	0	703	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	742	0	0	1000	316	383	0	703	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases						Free	Free					
Detector Phase	1	6				2	4					
Switch Phase												
Minimum Initial (s)	5.0	15.0				15.0	5.0					
Minimum Split (s)	10.0	22.0				22.0	12.0					
Total Split (s)	20.0	60.0				40.0	40.0					
Total Split (%)	20.0%	60.0%				40.0%	40.0%					
Maximum Green (s)	15.0	53.0				33.0	33.0					
Yellow Time (s)	3.0	5.0				5.0	4.0					
All-Red Time (s)	2.0	2.0				2.0	3.0					
Lost Time Adjust (s)	0.0	0.0				0.0	0.0					
Total Lost Time (s)	5.0	7.0				7.0	7.0					
Lead/Lag	Lead					Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0				3.0	2.0					
Recall Mode	None	C-Max				C-Max	None					
Act Effct Green (s)	16.3	70.4				49.2	100.0	15.6	100.0			
Actuated g/C Ratio	0.16	0.70				0.49	1.00	0.16	1.00			
v/c Ratio	0.38	0.29				0.30	0.20	0.71	0.44			
Control Delay	41.6	1.1				21.9	0.3	47.4	0.9			
Queue Delay	0.0	0.0				0.0	0.0	0.0	0.0			
Total Delay	41.6	1.1				21.9	0.3	47.4	0.9			
LOS	D	A				C	A	D	A			
Approach Delay	10.1					16.7	17.3					
Approach LOS	B					B	B					
90th %ile Green (s)	20.0	66.0				41.0	20.0					
90th %ile Term Code	Gap	Coord				Coord	Gap					
70th %ile Green (s)	17.3	68.6				46.3	17.4					
70th %ile Term Code	Gap	Coord				Coord	Gap					
50th %ile Green (s)	16.1	70.4				49.3	15.6					
50th %ile Term Code	Gap	Coord				Coord	Gap					
30th %ile Green (s)	14.9	72.3				52.4	13.7					
30th %ile Term Code	Gap	Coord				Coord	Gap					
10th %ile Green (s)	13.1	74.9				56.8	11.1					
10th %ile Term Code	Gap	Coord				Coord	Gap					
Stops (vph)	134	59				672	0	309	0			
Fuel Used(gal)	4	4				16	1	11	8			
CO Emissions (g/hr)	281	245				1146	92	741	562			
NOx Emissions (g/hr)	55	48				223	18	144	109			
VOC Emissions (g/hr)	65	57				266	21	172	130			
Dilemma Vehicles (#)	0	11				27	0	0	0			
Queue Length 50th (ft)	46	5				155	0	120	0			
Queue Length 95th (ft)	80	8				149	0	157	0			
Internal Link Dist (ft)	540					640	385		305			
Turn Bay Length (ft)												
Base Capacity (vph)	578	2517				3329	1583	1144	1583			
Starvation Cap Reductn	0	0				0	0	0	0			
Spillback Cap Reductn	0	0				0	0	0	0			
Storage Cap Reductn	0	0				0	0	0	0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
 AM Peak Hour

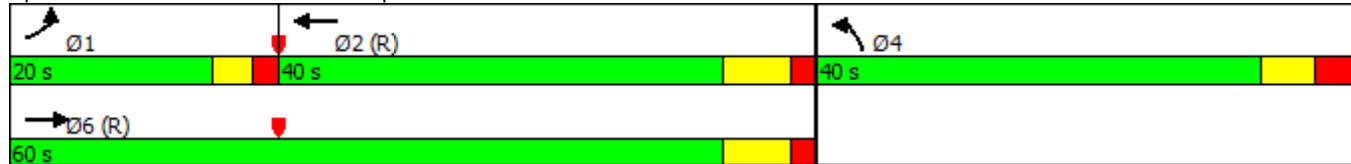


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.37	0.29			0.30	0.20	0.33		0.44			

Intersection Summary
























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 42 (42%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 15.0  
 Intersection Capacity Utilization 49.3%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 					
Traffic Volume (vph)	295	1508	0	0	1482	494	458	0	903	0	0	0
Future Volume (vph)	295	1508	0	0	1482	494	458	0	903	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.99	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3502	3610	0	0	7450	1599	3502	0	1599	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3502	3610	0	0	7450	1599	3502	0	1599	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						523			518			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		620			720			465			385	
Travel Time (s)		9.4			10.9			7.9			6.6	
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	314	1604	0	0	1577	526	487	0	961	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	314	1604	0	0	1577	526	487	0	961	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	22.0	55.0			33.0		45.0					
Total Split (%)	22.0%	55.0%			33.0%		45.0%					
Maximum Green (s)	17.0	48.0			26.0		38.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	19.4	67.4			43.0	100.0	18.6		100.0			
Actuated g/C Ratio	0.19	0.67			0.43	1.00	0.19		1.00			
v/c Ratio	0.46	0.66			0.49	0.33	0.75		0.60			
Control Delay	37.6	10.4			24.2	0.5	45.7		1.7			
Queue Delay	0.0	4.4			0.0	0.0	0.0		0.0			
Total Delay	37.6	14.8			24.2	0.5	45.7		1.7			
LOS	D	B			C	A	D		A			
Approach Delay		18.6			18.3			16.5				
Approach LOS		B			B			B				
90th %ile Green (s)	23.9	62.3			33.4		23.7					
90th %ile Term Code	Gap	Coord			Coord		Gap					
70th %ile Green (s)	21.0	65.3			39.3		20.7					
70th %ile Term Code	Gap	Coord			Coord		Gap					
50th %ile Green (s)	19.6	67.4			42.8		18.6					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	17.2	69.5			47.3		16.5					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	15.1	72.4			52.3		13.6					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	216	1397			1092	0	419		1			
Fuel Used(gal)	6	27			28	2	14		12			
CO Emissions (g/hr)	429	1862			1944	165	996		831			
NOx Emissions (g/hr)	83	362			378	32	194		162			
VOC Emissions (g/hr)	99	432			451	38	231		193			
Dilemma Vehicles (#)	0	0			10	0	0		0			
Queue Length 50th (ft)	82	537			196	0	152		0			
Queue Length 95th (ft)	m106	657			m241	m0	195		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	691	2432			3204	1599	1330		1599			
Starvation Cap Reductn	0	741			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2018 Total Future Traffic Volumes  
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.45	0.95			0.49	0.33	0.37		0.60			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 34 (34%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 17.9  
 Intersection Capacity Utilization 77.4%  
 Analysis Period (min) 15  
 \* User Entered Value  
 m Volume for 95th percentile queue is metered by upstream signal.

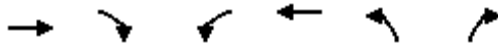
Splits and Phases: 12: I-25 NB Ramps & 144th Ave





Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↙↘	↑↑↑	↙↘	↗
Traffic Volume (vph)	431	226	76	954	197	66
Future Volume (vph)	431	226	76	954	197	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		251				73
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	479	251	84	1060	219	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	251	84	1060	219	73
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour

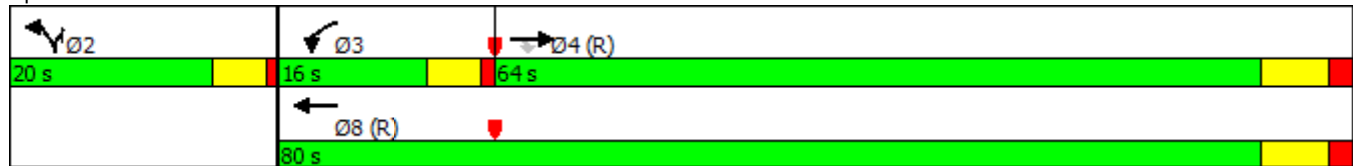


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	15.0	15.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	65.9	65.9	7.8	76.5	11.5	11.5
Actuated g/C Ratio	0.66	0.66	0.08	0.76	0.12	0.12
v/c Ratio	0.20	0.22	0.31	0.27	0.54	0.29
Control Delay	6.0	0.7	46.0	5.5	46.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	0.7	46.0	5.5	46.5	12.7
LOS	A	A	D	A	D	B
Approach Delay	4.2			8.5	38.1	
Approach LOS	A			A	D	
90th %ile Green (s)	58.6	58.6	9.7	73.3	14.7	14.7
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	61.6	61.6	8.6	75.2	12.8	12.8
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	63.7	63.7	7.8	76.5	11.5	11.5
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	65.8	65.8	7.0	77.8	10.2	10.2
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	79.6	79.6	0.0	79.6	8.4	8.4
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	114	3	74	336	181	15
Fuel Used(gal)	4	1	2	10	4	1
CO Emissions (g/hr)	277	79	139	676	296	50
NOx Emissions (g/hr)	54	15	27	132	58	10
VOC Emissions (g/hr)	64	18	32	157	69	12
Dilemma Vehicles (#)	18	0	0	94	0	0
Queue Length 50th (ft)	46	0	25	86	69	0
Queue Length 95th (ft)	65	9	53	138	103	39
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2377	1149	385	3967	525	304
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.22	0.22	0.27	0.42	0.24

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	11.0
Intersection Capacity Utilization	36.5%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 15: Lincoln St & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

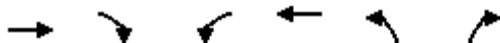
2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑↑	↔	↑
Traffic Volume (vph)	1295	530	111	848	426	183
Future Volume (vph)	1295	530	111	848	426	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		582				197
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1423	582	122	932	468	201
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1423	582	122	932	468	201
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour

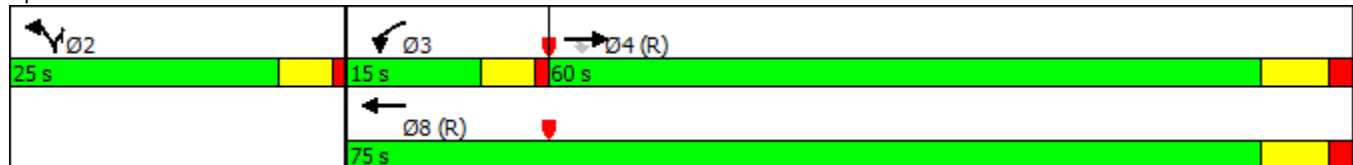


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	60.0	60.0	15.0	75.0	25.0	25.0
Total Split (%)	60.0%	60.0%	15.0%	75.0%	25.0%	25.0%
Maximum Green (s)	53.0	53.0	10.0	68.0	20.0	20.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	56.6	56.6	8.6	70.2	17.8	17.8
Actuated g/C Ratio	0.57	0.57	0.09	0.70	0.18	0.18
v/c Ratio	0.70	0.50	0.41	0.26	0.75	0.45
Control Delay	10.6	1.7	62.0	5.9	47.0	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	1.7	62.0	5.9	47.0	8.9
LOS	B	A	E	A	D	A
Approach Delay	8.0			12.4	35.5	
Approach LOS	A			B	D	
90th %ile Green (s)	53.0	53.0	10.0	68.0	20.0	20.0
90th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
70th %ile Green (s)	53.2	53.2	9.8	68.0	20.0	20.0
70th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
50th %ile Green (s)	55.7	55.7	8.8	69.5	18.5	18.5
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	58.5	58.5	7.9	71.4	16.6	16.6
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	62.6	62.6	6.5	74.1	13.9	13.9
10th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
Stops (vph)	464	19	109	203	393	26
Fuel Used(gal)	15	3	3	7	9	2
CO Emissions (g/hr)	1022	203	229	523	644	122
NOx Emissions (g/hr)	199	39	44	102	125	24
VOC Emissions (g/hr)	237	47	53	121	149	28
Dilemma Vehicles (#)	58	0	0	52	0	0
Queue Length 50th (ft)	145	2	43	55	145	2
Queue Length 95th (ft)	157	2	m70	71	197	61
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2043	1166	350	3641	700	480
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.50	0.35	0.26	0.67	0.42

**Intersection Summary**

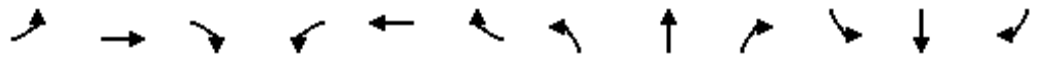
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	98 (98%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization	66.3%
ICU Level of Service	C
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Lincoln St & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑↑		↑↑	↑		↑	↑	↑
Traffic Volume (vph)	0	812	470	76	971	0	197	1	66	1	0	3
Future Volume (vph)	0	812	470	76	971	0	197	1	66	1	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		220	150		200	350		0	100		0
Storage Lanes	0		1	2		1	0		0	1		1
Taper Length (ft)	25			150			150			50		
Lane Util. Factor	1.00	*0.89	1.00	0.97	0.91	0.91	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.852			0.850	0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	4974	1615	3502	5136	0	3502	1619	0	1805	1534	1534
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	4974	1615	3502	5136	0	3502	1619	0	1805	1534	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			522					73			207	207
Link Speed (mph)		45			45			30				30
Link Distance (ft)		720			715			381				387
Travel Time (s)		10.9			10.8			8.7				8.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	902	522	84	1079	0	219	1	73	1	0	3
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	902	522	84	1079	0	219	74	0	1	2	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	L NA	R NA
Median Width(ft)		45			36			39				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			30			30				30
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2		1	2		1	2	1
Detector Template		Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20	20	100		20	100		20	100	20
Trailing Detector (ft)		0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)		0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)		6	20	20	6		20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type		NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1		6

Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4									6
Detector Phase		4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0	15.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)		22.0	22.0	10.0	22.0		10.0	11.0		10.0	11.0	11.0
Total Split (s)		54.0	54.0	15.0	69.0		20.0	21.0		10.0	11.0	11.0
Total Split (%)		54.0%	54.0%	15.0%	69.0%		20.0%	21.0%		10.0%	11.0%	11.0%
Maximum Green (s)		47.0	47.0	10.0	62.0		15.0	15.0		5.0	5.0	5.0
Yellow Time (s)		5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	1.0	2.0		1.0	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)		7.0	7.0	5.0	7.0		5.0	6.0		5.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode		C-Max	C-Max	None	C-Max		None	None		None	None	None
Act Effct Green (s)		63.6	63.6	7.8	74.2		11.5	10.8		5.0	5.5	5.5
Actuated g/C Ratio		0.64	0.64	0.08	0.74		0.12	0.11		0.05	0.06	0.06
v/c Ratio		0.29	0.43	0.31	0.28		0.54	0.31		0.01	0.01	0.00
Control Delay		10.1	3.4	42.6	6.1		46.5	13.3		46.0	0.0	0.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		10.1	3.4	42.6	6.1		46.5	13.3		46.0	0.0	0.0
LOS		B	A	D	A		D	B		D	A	A
Approach Delay		7.6			8.7			38.1			11.5	
Approach LOS		A			A			D			B	
90th %ile Green (s)		47.3	47.3	9.7	62.0		14.7	15.0		5.0	5.3	5.3
90th %ile Term Code		Coord	Coord	Gap	Coord		Gap	Hold		Max	Max	Max
70th %ile Green (s)		61.6	61.6	8.6	75.2		12.8	11.8		0.0	0.0	0.0
70th %ile Term Code		Coord	Coord	Gap	Coord		Gap	Hold		Skip	Skip	Skip
50th %ile Green (s)		63.7	63.7	7.8	76.5		11.5	10.5		0.0	0.0	0.0
50th %ile Term Code		Coord	Coord	Gap	Coord		Gap	Hold		Skip	Skip	Skip
30th %ile Green (s)		65.8	65.8	7.0	77.8		10.2	9.2		0.0	0.0	0.0
30th %ile Term Code		Coord	Coord	Gap	Coord		Gap	Hold		Skip	Skip	Skip
10th %ile Green (s)		79.6	79.6	0.0	79.6		8.4	7.4		0.0	0.0	0.0
10th %ile Term Code		Coord	Coord	Skip	Coord		Gap	Hold		Skip	Skip	Skip
Stops (vph)		302	27	71	406		181	15		3	0	0
Fuel Used(gal)		9	3	2	11		4	1		0	0	0
CO Emissions (g/hr)		644	200	132	752		296	51		2	0	0
NOx Emissions (g/hr)		125	39	26	146		58	10		0	0	0
VOC Emissions (g/hr)		149	46	31	174		69	12		0	0	0
Dilemma Vehicles (#)		74	0	0	31		0	0		0	0	0
Queue Length 50th (ft)		69	0	25	112		69	1		1	0	0
Queue Length 95th (ft)		151	63	m52	101		103	40		6	0	0
Internal Link Dist (ft)		640			635			301			307	
Turn Bay Length (ft)			220	150			350			100		
Base Capacity (vph)		3163	1217	350	3812		525	304		90	279	279
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0



Lanes, Volumes, Timings  
 15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
 AM Peak Hour

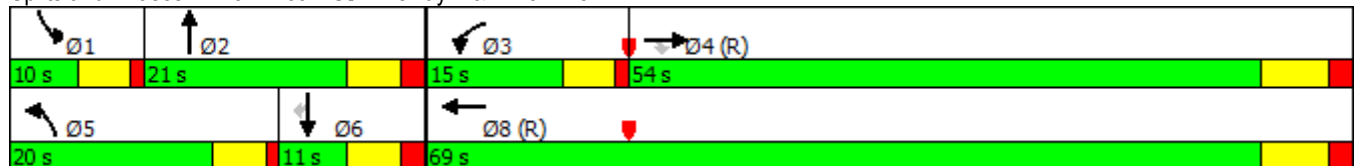


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.29	0.43	0.24	0.28		0.42	0.24		0.01	0.01	0.00

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.54  
 Intersection Signal Delay: 11.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 52.4%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 \* User Entered Value  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Lincoln St/Driveway 1 & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖↖	↑↑↑		↖↖	↗		↖	↗	↖
Traffic Volume (vph)	0	1697	790	111	1249	0	426	1	183	1	0	259
Future Volume (vph)	0	1697	790	111	1249	0	426	1	183	1	0	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		220	150		200	350		0	100		0
Storage Lanes	0		1	2		1	0		0	1		1
Taper Length (ft)	25			150			150			50		
Lane Util. Factor	1.00	*0.82	1.00	0.97	0.91	0.91	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.851			0.850	0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	4628	1615	3502	5136	0	3502	1617	0	1805	1534	1534
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	4628	1615	3502	5136	0	3502	1617	0	1805	1534	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			777					190			207	207
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		720			715			381			387	
Travel Time (s)		10.9			10.8			8.7			8.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1865	868	122	1373	0	468	1	201	1	0	285
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	1865	868	122	1373	0	468	202	0	1	143	142
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	L NA	R NA
Median Width(ft)		45			36			39			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			30			30	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2		1	2		1	2	1
Detector Template		Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20	20	100		20	100		20	100	20
Trailing Detector (ft)		0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)		0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)		6	20	20	6		20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94		94			94		94
Detector 2 Size(ft)		6			6		6			6		6
Detector 2 Type		Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0		0.0			0.0		0.0
Turn Type		NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4									6
Detector Phase		4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)		15.0	15.0	5.0	15.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)		22.0	22.0	10.0	22.0		10.0	11.0		10.0	11.0	11.0
Total Split (s)		55.0	55.0	10.0	65.0		20.0	25.0		10.0	15.0	15.0
Total Split (%)		55.0%	55.0%	10.0%	65.0%		20.0%	25.0%		10.0%	15.0%	15.0%
Maximum Green (s)		48.0	48.0	5.0	58.0		15.0	19.0		5.0	9.0	9.0
Yellow Time (s)		5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	1.0	2.0		1.0	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)		7.0	7.0	5.0	7.0		5.0	6.0		5.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode		C-Max	C-Max	None	C-Max		None	None		None	None	None
Act Effct Green (s)		48.4	48.4	7.5	60.9		15.0	24.1		5.0	6.1	6.1
Actuated g/C Ratio		0.48	0.48	0.08	0.61		0.15	0.24		0.05	0.06	0.06
v/c Ratio		0.83	0.73	0.47	0.44		0.89	0.38		0.01	0.50	0.49
Control Delay		15.4	4.7	42.5	11.9		62.5	8.4		46.0	7.7	7.6
Queue Delay		0.0	0.3	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		15.4	5.0	42.5	11.9		62.5	8.4		46.0	7.7	7.6
LOS		B	A	D	B		E	A		D	A	A
Approach Delay		12.1			14.4		46.2				7.8	
Approach LOS		B			B		D				A	
90th %ile Green (s)		48.0	48.0	5.5	58.5		15.0	18.5		5.0	8.5	8.5
90th %ile Term Code		Coord	Coord	Max	Coord		Max	Hold		Max	Gap	Gap
70th %ile Green (s)		48.0	48.0	8.5	61.5		15.0	25.5		0.0	5.5	5.5
70th %ile Term Code		Coord	Coord	Max	Coord		Max	Hold		Skip	Gap	Gap
50th %ile Green (s)		48.0	48.0	8.5	61.5		15.0	25.5		0.0	5.5	5.5
50th %ile Term Code		Coord	Coord	Max	Coord		Max	Hold		Skip	Gap	Gap
30th %ile Green (s)		48.4	48.4	8.1	61.5		15.0	25.5		0.0	5.5	5.5
30th %ile Term Code		Coord	Coord	Gap	Coord		Max	Hold		Skip	Gap	Gap
10th %ile Green (s)		49.8	49.8	6.7	61.5		15.0	25.5		0.0	5.5	5.5
10th %ile Term Code		Coord	Coord	Gap	Coord		Max	Hold		Skip	Gap	Gap
Stops (vph)		918	48	93	697		386	30		3	5	5
Fuel Used(gal)		25	5	3	18		11	2		0	1	1
CO Emissions (g/hr)		1724	353	184	1223		736	123		2	44	43
NOx Emissions (g/hr)		335	69	36	238		143	24		0	8	8
VOC Emissions (g/hr)		400	82	43	284		170	29		0	10	10
Dilemma Vehicles (#)		108	0	0	66		0	0		0	0	0
Queue Length 50th (ft)		136	0	35	168		153	6		1	0	0
Queue Length 95th (ft)		323	95	m55	236		#241	67		6	17	16
Internal Link Dist (ft)		640			635			301			307	
Turn Bay Length (ft)			220	150			350			100		
Base Capacity (vph)		2241	1183	261	3127		525	535		90	326	326
Starvation Cap Reductn		0	57	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0

Lanes, Volumes, Timings  
 15: Lincoln St/Driveway 1 & 144th Ave

2018 Total Future Traffic Volumes  
 PM Peak Hour

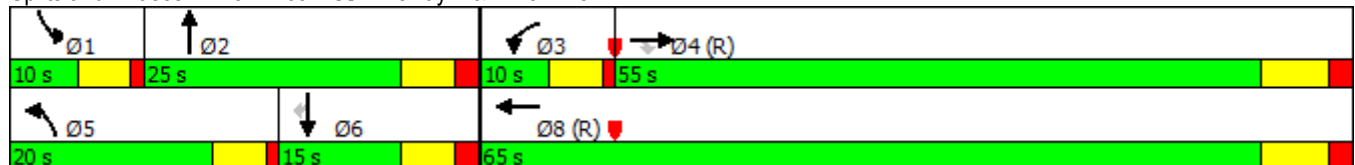


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.83	0.77	0.47	0.44		0.89	0.38		0.01	0.44	0.44

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 98 (98%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 16.9  
 Intersection Capacity Utilization 73.4%  
 Analysis Period (min) 15  
 \* User Entered Value  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Lincoln St/Driveway 1 & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

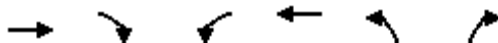
2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	303	202	75	825	192	107
Future Volume (vph)	303	202	75	825	192	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		235				124
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	352	235	87	959	223	124
Shared Lane Traffic (%)						
Lane Group Flow (vph)	352	235	87	959	223	124
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour

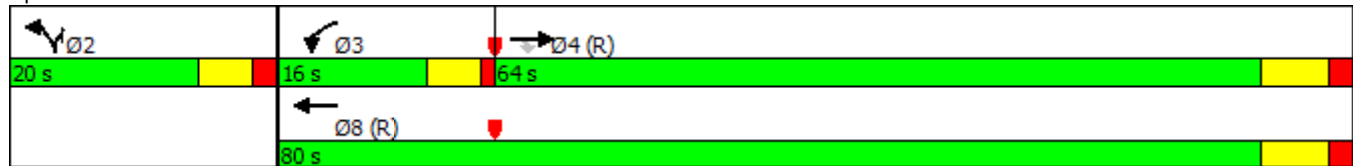


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	64.8	64.8	7.9	75.6	11.4	11.4
Actuated g/C Ratio	0.65	0.65	0.08	0.76	0.11	0.11
v/c Ratio	0.15	0.21	0.32	0.35	0.56	0.42
Control Delay	4.5	0.7	40.6	5.0	47.1	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	0.7	40.6	5.0	47.1	12.0
LOS	A	A	D	A	D	B
Approach Delay	3.0			8.0	34.5	
Approach LOS	A			A	C	
90th %ile Green (s)	58.1	58.1	9.9	73.0	14.0	14.0
90th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
70th %ile Green (s)	60.4	60.4	8.7	74.1	12.9	12.9
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	62.5	62.5	7.9	75.4	11.6	11.6
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	64.6	64.6	7.1	76.7	10.3	10.3
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	78.6	78.6	0.0	78.6	8.4	8.4
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	48	3	72	239	177	19
Fuel Used(gal)	2	1	2	9	4	1
CO Emissions (g/hr)	159	70	140	645	308	76
NOx Emissions (g/hr)	31	14	27	125	60	15
VOC Emissions (g/hr)	37	16	33	149	71	18
Dilemma Vehicles (#)	19	0	0	57	0	0
Queue Length 50th (ft)	17	0	28	78	70	0
Queue Length 95th (ft)	35	8	51	146	100	45
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2340	1129	385	2727	490	332
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.21	0.23	0.35	0.46	0.37

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	11.2
Intersection Capacity Utilization	39.1%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	1121	325	140	689	307	170
Future Volume (vph)	1121	325	140	689	307	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		357				187
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1232	357	154	757	337	187
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1232	357	154	757	337	187
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour

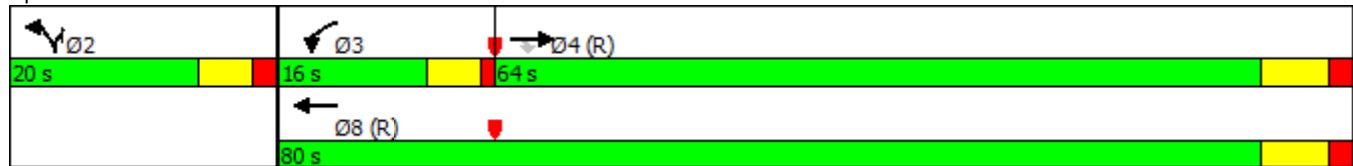


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	59.3	59.3	9.4	73.8	13.2	13.2
Actuated g/C Ratio	0.59	0.59	0.09	0.74	0.13	0.13
v/c Ratio	0.58	0.32	0.47	0.28	0.73	0.50
Control Delay	8.9	2.1	41.1	4.4	51.4	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	2.1	41.1	4.4	51.4	10.9
LOS	A	A	D	A	D	B
Approach Delay	7.4			10.6	37.0	
Approach LOS	A			B	D	
90th %ile Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
90th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
70th %ile Green (s)	57.2	57.2	10.8	73.0	14.0	14.0
70th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
50th %ile Green (s)	58.3	58.3	9.7	73.0	14.0	14.0
50th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
30th %ile Green (s)	60.2	60.2	8.6	73.8	13.2	13.2
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	64.0	64.0	7.1	76.1	10.9	10.9
10th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
Stops (vph)	848	66	120	272	288	25
Fuel Used(gal)	18	2	4	9	7	2
CO Emissions (g/hr)	1242	173	250	595	513	116
NOx Emissions (g/hr)	242	34	49	116	100	22
VOC Emissions (g/hr)	288	40	58	138	119	27
Dilemma Vehicles (#)	8	0	0	7	0	0
Queue Length 50th (ft)	345	32	48	123	106	0
Queue Length 95th (ft)	240	34	54	12	154	61
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2142	1103	385	2663	490	386
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.32	0.40	0.28	0.69	0.48

Intersection Summary

























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	13.5
Intersection LOS:	B
Intersection Capacity Utilization	58.9%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	441	202	75	839	102	192	20	107	1	1	3
Future Volume (vph)	243	441	202	75	839	102	192	20	107	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	185		0	200		200	150		125	150		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			150			75			150		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3505	1615	3502	3539	1615	3502	3610	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3505	1615	3502	3539	1615	3502	3610	1615	3502	3610	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			235			142			153			153
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		715			1010			370			429	
Travel Time (s)		10.8			15.3			7.2			8.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	3%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	283	513	235	87	976	119	223	23	124	1	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	283	513	235	87	976	119	223	23	124	1	1	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	Right
Median Width(ft)		31			31			31			31	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			20			25	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	11.0	11.0	10.0	11.0	11.0
Total Split (s)	10.0	64.0	64.0	10.0	64.0	64.0	15.0	11.0	11.0	15.0	11.0	11.0
Total Split (%)	10.0%	64.0%	64.0%	10.0%	64.0%	64.0%	15.0%	11.0%	11.0%	15.0%	11.0%	11.0%
Maximum Green (s)	5.0	57.0	57.0	5.0	57.0	57.0	10.0	5.0	5.0	10.0	5.0	5.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	14.1	66.4	66.4	6.9	57.0	57.0	9.7	8.7	8.7	5.6	5.1	5.1
Actuated g/C Ratio	0.14	0.66	0.66	0.07	0.57	0.57	0.10	0.09	0.09	0.06	0.05	0.05
v/c Ratio	0.57	0.22	0.20	0.36	0.48	0.12	0.66	0.07	0.44	0.01	0.01	0.01
Control Delay	57.4	1.8	0.4	41.7	17.8	6.0	53.4	42.2	9.3	45.0	45.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	1.8	0.4	41.7	17.8	6.0	53.4	42.2	9.3	45.0	45.0	0.0
LOS	E	A	A	D	B	A	D	D	A	D	D	A
Approach Delay		16.8			18.4			37.9			18.0	
Approach LOS		B			B			D			B	
90th %ile Green (s)	5.0	57.0	57.0	5.0	57.0	57.0	10.0	9.3	9.3	5.7	5.0	5.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Hold	Hold	Gap	Max	Max
70th %ile Green (s)	16.0	64.3	64.3	8.7	57.0	57.0	10.0	9.0	9.0	0.0	0.0	0.0
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Skip	Skip
50th %ile Green (s)	16.0	65.1	65.1	7.9	57.0	57.0	10.0	9.0	9.0	0.0	0.0	0.0
50th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Skip	Skip
30th %ile Green (s)	16.0	65.9	65.9	7.1	57.0	57.0	10.0	9.0	9.0	0.0	0.0	0.0
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Skip	Skip
10th %ile Green (s)	17.6	79.6	79.6	0.0	57.0	57.0	8.4	7.4	7.4	0.0	0.0	0.0
10th %ile Term Code	Max	Coord	Coord	Skip	Coord	Coord	Gap	Hold	Hold	Skip	Skip	Skip
Stops (vph)	186	28	0	71	487	35	181	20	10	3	3	0
Fuel Used(gal)	6	3	1	2	15	1	5	0	1	0	0	0
CO Emissions (g/hr)	439	179	67	141	1021	86	327	31	67	2	2	1
NOx Emissions (g/hr)	85	35	13	27	199	17	64	6	13	0	0	0
VOC Emissions (g/hr)	102	41	15	33	237	20	76	7	16	1	1	0
Dilemma Vehicles (#)	0	24	0	0	84	0	0	1	0	0	0	0
Queue Length 50th (ft)	94	11	0	28	167	1	71	7	0	0	0	0
Queue Length 95th (ft)	#213	20	0	m51	338	49	105	18	29	3	3	0
Internal Link Dist (ft)		635			930			290			349	
Turn Bay Length (ft)	185			200		200	150		125	150		250
Base Capacity (vph)	494	2326	1151	242	2017	981	350	315	280	350	184	227
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour

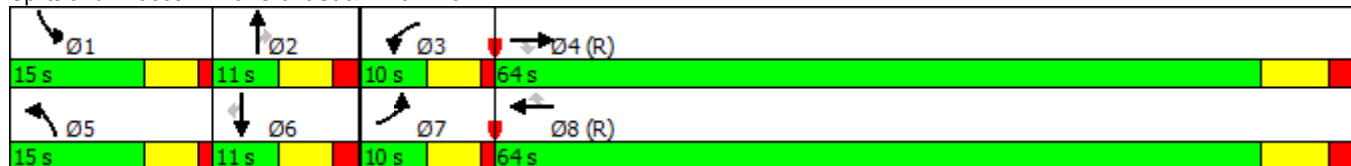


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.57	0.22	0.20	0.36	0.48	0.12	0.64	0.07	0.44	0.00	0.01	0.01

Intersection Summary

























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 20.5      Intersection LOS: C  
 Intersection Capacity Utilization 57.3%      ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	1264	325	140	831	108	307	22	170	108	22	259
Future Volume (vph)	259	1264	325	140	831	108	307	22	170	108	22	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	185		0	200		200	150		125	150		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			150			75			150		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3574	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3574	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			357			142			187			220
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		715			1010			370			429	
Travel Time (s)		10.8			15.3			7.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	285	1389	357	154	913	119	337	24	187	119	24	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	1389	357	154	913	119	337	24	187	119	24	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	Right
Median Width(ft)		31			31			31			31	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			20			25	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	11.0	11.0	10.0	11.0	11.0
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	16.0	15.0	15.0	16.0	15.0	15.0
Total Split (%)	15.0%	54.0%	54.0%	15.0%	54.0%	54.0%	16.0%	15.0%	15.0%	16.0%	15.0%	15.0%
Maximum Green (s)	10.0	47.0	47.0	10.0	47.0	47.0	11.0	9.0	9.0	11.0	9.0	9.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	10.3	48.6	48.6	9.1	47.4	47.4	11.0	10.6	10.6	8.7	8.3	8.3
Actuated g/C Ratio	0.10	0.49	0.49	0.09	0.47	0.47	0.11	0.11	0.11	0.09	0.08	0.08
v/c Ratio	0.79	0.80	0.37	0.48	0.54	0.14	0.88	0.06	0.55	0.39	0.08	0.85
Control Delay	71.4	12.5	1.9	54.6	11.0	1.8	68.0	41.4	13.3	46.5	42.5	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.4	12.5	1.9	54.6	11.0	1.8	68.0	41.4	13.3	46.5	42.5	35.6
LOS	E	B	A	D	B	A	E	D	B	D	D	D
Approach Delay		18.9			15.7			48.1			39.0	
Approach LOS		B			B			D			D	
90th %ile Green (s)	10.0	47.0	47.0	10.0	47.0	47.0	11.0	9.0	9.0	11.0	9.0	9.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Max	Max	Max
70th %ile Green (s)	10.0	47.0	47.0	10.0	47.0	47.0	11.0	10.3	10.3	9.7	9.0	9.0
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Hold	Hold	Gap	Max	Max
50th %ile Green (s)	10.0	47.3	47.3	9.7	47.0	47.0	11.0	11.3	11.3	8.7	9.0	9.0
50th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Max	Max
30th %ile Green (s)	11.2	49.6	49.6	8.6	47.0	47.0	11.0	11.0	11.0	7.8	7.8	7.8
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	10.2	52.0	52.0	7.1	48.9	48.9	11.0	11.5	11.5	6.4	6.9	6.9
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
Stops (vph)	222	1134	57	115	463	21	278	22	27	99	22	64
Fuel Used(gal)	8	23	2	4	13	1	8	0	2	2	0	3
CO Emissions (g/hr)	540	1621	164	273	913	71	580	34	122	147	30	221
NOx Emissions (g/hr)	105	315	32	53	178	14	113	7	24	29	6	43
VOC Emissions (g/hr)	125	376	38	63	212	16	134	8	28	34	7	51
Dilemma Vehicles (#)	0	8	0	0	24	0	0	1	0	0	1	0
Queue Length 50th (ft)	87	389	23	42	168	10	110	7	0	37	7	40
Queue Length 95th (ft)	m109	575	m26	m68	m226	m15	#188	20	65	64	20	#175
Internal Link Dist (ft)		635			930			290			349	
Turn Bay Length (ft)	185			200		200	150		125	150		250
Base Capacity (vph)	360	1736	968	350	1693	840	385	383	338	385	324	345
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

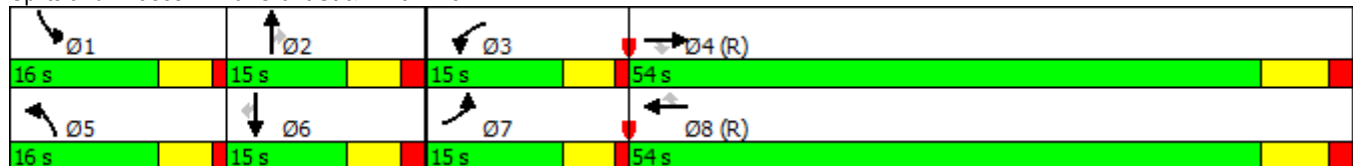
2018 Total Future Traffic Volumes  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.79	0.80	0.37	0.44	0.54	0.14	0.88	0.06	0.55	0.31	0.07	0.83

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 23.9      Intersection LOS: C  
 Intersection Capacity Utilization 69.5%      ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.


































Splits and Phases: 20: Grant St & 144th Ave





Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	  	
Traffic Volume (vph)	117	200	101	113	697	40	86	107	28	5	154	143
Future Volume (vph)	117	200	101	113	697	40	86	107	28	5	154	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			207			207			207
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Adj. Flow (vph)	131	225	113	127	783	45	97	120	31	6	173	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	225	113	127	783	45	97	120	31	6	173	161
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	25.0	39.0	39.0	15.0	29.0	29.0	15.0	34.0	34.0	12.0	31.0	31.0
Total Split (%)	25.0%	39.0%	39.0%	15.0%	29.0%	29.0%	15.0%	34.0%	34.0%	12.0%	31.0%	31.0%
Maximum Green (s)	20.0	32.0	32.0	10.0	22.0	22.0	10.0	27.0	27.0	7.0	24.0	24.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	9.1	52.4	52.4	9.0	52.3	52.3	8.1	17.4	17.4	5.7	8.7	8.7
Actuated g/C Ratio	0.09	0.52	0.52	0.09	0.52	0.52	0.08	0.17	0.17	0.06	0.09	0.09
v/c Ratio	0.41	0.12	0.12	0.40	0.41	0.05	0.34	0.19	0.07	0.03	0.38	0.49
Control Delay	52.8	8.0	1.4	46.4	16.8	0.1	46.4	35.3	0.3	49.0	44.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	8.0	1.4	46.4	16.8	0.1	46.4	35.3	0.3	49.0	44.8	7.3
LOS	D	A	A	D	B	A	D	D	A	D	D	A
Approach Delay		18.9			20.0			35.3				27.1
Approach LOS		B			B			D				C
90th %ile Green (s)	11.6	44.0	44.0	11.4	43.8	43.8	10.0	14.5	14.5	6.1	10.6	10.6
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	10.1	47.6	47.6	9.9	47.4	47.4	9.0	23.5	23.5	0.0	9.5	9.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
50th %ile Green (s)	9.1	50.2	50.2	9.0	50.1	50.1	8.1	21.8	21.8	0.0	8.7	8.7
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
30th %ile Green (s)	8.1	52.8	52.8	8.0	52.7	52.7	7.3	20.2	20.2	0.0	7.9	7.9
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
10th %ile Green (s)	6.6	67.6	67.6	6.6	67.6	67.6	0.0	6.8	6.8	0.0	6.8	6.8
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Skip	Hold	Hold	Skip	Gap	Gap
Stops (vph)	100	74	6	103	419	0	79	88	0	8	139	8
Fuel Used(gal)	3	3	1	4	16	1	4	4	1	0	5	1
CO Emissions (g/hr)	228	179	54	264	1147	35	274	310	37	17	362	103
NOx Emissions (g/hr)	44	35	10	51	223	7	53	60	7	3	70	20
VOC Emissions (g/hr)	53	41	12	61	266	8	63	72	9	4	84	24
Dilemma Vehicles (#)	0	13	0	0	35	0	0	5	0	0	7	0
Queue Length 50th (ft)	40	20	0	40	160	0	30	32	0	2	38	0
Queue Length 95th (ft)	63	48	0	67	234	0	54	62	0	9	49	22
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	700	1893	919	360	1888	943	350	964	587	245	1244	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

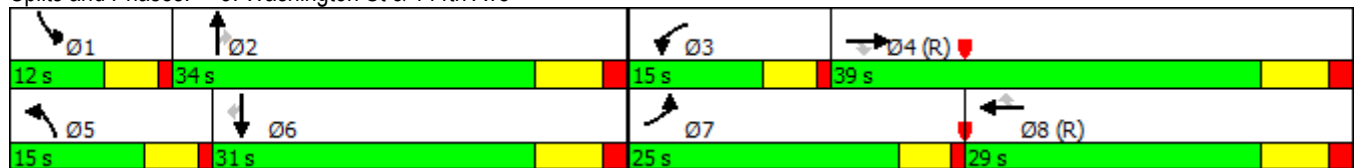
2018 Background Traffic Volumes  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.19	0.12	0.12	0.35	0.41	0.05	0.28	0.12	0.05	0.02	0.14	0.30

Intersection Summary

































Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	45 (45%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	22.8
Intersection LOS:	C
Intersection Capacity Utilization	51.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Traffic Volume (vph)	224	770	328	83	410	43	180	227	87	81	303	202
Future Volume (vph)	224	770	328	83	410	43	180	227	87	81	303	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			354			153			153			232
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	257	885	377	95	471	49	207	261	100	93	348	232
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	885	377	95	471	49	207	261	100	93	348	232
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	16.0	33.0	33.0	16.0	33.0	33.0	16.0	35.0	35.0	16.0	35.0	35.0
Total Split (%)	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	16.0%	35.0%	35.0%	16.0%	35.0%	35.0%
Maximum Green (s)	11.0	26.0	26.0	11.0	26.0	26.0	11.0	28.0	28.0	11.0	28.0	28.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	12.6	47.3	47.3	8.1	40.6	40.6	10.2	16.9	16.9	8.0	12.6	12.6
Actuated g/C Ratio	0.13	0.47	0.47	0.08	0.41	0.41	0.10	0.17	0.17	0.08	0.13	0.13
v/c Ratio	0.59	0.52	0.40	0.34	0.32	0.07	0.58	0.43	0.25	0.33	0.53	0.57
Control Delay	28.8	31.4	16.4	46.2	22.4	0.2	49.6	40.0	3.1	52.2	39.0	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	31.4	16.4	46.2	22.4	0.2	49.6	40.0	3.1	52.2	39.0	9.4
LOS	C	C	B	D	C	A	D	D	A	D	D	A
Approach Delay		27.2			24.3			37.0			30.7	
Approach LOS		C			C			D			C	
90th %ile Green (s)	16.0	38.2	38.2	10.2	32.4	32.4	11.0	17.5	17.5	10.1	16.6	16.6
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	14.0	42.0	42.0	8.9	36.9	36.9	11.0	16.2	16.2	8.9	14.1	14.1
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	12.6	44.9	44.9	8.1	40.4	40.4	11.0	15.0	15.0	8.0	12.0	12.0
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	11.2	48.0	48.0	7.2	44.0	44.0	9.9	13.6	13.6	7.2	10.9	10.9
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	9.2	63.6	63.6	0.0	49.4	49.4	8.1	22.4	22.4	0.0	9.3	9.3
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
Stops (vph)	207	723	176	76	276	0	169	198	3	78	276	54
Fuel Used(gal)	5	19	5	3	10	1	8	10	2	3	10	3
CO Emissions (g/hr)	374	1325	380	194	733	38	586	688	124	205	691	207
NOx Emissions (g/hr)	73	258	74	38	143	7	114	134	24	40	134	40
VOC Emissions (g/hr)	87	307	88	45	170	9	136	160	29	48	160	48
Dilemma Vehicles (#)	0	6	0	0	21	0	0	10	0	0	11	0
Queue Length 50th (ft)	78	306	141	29	106	0	65	81	0	28	79	0
Queue Length 95th (ft)	110	354	198	52	161	0	98	113	11	53	102	20
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	449	1708	950	385	1451	746	385	1010	562	385	1452	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

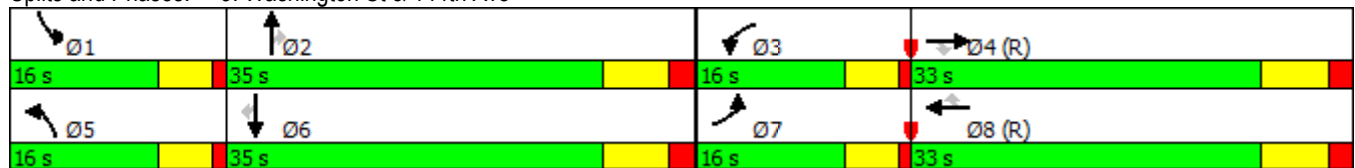
2018 Background Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.57	0.52	0.40	0.25	0.32	0.07	0.54	0.26	0.18	0.24	0.24	0.37

Intersection Summary


































Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	93 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	29.0
Intersection LOS:	C
Intersection Capacity Utilization	56.4%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	  	
Traffic Volume (vph)	255	200	102	113	697	91	188	290	28	6	156	157
Future Volume (vph)	255	200	102	113	697	91	188	290	28	6	156	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	165			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3303	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1495
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3303	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			207			207			207
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	8%
Adj. Flow (vph)	287	225	115	127	783	102	211	326	31	7	175	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	287	225	115	127	783	102	211	326	31	7	175	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	25.0	39.0	39.0	15.0	29.0	29.0	15.0	34.0	34.0	12.0	31.0	31.0
Total Split (%)	25.0%	39.0%	39.0%	15.0%	29.0%	29.0%	15.0%	34.0%	34.0%	12.0%	31.0%	31.0%
Maximum Green (s)	20.0	32.0	32.0	10.0	22.0	22.0	10.0	27.0	27.0	7.0	24.0	24.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	13.9	47.9	47.9	9.0	42.9	42.9	9.6	21.9	21.9	5.7	9.5	9.5
Actuated g/C Ratio	0.14	0.48	0.48	0.09	0.43	0.43	0.10	0.22	0.22	0.06	0.10	0.10
v/c Ratio	0.63	0.13	0.13	0.40	0.51	0.13	0.63	0.42	0.06	0.03	0.36	0.53
Control Delay	45.5	8.7	1.9	46.4	23.4	0.3	52.1	35.6	0.2	46.7	62.9	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	8.7	1.9	46.4	23.4	0.3	52.1	35.6	0.2	46.7	62.9	29.6
LOS	D	A	A	D	C	A	D	D	A	D	E	C
Approach Delay		24.3			24.0			39.8			46.2	
Approach LOS		C			C			D			D	
90th %ile Green (s)	17.7	40.1	40.1	11.4	33.8	33.8	10.0	18.3	18.3	6.2	14.5	14.5
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Gap	Gap	Gap	Hold	Hold
70th %ile Green (s)	15.5	46.6	46.6	9.9	41.0	41.0	10.0	24.5	24.5	0.0	9.5	9.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Gap	Gap
50th %ile Green (s)	13.9	48.3	48.3	9.0	43.4	43.4	10.0	23.7	23.7	0.0	8.7	8.7
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Gap	Gap
30th %ile Green (s)	12.4	50.0	50.0	8.0	45.6	45.6	10.0	23.0	23.0	0.0	8.0	8.0
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Gap	Gap
10th %ile Green (s)	10.1	54.4	54.4	6.6	50.9	50.9	8.2	20.0	20.0	0.0	6.8	6.8
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
Stops (vph)	207	91	15	103	499	0	176	242	0	8	154	54
Fuel Used(gal)	7	3	1	4	18	1	9	12	1	0	6	3
CO Emissions (g/hr)	462	196	63	264	1282	81	618	847	37	18	424	221
NOx Emissions (g/hr)	90	38	12	51	249	16	120	165	7	3	82	43
VOC Emissions (g/hr)	107	45	15	61	297	19	143	196	9	4	98	51
Dilemma Vehicles (#)	0	14	0	0	35	0	0	12	0	0	2	0
Queue Length 50th (ft)	67	37	1	40	185	0	67	92	0	2	44	0
Queue Length 95th (ft)	116	30	0	67	281	0	104	142	0	10	68	109
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	300		200	175		150	225		200	325		250
Base Capacity (vph)	660	1728	853	360	1550	811	350	964	587	245	1244	516
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0



Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

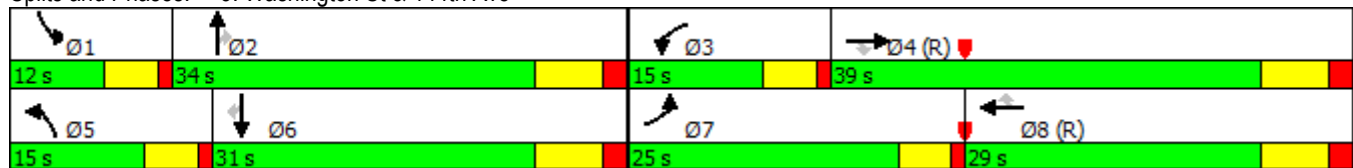
2018 Total Future Traffic Volumes  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.43	0.13	0.13	0.35	0.51	0.13	0.60	0.34	0.05	0.03	0.14	0.34

Intersection Summary


































Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	45 (45%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	30.7
Intersection LOS:	C
Intersection Capacity Utilization	58.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	  	
Traffic Volume (vph)	367	770	436	83	410	97	288	421	87	135	497	344
Future Volume (vph)	367	770	436	83	410	97	288	421	87	135	497	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	165			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			359			153			153			308
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	422	885	501	95	471	111	331	484	100	155	571	395
Shared Lane Traffic (%)												
Lane Group Flow (vph)	422	885	501	95	471	111	331	484	100	155	571	395
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	16.0	33.0	33.0	16.0	33.0	33.0	16.0	35.0	35.0	16.0	35.0	35.0
Total Split (%)	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	16.0%	35.0%	35.0%	16.0%	35.0%	35.0%
Maximum Green (s)	11.0	26.0	26.0	11.0	26.0	26.0	11.0	28.0	28.0	11.0	28.0	28.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	18.9	39.6	39.6	8.1	26.6	26.6	11.0	21.1	21.1	9.5	19.5	19.5
Actuated g/C Ratio	0.19	0.40	0.40	0.08	0.27	0.27	0.11	0.21	0.21	0.10	0.20	0.20
v/c Ratio	0.66	0.62	0.59	0.34	0.50	0.21	0.86	0.64	0.22	0.47	0.56	0.71
Control Delay	35.2	36.1	22.6	46.2	33.3	2.8	66.0	39.6	2.3	52.1	44.4	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	36.1	22.6	46.2	33.3	2.8	66.0	39.6	2.3	52.1	44.4	23.7
LOS	D	D	C	D	C	A	E	D	A	D	D	C
Approach Delay		32.1			30.1			45.1			38.1	
Approach LOS		C			C			D			D	
90th %ile Green (s)	11.0	26.8	26.8	10.2	26.0	26.0	11.0	28.0	28.0	11.0	28.0	28.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Max	Max	Max
70th %ile Green (s)	17.8	34.9	34.9	8.9	26.0	26.0	11.0	21.4	21.4	10.8	21.2	21.2
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Gap	Gap	Gap	Hold	Hold
50th %ile Green (s)	20.6	38.8	38.8	8.1	26.3	26.3	11.0	19.4	19.4	9.7	18.1	18.1
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	21.2	41.1	41.1	7.2	27.1	27.1	11.0	19.0	19.0	8.7	16.7	16.7
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	23.8	56.3	56.3	0.0	27.5	27.5	11.0	17.6	17.6	7.1	13.7	13.7
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
Stops (vph)	323	716	269	76	337	5	262	370	3	131	440	138
Fuel Used(gal)	9	20	8	3	12	1	14	18	2	5	17	7
CO Emissions (g/hr)	633	1371	574	194	850	94	994	1278	123	343	1154	481
NOx Emissions (g/hr)	123	267	112	38	165	18	193	249	24	67	225	94
VOC Emissions (g/hr)	147	318	133	45	197	22	230	296	28	80	267	112
Dilemma Vehicles (#)	0	6	0	0	21	0	0	18	0	0	31	0
Queue Length 50th (ft)	145	312	201	29	134	0	108	152	0	52	132	66
Queue Length 95th (ft)	m#246	#394	m283	52	177	16	#173	177	9	m76	m133	m109
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	300		200	175		150	225		200	325		250
Base Capacity (vph)	635	1428	856	385	949	541	385	1010	562	385	1452	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

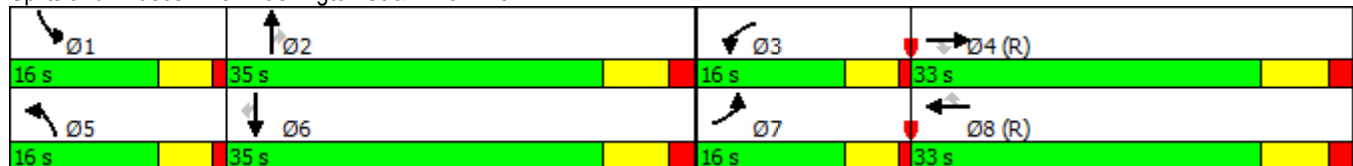
2018 Total Future Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.66	0.62	0.59	0.25	0.50	0.21	0.86	0.48	0.18	0.40	0.39	0.60

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 93 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 35.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 63.3%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	0	2	0	181	15	2	289	0
Future Volume (vph)	0	0	0	2	0	2	0	181	15	2	289	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					735				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	2	0	2	0	199	16	2	318	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	2	0	0	199	16	2	318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				7.6	6.0			94.0	94.0	5.7	96.2	
Actuated g/C Ratio				0.08	0.06			0.94	0.94	0.06	0.96	
v/c Ratio				0.01	0.00			0.06	0.01	0.02	0.06	
Control Delay				42.5	0.0			0.2	0.0	45.0	0.6	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				42.5	0.0			0.2	0.0	45.0	0.6	
LOS				D	A			A	A	D	A	
Approach Delay					21.3			0.2			0.9	
Approach LOS					C			A			A	
90th %ile Green (s)	0.0	0.0		7.8	7.8		0.0	70.1	70.1	6.1	81.2	81.2
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
70th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
50th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
30th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				3	0			3	0	3	15	
Fuel Used(gal)				0	0			1	0	0	4	
CO Emissions (g/hr)				2	0			102	8	7	306	
NOx Emissions (g/hr)				0	0			20	2	1	59	
VOC Emissions (g/hr)				1	0			24	2	2	71	
Dilemma Vehicles (#)				0	0			0	0	0	4	
Queue Length 50th (ft)				0	0			0	0	1	0	
Queue Length 95th (ft)				4	0			4	0	9	15	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	867			3360	1533	270	4992	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2018 Background Traffic Volumes  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio				0.00	0.00			0.06	0.01	0.01	0.06	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	12 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.06
Intersection Signal Delay:	0.8
Intersection LOS:	A
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 23: Washington St & 146th Ave/School Drwy

Ø1	Ø2 (R)	Ø3	Ø4
20 s	49 s	20 s	11 s
Ø5	Ø6 (R)	Ø7	Ø8
11 s	58 s	11 s	20 s

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	84	0	13	0	363	40	10	443	0
Future Volume (vph)	0	0	0	84	0	13	0	363	40	10	443	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					518				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	98	0	15	0	422	47	12	515	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	98	15	0	0	422	47	12	515	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				10.1	9.6			80.2	80.2	6.3	82.7	
Actuated g/C Ratio				0.10	0.10			0.80	0.80	0.06	0.83	
v/c Ratio				0.28	0.02			0.15	0.04	0.11	0.12	
Control Delay				43.1	0.1			0.4	0.1	45.8	2.4	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				43.1	0.1			0.4	0.1	45.8	2.4	
LOS				D	A			A	A	D	A	
Approach Delay					37.4			0.3			3.4	
Approach LOS					D			A			A	
90th %ile Green (s)	0.0	0.0		12.2	12.2		0.0	64.2	64.2	7.6	76.8	76.8
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		11.0	11.0		0.0	78.0	78.0	0.0	78.0	78.0
70th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		10.1	10.1		0.0	78.9	78.9	0.0	78.9	78.9
50th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		9.3	9.3		0.0	79.7	79.7	0.0	79.7	79.7
30th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				75	0			6	0	11	82	
Fuel Used(gal)				1	0			3	0	0	8	
CO Emissions (g/hr)				85	2			206	22	31	557	
NOx Emissions (g/hr)				17	0			40	4	6	108	
VOC Emissions (g/hr)				20	1			48	5	7	129	
Dilemma Vehicles (#)				0	0			1	0	0	19	
Queue Length 50th (ft)				30	0			2	0	7	21	
Queue Length 95th (ft)				52	0			5	m0	25	31	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	682			2893	1342	270	4288	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	
Reduced v/c Ratio				0.19	0.02			0.15	0.04	0.04	0.12	

Intersection Summary
























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	58 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.28
Intersection Signal Delay:	5.6
Intersection LOS:	A
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	4	2	0	2	356	197	15	2	302	20
Future Volume (vph)	1	0	4	2	0	2	356	197	15	2	302	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		250	100		0	275		125	175		75
Storage Lanes	1		1	2		0	2		1	1		1
Taper Length (ft)	135			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt			0.850		0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	3502	1615	0	3502	3343	1615	1805	4988	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1900	1615	3502	1615	0	3502	3343	1615	1805	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			584		711				240			185
Link Speed (mph)		35			25			55				55
Link Distance (ft)		509			277			1222				393
Travel Time (s)		9.9			7.6			15.1				4.9
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	4%	0%
Adj. Flow (vph)	1	0	4	2	0	2	391	216	16	2	332	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	4	2	2	0	391	216	16	2	332	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	L NA	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0	11.0	20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%	11.0%	20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0	6.0	15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0	4.0	4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.6		23.9	9.3	5.5		23.9	92.3	92.3	5.7	60.8	60.8
Actuated g/C Ratio	0.06		0.24	0.09	0.06		0.24	0.92	0.92	0.06	0.61	0.61
v/c Ratio	0.01		0.00	0.01	0.00		0.47	0.07	0.01	0.02	0.11	0.02
Control Delay	45.0		0.0	38.0	0.0		56.1	0.4	0.0	45.0	8.6	0.1
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0		0.0	38.0	0.0		56.1	0.4	0.0	45.0	8.6	0.1
LOS	D		A	D	A		E	A	A	D	A	A
Approach Delay		9.0			19.0			35.4			8.3	
Approach LOS		A			B			D			A	
90th %ile Green (s)	5.9	0.0	15.6	16.4	5.5		15.6	61.5	61.5	6.1	52.0	52.0
90th %ile Term Code	Gap	Skip	Max	Hold	Gap		Max	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0	20.1	0.0	0.0		20.1	94.0	94.0	0.0	68.9	68.9
70th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0	21.5	0.0	0.0		21.5	94.0	94.0	0.0	67.5	67.5
50th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0	25.2	0.0	0.0		25.2	94.0	94.0	0.0	63.8	63.8
30th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0	37.0	0.0	0.0		37.0	94.0	94.0	0.0	52.0	52.0
10th %ile Term Code	Skip	Skip	Max	Skip	Skip		Max	Coord	Coord	Skip	Coord	Coord
Stops (vph)	3		0	3	0		331	3	0	3	117	0
Fuel Used(gal)	0		0	0	0		13	2	0	0	6	0
CO Emissions (g/hr)	3		2	2	0		907	112	8	6	385	13
NOx Emissions (g/hr)	1		0	0	0		176	22	2	1	75	3
VOC Emissions (g/hr)	1		0	1	0		210	26	2	2	89	3
Dilemma Vehicles (#)	0		0	0	0		0	0	0	0	15	0
Queue Length 50th (ft)	1		0	0	0		136	0	0	1	24	0
Queue Length 95th (ft)	6		0	4	0		187	5	m0	9	54	0
Internal Link Dist (ft)		429			197			1142			313	
Turn Bay Length (ft)	100		250	100			275		125	175		75
Base Capacity (vph)	108		830	535	846		836	3085	1509	270	3034	1055
Starvation Cap Reductn	0		0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0		0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0		0	0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2018 Total Future Traffic Volumes  
 AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01		0.00	0.00	0.00		0.47	0.07	0.01	0.01	0.11	0.02

Intersection Summary
























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 12 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 25.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 40.2%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2018 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	0	378	84	0	13	378	376	40	10	455	22
Future Volume (vph)	22	0	378	84	0	13	378	376	40	10	455	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		250	100		0	275		125	175		75
Storage Lanes	1		1	2		0	2		1	1		1
Taper Length (ft)	135			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt			0.850		0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	3502	1615	0	3502	3471	1615	1805	5036	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1900	1615	3502	1615	0	3502	3471	1615	1805	5036	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			266		510				185			185
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		509			277			1222			393	
Travel Time (s)		9.9			7.6			15.1			4.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	26	0	440	98	0	15	440	437	47	12	529	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	0	440	98	15	0	440	437	47	12	529	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	L NA	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

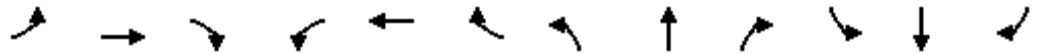
2018 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0	20.0	20.0	20.0		20.0	49.0	49.0	20.0	49.0	49.0
Total Split (%)	11.0%	11.0%	20.0%	20.0%	20.0%		20.0%	49.0%	49.0%	20.0%	49.0%	49.0%
Maximum Green (s)	6.0	6.0	15.0	15.0	15.0		15.0	43.0	43.0	15.0	43.0	43.0
Yellow Time (s)	4.0	3.0	4.0	4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.9		19.5	12.1	7.2		19.5	78.2	78.2	6.3	55.0	55.0
Actuated g/C Ratio	0.06		0.20	0.12	0.07		0.20	0.78	0.78	0.06	0.55	0.55
v/c Ratio	0.25		0.83	0.23	0.03		0.65	0.16	0.04	0.11	0.19	0.03
Control Delay	50.8		29.0	39.8	0.1		56.0	1.5	0.1	45.8	13.6	0.0
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8		29.0	39.8	0.1		56.0	1.5	0.1	45.8	13.6	0.0
LOS	D		C	D	A		E	A	A	D	B	A
Approach Delay		30.2			34.5			27.4			13.7	
Approach LOS		C			C			C			B	
90th %ile Green (s)	6.0	0.0	24.5	16.5	5.5		24.5	59.9	59.9	7.6	43.0	43.0
90th %ile Term Code	Max	Skip	Max	Hold	Gap		Max	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	6.0	0.0	23.1	16.5	5.5		23.1	72.5	72.5	0.0	44.4	44.4
70th %ile Term Code	Max	Skip	Gap	Hold	Gap		Gap	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0	19.0	10.1	10.1		19.0	78.9	78.9	0.0	54.9	54.9
50th %ile Term Code	Skip	Skip	Gap	Gap	Hold		Gap	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0	17.2	9.3	9.3		17.2	79.7	79.7	0.0	57.5	57.5
30th %ile Term Code	Skip	Skip	Gap	Gap	Hold		Gap	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0	13.7	0.0	0.0		13.7	94.0	94.0	0.0	75.3	75.3
10th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
Stops (vph)	23		157	73	0		375	19	0	11	230	0
Fuel Used(gal)	1		6	1	0		14	3	0	0	10	0
CO Emissions (g/hr)	39		429	81	2		993	236	22	27	682	14
NOx Emissions (g/hr)	8		83	16	0		193	46	4	5	133	3
VOC Emissions (g/hr)	9		99	19	1		230	55	5	6	158	3
Dilemma Vehicles (#)	0		0	0	0		0	20	0	0	23	0
Queue Length 50th (ft)	16		109	30	0		155	2	0	7	58	0
Queue Length 95th (ft)	41		197	49	0		196	26	m0	25	96	0
Internal Link Dist (ft)		429			197			1142			313	
Turn Bay Length (ft)	100		250	100			275		125	175		75
Base Capacity (vph)	108		532	546	675		691	2714	1303	270	2770	971
Starvation Cap Reductn	0		0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0		0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0		0	0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2018 Total Future Traffic Volumes  
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.24		0.83	0.18	0.02		0.64	0.16	0.04	0.04	0.19	0.03

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 24.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 53.4%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Washington St & 146th Ave/School Drwy





Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↑			↔			↔	
Traffic Vol, veh/h	13	0	0	0	0	46	0	90	0	38	123	5
Future Vol, veh/h	13	0	0	0	0	46	0	90	0	38	123	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	0	0	0	59	0	115	0	49	158	6
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	403	373	161	373	377	115	164	0	0	115	0	0
Stage 1	258	258	-	115	115	-	-	-	-	-	-	-
Stage 2	145	115	-	258	262	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	562	561	889	588	558	943	1427	-	-	1487	-	-
Stage 1	751	698	-	895	804	-	-	-	-	-	-	-
Stage 2	863	804	-	751	695	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	512	541	889	572	538	943	1427	-	-	1487	-	-
Mov Cap-2 Maneuver	512	541	-	572	538	-	-	-	-	-	-	-
Stage 1	751	673	-	895	804	-	-	-	-	-	-	-
Stage 2	809	804	-	724	670	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.3			9.1			0			1.7		
HCM LOS	B			A								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1427	-	-	512	-	943	1487	-	-			
HCM Lane V/C Ratio	-	-	-	0.033	-	0.063	0.033	-	-			
HCM Control Delay (s)	0	-	-	12.3	0	9.1	7.5	0	-			
HCM Lane LOS	A	-	-	B	A	A	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.2	0.1	-	-			

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↕				↕	
Traffic Vol, veh/h	11	2	0	2	3	75	1	294	3	65	305	18
Future Vol, veh/h	11	2	0	2	3	75	1	294	3	65	305	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	3	0	3	4	100	1	392	4	87	407	24
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1039	987	419	988	999	392	431	0	0	392	0	0
Stage 1	592	592	-	395	395	-	-	-	-	-	-	-
Stage 2	447	395	-	593	604	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	211	249	638	228	245	661	1139	-	-	1178	-	-
Stage 1	496	497	-	634	608	-	-	-	-	-	-	-
Stage 2	595	608	-	496	491	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	163	225	638	209	221	661	1139	-	-	1178	-	-
Mov Cap-2 Maneuver	163	225	-	209	221	-	-	-	-	-	-	-
Stage 1	496	449	-	633	607	-	-	-	-	-	-	-
Stage 2	501	607	-	445	443	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	28.6			12.4			0			1.4		
HCM LOS	D			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1139	-	-	170	209	614	1178	-	-			
HCM Lane V/C Ratio	0.001	-	-	0.102	0.013	0.169	0.074	-	-			
HCM Control Delay (s)	8.2	0	-	28.6	22.4	12.1	8.3	0	-			
HCM Lane LOS	A	A	-	D	C	B	A	A	-			
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.6	0.2	-	-			

**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	46	0	90	0	38	123	249
Future Vol, veh/h	13	0	0	0	0	46	0	90	0	38	123	249
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	0	0	0	59	0	115	0	49	158	319

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	560	530	317	530	689	115	477	0	0	115	0	0
Stage 1	415	415	-	115	115	-	-	-	-	-	-	-
Stage 2	145	115	-	415	574	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	442	457	728	463	371	943	1096	-	-	1487	-	-
Stage 1	619	596	-	895	804	-	-	-	-	-	-	-
Stage 2	863	804	-	619	506	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	399	436	728	446	354	943	1096	-	-	1487	-	-
Mov Cap-2 Maneuver	399	436	-	446	354	-	-	-	-	-	-	-
Stage 1	619	568	-	895	804	-	-	-	-	-	-	-
Stage 2	809	804	-	590	482	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.4	9.1	0	0.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1096	-	-	399	-	943	1487	-	-
HCM Lane V/C Ratio	-	-	-	0.042	-	0.063	0.033	-	-
HCM Control Delay (s)	0	-	-	14.4	0	9.1	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.2	0.1	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	11	2	0	2	3	75	1	294	3	65	305	278
Future Vol, veh/h	11	2	0	2	3	75	1	294	3	65	305	278
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	3	0	3	4	100	1	392	4	87	407	371

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1212	1160	592	1162	1346	392	777	0	0	392	0	0
Stage 1	765	765	-	395	395	-	-	-	-	-	-	-
Stage 2	447	395	-	767	951	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	160	197	510	174	153	661	848	-	-	1178	-	-
Stage 1	399	415	-	634	608	-	-	-	-	-	-	-
Stage 2	595	608	-	398	341	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	118	169	510	153	131	661	848	-	-	1178	-	-
Mov Cap-2 Maneuver	118	169	-	153	131	-	-	-	-	-	-	-
Stage 1	398	357	-	633	607	-	-	-	-	-	-	-
Stage 2	501	607	-	340	293	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	38.7	13.1	0	0.8
HCM LOS	E	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	848	-	-	124	153	572	1178	-	-
HCM Lane V/C Ratio	0.002	-	-	0.14	0.017	0.182	0.074	-	-
HCM Control Delay (s)	9.3	0	-	38.7	28.9	12.7	8.3	0	-
HCM Lane LOS	A	A	-	E	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0.7	0.2	-	-

**Intersection**

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	13	16	183	312	32
Future Vol, veh/h	1	13	16	183	312	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	0	0	6
Mvmt Flow	1	14	17	199	339	35

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	591	357	374	0	- 0
Stage 1	357	-	-	-	- -
Stage 2	234	-	-	-	- -
Critical Hdwy	6.9	6.7	4.6	-	- -
Critical Hdwy Stg 1	5.9	-	-	-	- -
Critical Hdwy Stg 2	5.9	-	-	-	- -
Follow-up Hdwy	3.95	3.75	2.65	-	- -
Pot Cap-1 Maneuver	399	592	964	-	- -
Stage 1	614	-	-	-	- -
Stage 2	704	-	-	-	- -
Platoon blocked, %				-	- -
Mov Cap-1 Maneuver	391	592	964	-	- -
Mov Cap-2 Maneuver	391	-	-	-	- -
Stage 1	614	-	-	-	- -
Stage 2	690	-	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	964	-	391	592	-	-
HCM Lane V/C Ratio	0.018	-	0.003	0.024	-	-
HCM Control Delay (s)	8.8	0	14.2	11.2	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-

**Intersection**

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	12	13	398	475	34
Future Vol, veh/h	34	12	13	398	475	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	50	50	0	0	6
Mvmt Flow	37	13	14	433	516	37

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	996	535	553	0	-
Stage 1	535	-	-	-	-
Stage 2	461	-	-	-	-
Critical Hdwy	6.43	6.7	4.6	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.75	2.65	-	-
Pot Cap-1 Maneuver	270	463	816	-	-
Stage 1	585	-	-	-	-
Stage 2	633	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	264	463	816	-	-
Mov Cap-2 Maneuver	264	-	-	-	-
Stage 1	585	-	-	-	-
Stage 2	618	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.8	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	816	-	264	463	-	-
HCM Lane V/C Ratio	0.017	-	0.14	0.028	-	-
HCM Control Delay (s)	9.5	0	20.8	13	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.1	-	-

**Intersection**

Int Delay, s/veh 3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Traffic Vol, veh/h	14	0	30	18	1	1
Future Vol, veh/h	14	0	30	18	1	1
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	0	33	20	1	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	15
Stage 1	-	-	15
Stage 2	-	-	85
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1616	904
Stage 1	-	-	1013
Stage 2	-	-	943
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1616	885
Mov Cap-2 Maneuver	-	-	885
Stage 1	-	-	1013
Stage 2	-	-	923

Approach	EB	WB	NB
HCM Control Delay, s	0	4.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	1070	-	-	1616	-
HCM Lane V/C Ratio	0.001	0.001	-	-	0.02	-
HCM Control Delay (s)	9.1	8.4	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

**Intersection**

Int Delay, s/veh 5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Traffic Vol, veh/h	13	0	32	15	1	33
Future Vol, veh/h	13	0	32	15	1	33
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	0	35	16	1	36

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	14
Stage 1	-	-	14
Stage 2	-	-	86
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1617	904
Stage 1	-	-	1014
Stage 2	-	-	942
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1617	884
Mov Cap-2 Maneuver	-	-	884
Stage 1	-	-	1014
Stage 2	-	-	921

Approach	EB	WB	NB
HCM Control Delay, s	0	5	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	884	1072	-	-	1617	-
HCM Lane V/C Ratio	0.001	0.033	-	-	0.022	-
HCM Control Delay (s)	9.1	8.5	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-



**Intersection**

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	1	0	365	3	0
Future Vol, veh/h	0	1	0	365	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	0	397	3	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	2	- 0
Stage 1	-	-	- -
Stage 2	-	-	- -
Critical Hdwy	-	6.9	- -
Critical Hdwy Stg 1	-	-	- -
Critical Hdwy Stg 2	-	-	- -
Follow-up Hdwy	-	3.3	- -
Pot Cap-1 Maneuver	0	1088	0 -
Stage 1	0	-	0 -
Stage 2	0	-	0 -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	-	1088	- -
Mov Cap-2 Maneuver	-	-	- -
Stage 1	-	-	- -
Stage 2	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	8.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1088	-	-
HCM Lane V/C Ratio	-	0.001	-	-
HCM Control Delay (s)	-	8.3	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↖	↖↗	
Traffic Vol, veh/h	0	130	0	389	259	0
Future Vol, veh/h	0	130	0	389	259	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	141	0	423	282	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	141	- 0
Stage 1	-	-	- -
Stage 2	-	-	- -
Critical Hdwy	-	6.9	- -
Critical Hdwy Stg 1	-	-	- -
Critical Hdwy Stg 2	-	-	- -
Follow-up Hdwy	-	3.3	- -
Pot Cap-1 Maneuver	0	888	0 -
Stage 1	0	-	0 -
Stage 2	0	-	0 -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	-	888	- -
Mov Cap-2 Maneuver	-	-	- -
Stage 1	-	-	- -
Stage 2	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	888	-	-
HCM Lane V/C Ratio	-	0.159	-	-
HCM Control Delay (s)	-	9.8	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-

**Intersection**

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Traffic Vol, veh/h	1	0	0	0	0	30
Future Vol, veh/h	1	0	0	0	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	0	0	0	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	16	16	33	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	1006	1066	1592	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	1006	1066	1592	-	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1592	-	1006	-	-
HCM Lane V/C Ratio	-	-	0.001	-	-
HCM Control Delay (s)	0	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection							
Int Delay, s/veh	4.4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		↑↑		↑↑		
Traffic Vol, veh/h	33	0	0	0	0	32	
Future Vol, veh/h	33	0	0	0	0	32	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	0	0	0	0	0	0	
Mvmt Flow	36	0	0	0	0	35	

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	17	17	35	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	1004	1064	1589	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1004	1064	1589	-	-	-
Mov Cap-2 Maneuver	1004	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1589	-	1004	-	-
HCM Lane V/C Ratio	-	-	0.036	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-













Intersection						
Intersection Delay, s/veh	8.5					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2	2		
Conflicting Circle Lanes	2	2	2	2		
Adj Approach Flow, veh/h	7	409	397	0		
Demand Flow Rate, veh/h	7	409	397	0		
Vehicles Circulating, veh/h	0	397	4	806		
Vehicles Exiting, veh/h	806	4	3	0		
Follow-Up Headway, s	3.186	3.186	3.186	3.186		
Ped Vol Crossing Leg, #/h	0	0	0	0		
Ped Cap Adj	1.000	1.000	1.000	1.000		
Approach Delay, s/veh	3.2	10.4	6.7	0.0		
Approach LOS	A	B	A	-		
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	L	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	1.000	0.000	0.500	0.500
Critical Headway, s	4.113	4.113	4.293	4.113	4.293	4.113
Entry Flow, veh/h	7	409	397	0	0	0
Cap Entry Lane, veh/h	1130	856	1127	1127	617	643
Entry HV Adj Factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Entry, veh/h	7	409	397	0	0	0
Cap Entry, veh/h	1130	856	1127	1127	617	643
V/C Ratio	0.006	0.478	0.352	0.000	0.000	0.000
Control Delay, s/veh	3.2	10.4	6.7	3.2	5.8	5.6
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	3	2	0	0	0

Intersection						
Intersection Delay, s/veh	11.6					
Intersection LOS	B					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2	2		
Conflicting Circle Lanes	2	2	2	2		
Adj Approach Flow, veh/h	717	435	423	0		
Demand Flow Rate, veh/h	717	435	423	0		
Vehicles Circulating, veh/h	0	423	435	858		
Vehicles Exiting, veh/h	858	435	282	0		
Follow-Up Headway, s	3.186	3.186	3.186	3.186		
Ped Vol Crossing Leg, #/h	0	0	0	0		
Ped Cap Adj	1.000	1.000	1.000	1.000		
Approach Delay, s/veh	11.7	11.4	11.7	0.0		
Approach LOS	B	B	B	-		
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	L	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	1.000	0.000	0.500	0.500
Critical Headway, s	4.113	4.113	4.293	4.113	4.293	4.113
Entry Flow, veh/h	717	435	423	0	0	0
Cap Entry Lane, veh/h	1130	840	815	833	594	620
Entry HV Adj Factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Entry, veh/h	717	435	423	0	0	0
Cap Entry, veh/h	1130	840	815	833	594	620
V/C Ratio	0.635	0.518	0.519	0.000	0.000	0.000
Control Delay, s/veh	11.7	11.4	11.7	4.3	6.1	5.8
LOS	B	B	B	A	A	A
95th %tile Queue, veh	5	3	3	0	0	0

## **2037 BACKGROUND AND FUTURE**

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	677	518	593	1359	0	0	0	0	230	0	320
Future Volume (vph)	0	677	518	593	1359	0	0	0	0	230	0	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.71	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	4047	1599	3467	3610	0	0	0	0	3433	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	4047	1599	3467	3610	0	0	0	0	3433	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			551									340
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1222			620			374			528	
Travel Time (s)		18.5			9.4			6.4			9.0	
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
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	0	720	551	631	1446	0	0	0	0	245	0	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	720	551	631	1446	0	0	0	0	245	0	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24			24	
Link Offset(ft)		0			8			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	41.0		23.0		64.0				36.0			
Total Split (%)	41.0%		23.0%		64.0%				36.0%			
Maximum Green (s)	34.0		18.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	51.9		100.0		18.0		74.9		11.1		100.0	
Actuated g/C Ratio	0.52		1.00		0.18		0.75		0.11		1.00	
v/c Ratio	0.34		0.34		1.01		0.53		0.64		0.21	
Control Delay	15.0		0.6		74.9		7.7		50.3		0.3	
Queue Delay	0.0		0.0		0.0		0.1		0.0		0.0	
Total Delay	15.0		0.6		74.9		7.7		50.3		0.3	
LOS	B		A		E		A		D		A	
Approach Delay	8.8				28.1						21.2	
Approach LOS	A				C						C	
90th %ile Green (s)	48.4		18.0		71.4				14.6			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	50.5		18.0		73.5				12.5			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	51.9		18.0		74.9				11.1			
50th %ile Term Code	Coord		Max		Coord				Gap			
30th %ile Green (s)	53.4		18.0		76.4				9.6			
30th %ile Term Code	Coord		Max		Coord				Gap			
10th %ile Green (s)	55.4		18.0		78.4				7.6			
10th %ile Term Code	Coord		Max		Coord				Gap			
Stops (vph)	381		0		545		547		212		0	
Fuel Used(gal)	12		4		18		14		7		3	
CO Emissions (g/hr)	851		292		1273		1006		479		236	
NOx Emissions (g/hr)	166		57		248		196		93		46	
VOC Emissions (g/hr)	197		68		295		233		111		55	
Dilemma Vehicles (#)	34		0		0		13		0		0	
Queue Length 50th (ft)	120		0		~228		155		78		0	
Queue Length 95th (ft)	169		0		#343		175		113		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	2101		1599		624		2704		995		1615	
Starvation Cap Reductn	0		0		0		166		0		0	
Spillback Cap Reductn	0		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2037 Background Traffic Volumes  
 AM Peak Hour

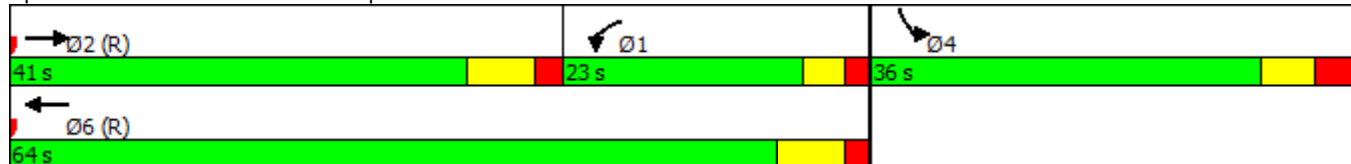


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.34	0.34	1.01	0.57					0.25		0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 32 (32%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 20.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 61.1%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	1973	818	424	1834	0	0	0	0	537	0	641
Future Volume (vph)	0	1973	818	424	1834	0	0	0	0	537	0	641
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.89	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5073	1615	3502	3610	0	0	0	0	3502	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	5073	1615	3502	3610	0	0	0	0	3502	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			438									396
Link Speed (mph)		45			45			40				40
Link Distance (ft)		1222			620			374				528
Travel Time (s)		18.5			9.4			6.4				9.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2145	889	461	1993	0	0	0	0	584	0	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2145	889	461	1993	0	0	0	0	584	0	697
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24				24
Link Offset(ft)		0			8			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		
Permitted Phases			Free									Free

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4		
Switch Phase												
Minimum Initial (s)		15.0		6.0	15.0					5.0		
Minimum Split (s)		22.0		11.0	22.0					12.0		
Total Split (s)		44.0		20.0	64.0					36.0		
Total Split (%)		44.0%		20.0%	64.0%					36.0%		
Maximum Green (s)		37.0		15.0	57.0					29.0		
Yellow Time (s)		5.0		3.0	5.0					4.0		
All-Red Time (s)		2.0		2.0	2.0					3.0		
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		
Total Lost Time (s)		7.0		5.0	7.0					7.0		
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0		5.0	3.0					1.5		
Recall Mode		C-Max		None	C-Max					None		
Act Effct Green (s)		41.2	100.0	19.1	65.3					20.7		100.0
Actuated g/C Ratio		0.41	1.00	0.19	0.65					0.21		1.00
v/c Ratio		1.03	0.55	0.69	0.85					0.81		0.43
Control Delay		57.6	1.4	29.6	34.5					46.7		0.8
Queue Delay		29.5	0.0	0.0	47.3					0.0		0.0
Total Delay		87.2	1.4	29.6	81.7					46.7		0.8
LOS		F	A	C	F					D		A
Approach Delay		62.0			71.9							21.7
Approach LOS		E			E							C
90th %ile Green (s)		37.0		18.1	60.1					25.9		
90th %ile Term Code		Coord		Max	Coord					Gap		
70th %ile Green (s)		37.0		21.1	63.1					22.9		
70th %ile Term Code		Coord		Max	Coord					Gap		
50th %ile Green (s)		39.5		20.8	65.3					20.7		
50th %ile Term Code		Coord		Gap	Coord					Gap		
30th %ile Green (s)		43.3		19.1	67.4					18.6		
30th %ile Term Code		Coord		Gap	Coord					Gap		
10th %ile Green (s)		49.1		16.5	70.6					15.4		
10th %ile Term Code		Coord		Gap	Coord					Gap		
Stops (vph)		1605	1	370	1770					493		0
Fuel Used(gal)		59	7	9	42					16		7
CO Emissions (g/hr)		4108	470	620	2954					1089		478
NOx Emissions (g/hr)		799	91	121	575					212		93
VOC Emissions (g/hr)		952	109	144	685					252		111
Dilemma Vehicles (#)		88	0	0	46					0		0
Queue Length 50th (ft)		~571	0	126	726					184		0
Queue Length 95th (ft)		#701	0	m155	m738					228		0
Internal Link Dist (ft)		1142			540			294			448	
Turn Bay Length (ft)												
Base Capacity (vph)		2089	1615	669	2357					1015		1615
Starvation Cap Reductn		0	0	0	775					0		0
Spillback Cap Reductn		263	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		1.17	0.55	0.69	1.26					0.58		0.43

Intersection Summary













Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	58.0
Intersection Capacity Utilization	88.6%
Intersection LOS:	E
ICU Level of Service	E
Analysis Period (min)	15
* User Entered Value	
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑	↑↑	↑↑					↑↑		↑
Traffic Volume (vph)	0	728	518	607	1360	0	0	0	0	386	0	320
Future Volume (vph)	0	728	518	607	1360	0	0	0	0	386	0	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.76	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	4332	1599	3433	3610	0	0	0	0	3467	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	4332	1599	3433	3610	0	0	0	0	3467	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			551									340
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1222			620			374			528	
Travel Time (s)		18.5			9.4			6.4			9.0	
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
Heavy Vehicles (%)	0%	0%	1%	2%	0%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	774	551	646	1447	0	0	0	0	411	0	340
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	774	551	646	1447	0	0	0	0	411	0	340
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	L NA	L NA	Right
Median Width(ft)		40			30			24			24	
Link Offset(ft)		0			8			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	41.0		23.0		64.0				36.0			
Total Split (%)	41.0%		23.0%		64.0%				36.0%			
Maximum Green (s)	34.0		18.0		57.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead		Lag									
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	47.1		100.0		18.0		70.1		15.9		100.0	
Actuated g/C Ratio	0.47		1.00		0.18		0.70		0.16		1.00	
v/c Ratio	0.38		0.34		1.05		0.57		0.75		0.21	
Control Delay	18.2		0.6		79.1		8.3		48.7		0.3	
Queue Delay	0.0		0.0		0.0		0.0		0.0		0.0	
Total Delay	18.2		0.6		79.1		8.3		48.7		0.3	
LOS	B		A		E		A		D		A	
Approach Delay	10.9				30.1						26.8	
Approach LOS	B				C						C	
90th %ile Green (s)	42.6		18.0		65.6				20.4			
90th %ile Term Code	Coord		Max		Coord				Gap			
70th %ile Green (s)	45.3		18.0		68.3				17.7			
70th %ile Term Code	Coord		Max		Coord				Gap			
50th %ile Green (s)	47.1		18.0		70.1				15.9			
50th %ile Term Code	Coord		Max		Coord				Gap			
30th %ile Green (s)	49.0		18.0		72.0				14.0			
30th %ile Term Code	Coord		Max		Coord				Gap			
10th %ile Green (s)	51.7		18.0		74.7				11.3			
10th %ile Term Code	Coord		Max		Coord				Gap			
Stops (vph)	451		0		549		583		357		0	
Fuel Used(gal)	14		4		19		15		11		3	
CO Emissions (g/hr)	984		292		1331		1050		796		236	
NOx Emissions (g/hr)	192		57		259		204		155		46	
VOC Emissions (g/hr)	228		68		308		243		185		55	
Dilemma Vehicles (#)	36		0		0		5		0		0	
Queue Length 50th (ft)	134		0		~240		154		130		0	
Queue Length 95th (ft)	188		0		#355		195		172		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	2042		1599		617		2532		1005		1615	
Starvation Cap Reductn	0		0		0		0		0		0	
Spillback Cap Reductn	0		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
 AM Peak Hour

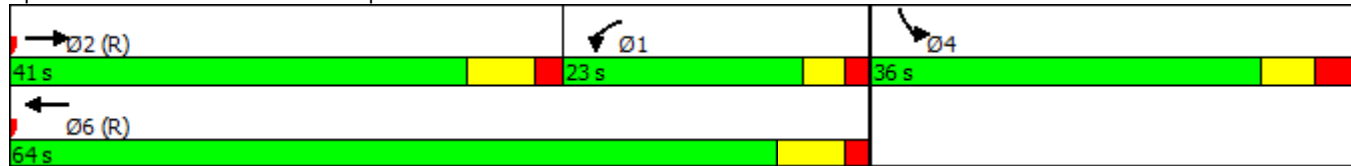


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.38	0.34	1.05	0.57					0.41		0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 25 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 23.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 61.3%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: I-25 SB Ramps & 144th Ave





Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↘↗	↑↑					↘↗		↗
Traffic Volume (vph)	0	2027	818	865	1888	0	0	0	0	702	0	641
Future Volume (vph)	0	2027	818	865	1888	0	0	0	0	702	0	641
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		0	0		0	0		0
Storage Lanes	1		1	2		0	0		0	2		1
Taper Length (ft)	75			25			25			25		
Lane Util. Factor	1.00	*0.88	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	5016	1615	3502	3610	0	0	0	0	3467	0	1615
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	5016	1615	3502	3610	0	0	0	0	3467	0	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			352									329
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1222			620			374			528	
Travel Time (s)		18.5			9.4			6.4			9.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	0	2203	889	940	2052	0	0	0	0	763	0	697
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2203	889	940	2052	0	0	0	0	763	0	697
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	Right	Left	Left	Right	Left	Left	Right	Right	L NA	Right
Median Width(ft)		40			30			24			24	
Link Offset(ft)		0			8			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2					1		1
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		100	20	20	100					20		20
Trailing Detector (ft)		0	0	0	0					0		0
Detector 1 Position(ft)		0	0	0	0					0		0
Detector 1 Size(ft)		6	20	20	6					20		20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA	Free	Prot	NA					Prot		Free
Protected Phases		2		1	6					4		

Lanes, Volumes, Timings  
9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free											Free
Detector Phase	2		1		6				4			
Switch Phase												
Minimum Initial (s)	15.0		6.0		15.0				5.0			
Minimum Split (s)	22.0		11.0		22.0				12.0			
Total Split (s)	50.0		34.0		84.0				36.0			
Total Split (%)	41.7%		28.3%		70.0%				30.0%			
Maximum Green (s)	43.0		29.0		77.0				29.0			
Yellow Time (s)	5.0		3.0		5.0				4.0			
All-Red Time (s)	2.0		2.0		2.0				3.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	7.0		5.0		7.0				7.0			
Lead/Lag	Lead		Lag									
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0		5.0		3.0				1.5			
Recall Mode	C-Max		None		C-Max				None			
Act Effct Green (s)	43.8		120.0		29.0		77.8		28.2		120.0	
Actuated g/C Ratio	0.36		1.00		0.24		0.65		0.24		1.00	
v/c Ratio	1.20		0.55		1.11		0.88		0.94		0.43	
Control Delay	131.3		1.4		96.5		17.7		64.9		0.8	
Queue Delay	0.4		0.0		0.0		1.0		0.0		0.0	
Total Delay	131.7		1.4		96.5		18.6		64.9		0.8	
LOS	F		A		F		B		E		A	
Approach Delay	94.2				43.1						34.3	
Approach LOS	F				D						C	
90th %ile Green (s)	43.0		29.0		77.0				29.0			
90th %ile Term Code	Coord		Max		Coord				Max			
70th %ile Green (s)	43.0		29.0		77.0				29.0			
70th %ile Term Code	Coord		Max		Coord				Max			
50th %ile Green (s)	43.0		29.0		77.0				29.0			
50th %ile Term Code	Coord		Max		Coord				Max			
30th %ile Green (s)	43.2		29.0		77.2				28.8			
30th %ile Term Code	Coord		Max		Coord				Gap			
10th %ile Green (s)	47.0		29.0		81.0				25.0			
10th %ile Term Code	Coord		Max		Coord				Gap			
Stops (vph)	1672		0		775		947		647		0	
Fuel Used(gal)	91		7		30		26		23		7	
CO Emissions (g/hr)	6366		469		2105		1830		1608		478	
NOx Emissions (g/hr)	1239		91		410		356		313		93	
VOC Emissions (g/hr)	1475		109		488		424		373		111	
Dilemma Vehicles (#)	70		0		0		1		0		0	
Queue Length 50th (ft)	~796		0		~444		254		297		0	
Queue Length 95th (ft)	#893		0		#576		315		#408		0	
Internal Link Dist (ft)	1142				540				294		448	
Turn Bay Length (ft)												
Base Capacity (vph)	1832		1615		846		2341		837		1615	
Starvation Cap Reductn	0		0		0		107		0		0	
Spillback Cap Reductn	212		0		0		0		0		0	
Storage Cap Reductn	0		0		0		0		0		0	

Lanes, Volumes, Timings  
 9: I-25 SB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
 PM Peak Hour

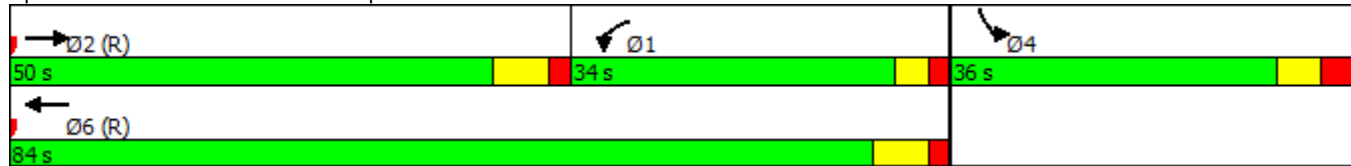


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		1.36	0.55	1.11	0.92					0.91		0.43

Intersection Summary
























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.20  
 Intersection Signal Delay: 62.4 Intersection LOS: E  
 Intersection Capacity Utilization 99.7% ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: I-25 SB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 					
Traffic Volume (vph)	318	617	0	0	1374	403	570	0	281	0	0	0
Future Volume (vph)	318	617	0	0	1374	403	570	0	281	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.88	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3467	3610	0	0	6688	1599	3467	0	1599	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3467	3610	0	0	6688	1599	3467	0	1599	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						409			319			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		620			720			465			385	
Travel Time (s)		9.4			10.9			7.9			6.6	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%	1%	0%	1%	0%	0%	0%
Adj. Flow (vph)	361	701	0	0	1561	458	648	0	319	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	701	0	0	1561	458	648	0	319	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	20.0	60.0			40.0		40.0					
Total Split (%)	20.0%	60.0%			40.0%		40.0%					
Maximum Green (s)	15.0	53.0			33.0		33.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	19.6	62.7			38.1	100.0	23.3		100.0			
Actuated g/C Ratio	0.20	0.63			0.38	1.00	0.23		1.00			
v/c Ratio	0.53	0.31			0.61	0.29	0.80		0.20			
Control Delay	31.4	2.7			34.9	0.4	44.2		0.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	31.4	2.7			34.9	0.4	44.2		0.3			
LOS	C	A			C	A	D		A			
Approach Delay		12.5			27.1			29.7				
Approach LOS		B			C			C				
90th %ile Green (s)	19.2	57.2			33.0		28.8					
90th %ile Term Code	Max	Coord			Coord		Gap					
70th %ile Green (s)	22.4	60.4			33.0		25.6					
70th %ile Term Code	Max	Coord			Coord		Gap					
50th %ile Green (s)	20.9	62.7			36.8		23.3					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	19.3	65.0			40.7		21.0					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	16.2	68.4			47.2		17.6					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	207	141			1148	0	519		0			
Fuel Used(gal)	6	5			30	2	18		4			
CO Emissions (g/hr)	411	320			2129	134	1225		253			
NOx Emissions (g/hr)	80	62			414	26	238		49			
VOC Emissions (g/hr)	95	74			493	31	284		59			
Dilemma Vehicles (#)	0	13			95	0	0		0			
Queue Length 50th (ft)	77	45			259	0	201		0			
Queue Length 95th (ft)	119	83			323	0	239		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	679	2264			2551	1599	1144		1599			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2037 Background Traffic Volumes  
 AM Peak Hour

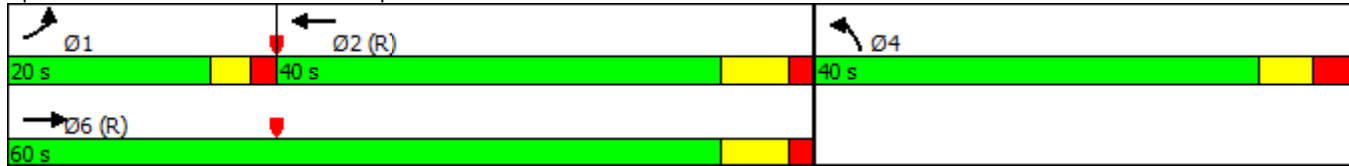


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.53	0.31			0.61	0.29	0.57		0.20			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 42 (42%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 23.9  
 Intersection Capacity Utilization 61.1%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↑↑↑	↖	↖↗		↖			
Traffic Volume (vph)	499	1985	0	0	1498	436	775	0	679	0	0	0
Future Volume (vph)	499	1985	0	0	1498	436	775	0	679	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.70	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3502	3610	0	0	5320	1615	3502	0	1615	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3502	3610	0	0	5320	1615	3502	0	1615	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						323			513			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
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
Adj. Flow (vph)	531	2112	0	0	1594	464	824	0	722	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	531	2112	0	0	1594	464	824	0	722	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					
Permitted Phases						Free			Free			

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



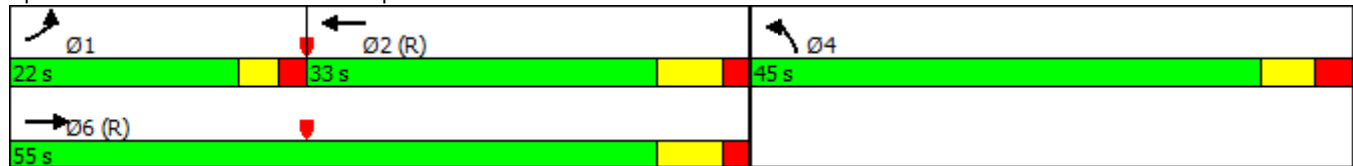
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	22.0	55.0			33.0		45.0					
Total Split (%)	22.0%	55.0%			33.0%		45.0%					
Maximum Green (s)	17.0	48.0			26.0		38.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	23.6	57.6			29.0	100.0	28.4		100.0			
Actuated g/C Ratio	0.24	0.58			0.29	1.00	0.28		1.00			
v/c Ratio	0.64	1.02			1.03	0.29	0.83		0.45			
Control Delay	37.7	29.9			68.0	0.4	41.1		0.9			
Queue Delay	0.0	33.2			0.5	0.0	45.4		0.1			
Total Delay	37.7	63.1			68.4	0.4	86.5		1.0			
LOS	D	E			E	A	F		A			
Approach Delay		58.0			53.1			46.6				
Approach LOS		E			D			D				
90th %ile Green (s)	20.5	51.5			26.0		34.5					
90th %ile Term Code	Max	Coord			Coord		Gap					
70th %ile Green (s)	24.0	55.0			26.0		31.0					
70th %ile Term Code	Max	Coord			Coord		Gap					
50th %ile Green (s)	26.5	57.5			26.0		28.5					
50th %ile Term Code	Max	Coord			Coord		Gap					
30th %ile Green (s)	25.2	60.1			29.9		25.9					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	21.7	64.0			37.3		22.0					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	382	1673			1287	0	697		0			
Fuel Used(gal)	11	41			44	2	23		9			
CO Emissions (g/hr)	740	2857			3057	145	1626		617			
NOx Emissions (g/hr)	144	556			595	28	316		120			
VOC Emissions (g/hr)	172	662			709	34	377		143			
Dilemma Vehicles (#)	0	122			12	0	0		0			
Queue Length 50th (ft)	106	~720			~444	0	253		0			
Queue Length 95th (ft)	m129	m#834			#541	0	296		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	825	2080			1545	1615	1330		1615			
Starvation Cap Reductn	0	270			0	0	0		0			
Spillback Cap Reductn	0	229			2	0	571		102			
Storage Cap Reductn	0	0			0	0	0		0			
Reduced v/c Ratio	0.64	1.17			1.03	0.29	1.09		0.48			



**Intersection Summary**

























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 34 (34%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 53.6 Intersection LOS: D  
 Intersection Capacity Utilization 88.6% ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			   		 					
Traffic Volume (vph)	318	824	0	0	1389	408	570	0	699	0	0	0
Future Volume (vph)	318	824	0	0	1389	408	570	0	699	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.89	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3467	3574	0	0	6697	1599	3467	0	1583	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3467	3574	0	0	6697	1599	3467	0	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						415			507			
Link Speed (mph)		45			45			40				40
Link Distance (ft)		620			720			465				385
Travel Time (s)		9.4			10.9			7.9				6.6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%	1%	0%	2%	0%	0%	0%
Adj. Flow (vph)	361	936	0	0	1578	464	648	0	794	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	361	936	0	0	1578	464	648	0	794	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	20.0	60.0			40.0		40.0					
Total Split (%)	20.0%	60.0%			40.0%		40.0%					
Maximum Green (s)	15.0	53.0			33.0		33.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	19.6	62.7			38.1	100.0	23.3		100.0			
Actuated g/C Ratio	0.20	0.63			0.38	1.00	0.23		1.00			
v/c Ratio	0.53	0.42			0.62	0.29	0.80		0.50			
Control Delay	26.7	5.9			29.3	0.4	44.2		1.1			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	26.7	5.9			29.3	0.4	44.2		1.1			
LOS	C	A			C	A	D		A			
Approach Delay		11.7			22.8			20.5				
Approach LOS		B			C			C				
90th %ile Green (s)	19.2	57.2			33.0		28.8					
90th %ile Term Code	Max	Coord			Coord		Gap					
70th %ile Green (s)	22.4	60.4			33.0		25.6					
70th %ile Term Code	Max	Coord			Coord		Gap					
50th %ile Green (s)	20.9	62.7			36.8		23.3					
50th %ile Term Code	Gap	Coord			Coord		Gap					
30th %ile Green (s)	19.3	65.0			40.7		21.0					
30th %ile Term Code	Gap	Coord			Coord		Gap					
10th %ile Green (s)	16.2	68.4			47.2		17.6					
10th %ile Term Code	Gap	Coord			Coord		Gap					
Stops (vph)	203	364			1253	0	519		0			
Fuel Used(gal)	6	9			30	2	18		9			
CO Emissions (g/hr)	387	618			2122	136	1225		637			
NOx Emissions (g/hr)	75	120			413	26	238		124			
VOC Emissions (g/hr)	90	143			492	31	284		148			
Dilemma Vehicles (#)	0	4			36	0	0		0			
Queue Length 50th (ft)	76	120			260	0	201		0			
Queue Length 95th (ft)	120	142			302	0	239		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	679	2242			2554	1599	1144		1583			
Starvation Cap Reductn	0	0			0	0	0		0			
Spillback Cap Reductn	0	0			0	0	0		0			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
 AM Peak Hour

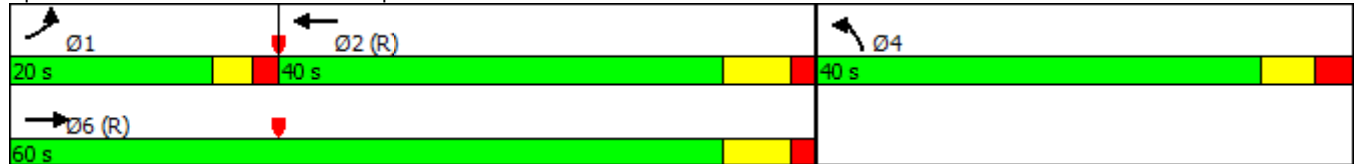


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.53	0.42			0.62	0.29	0.57		0.50			

Intersection Summary
























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 42 (42%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 19.1  
 Intersection Capacity Utilization 61.3%  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 					
Traffic Volume (vph)	499	2204	0	0	1993	601	775	0	1122	0	0	0
Future Volume (vph)	499	2204	0	0	1993	601	775	0	1122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	150		0	0		0	0		0
Storage Lanes	2		0	2		1	2		1	0		0
Taper Length (ft)	25			125			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	*0.88	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3502	3610	0	0	6622	1599	3502	0	1599	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3502	3610	0	0	6622	1599	3502	0	1599	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						350			413			
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		620			720			465			385	
Travel Time (s)		9.4			10.9			7.9			6.6	
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
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	531	2345	0	0	2120	639	824	0	1194	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	531	2345	0	0	2120	639	824	0	1194	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	Right	Left	Left	Right	L NA	L NA	Right	Left	Left	Right
Median Width(ft)		31			30			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1		1			
Detector Template	Left	Thru			Thru	Right	Left		Right			
Leading Detector (ft)	20	100			100	20	20		20			
Trailing Detector (ft)	0	0			0	0	0		0			
Detector 1 Position(ft)	0	0			0	0	0		0			
Detector 1 Size(ft)	20	6			6	20	20		20			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Prot	NA			NA	Free	Prot		Free			
Protected Phases	1	6			2		4					

Lanes, Volumes, Timings  
12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	Free						Free					
Detector Phase	1	6			2		4					
Switch Phase												
Minimum Initial (s)	5.0	15.0			15.0		5.0					
Minimum Split (s)	10.0	22.0			22.0		12.0					
Total Split (s)	22.0	75.0			53.0		45.0					
Total Split (%)	18.3%	62.5%			44.2%		37.5%					
Maximum Green (s)	17.0	68.0			46.0		38.0					
Yellow Time (s)	3.0	5.0			5.0		4.0					
All-Red Time (s)	2.0	2.0			2.0		3.0					
Lost Time Adjust (s)	0.0	0.0			0.0		0.0					
Total Lost Time (s)	5.0	7.0			7.0		7.0					
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	8.0	3.0			3.0		2.0					
Recall Mode	None	C-Max			C-Max		None					
Act Effct Green (s)	22.5	73.5			46.0	120.0	32.5		120.0			
Actuated g/C Ratio	0.19	0.61			0.38	1.00	0.27		1.00			
v/c Ratio	0.81	1.06			0.84	0.40	0.87		0.75			
Control Delay	62.1	40.4			36.6	0.6	52.2		3.2			
Queue Delay	0.0	17.2			0.0	0.0	0.0		0.6			
Total Delay	62.1	57.6			36.6	0.6	52.2		3.9			
LOS	E	E			D	A	D		A			
Approach Delay		58.4			28.3			23.6				
Approach LOS		E			C			C				
90th %ile Green (s)	17.0	68.0			46.0		38.0					
90th %ile Term Code	Max	Coord			Coord		Max					
70th %ile Green (s)	19.6	70.6			46.0		35.4					
70th %ile Term Code	Max	Coord			Coord		Gap					
50th %ile Green (s)	22.2	73.2			46.0		32.8					
50th %ile Term Code	Max	Coord			Coord		Gap					
30th %ile Green (s)	24.9	75.9			46.0		30.1					
30th %ile Term Code	Max	Coord			Coord		Gap					
10th %ile Green (s)	29.0	80.0			46.0		26.0					
10th %ile Term Code	Max	Coord			Coord		Gap					
Stops (vph)	432	1509			1706	0	718		1			
Fuel Used(gal)	14	46			45	3	25		15			
CO Emissions (g/hr)	957	3199			3172	202	1763		1057			
NOx Emissions (g/hr)	186	622			617	39	343		206			
VOC Emissions (g/hr)	222	741			735	47	409		245			
Dilemma Vehicles (#)	0	0			22	0	0		0			
Queue Length 50th (ft)	213	~1092			406	0	313		0			
Queue Length 95th (ft)	m192	m#940			442	m0	367		0			
Internal Link Dist (ft)		540			640			385			305	
Turn Bay Length (ft)												
Base Capacity (vph)	657	2212			2538	1599	1108		1599			
Starvation Cap Reductn	0	349			0	0	0		0			
Spillback Cap Reductn	0	311			0	0	0		137			
Storage Cap Reductn	0	0			0	0	0		0			

Lanes, Volumes, Timings  
 12: I-25 NB Ramps & 144th Ave

2037 Total Future Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.81	1.26			0.84	0.40	0.74		0.82			

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 36 (30%), Referenced to phase 2:WBT and 6:EBT, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 38.4 Intersection LOS: D  
 Intersection Capacity Utilization 99.7% ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: I-25 NB Ramps & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖↗	↑↑↑	↖↗	↗
Traffic Volume (vph)	640	208	82	1552	182	71
Future Volume (vph)	640	208	82	1552	182	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		231				79
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	711	231	91	1724	202	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	711	231	91	1724	202	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				



Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

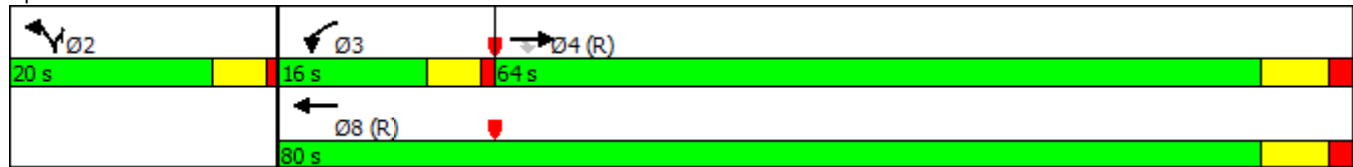


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	15.0	15.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	66.2	66.2	8.0	76.9	11.1	11.1
Actuated g/C Ratio	0.66	0.66	0.08	0.77	0.11	0.11
v/c Ratio	0.30	0.20	0.33	0.43	0.52	0.32
Control Delay	6.5	0.8	53.3	5.5	46.5	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	0.8	53.3	5.5	46.5	12.8
LOS	A	A	D	A	D	B
Approach Delay	5.1			7.9	37.1	
Approach LOS	A			A	D	
90th %ile Green (s)	58.9	58.9	10.0	73.9	14.1	14.1
90th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
70th %ile Green (s)	61.9	61.9	8.8	75.7	12.3	12.3
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	63.9	63.9	8.0	76.9	11.1	11.1
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	66.1	66.1	7.1	78.2	9.8	9.8
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	80.0	80.0	0.0	80.0	8.0	8.0
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	178	4	78	479	167	15
Fuel Used(gal)	6	1	2	15	4	1
CO Emissions (g/hr)	423	74	157	1041	274	53
NOx Emissions (g/hr)	82	14	30	202	53	10
VOC Emissions (g/hr)	98	17	36	241	63	12
Dilemma Vehicles (#)	30	0	0	124	0	0
Queue Length 50th (ft)	72	0	29	144	63	0
Queue Length 95th (ft)	96	11	m53	123	96	41
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2388	1146	385	3990	525	309
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.20	0.24	0.43	0.38	0.26

Intersection Summary

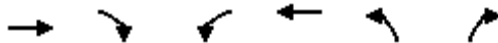
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	9.7
Intersection LOS:	A
Intersection Capacity Utilization:	45.2%
ICU Level of Service:	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 15: Lincoln St & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑↑↑	↑↑	↑
Traffic Volume (vph)	2049	503	120	1279	401	192
Future Volume (vph)	2049	503	120	1279	401	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		350	0
Storage Lanes		1	2		0	1
Taper Length (ft)			150		150	
Lane Util. Factor	0.95	1.00	0.97	0.91	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	5187	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	5187	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		393				176
Link Speed (mph)	45			45	30	
Link Distance (ft)	720			715	381	
Travel Time (s)	10.9			10.8	8.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	2252	553	132	1405	441	211
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2252	553	132	1405	441	211
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	45			36	39	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	30	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
15: Lincoln St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour

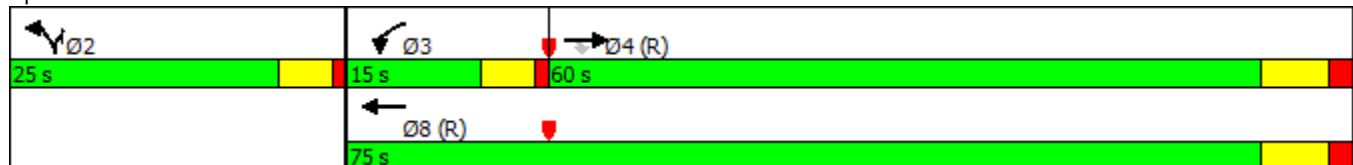


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	10.0	10.0
Total Split (s)	60.0	60.0	15.0	75.0	25.0	25.0
Total Split (%)	60.0%	60.0%	15.0%	75.0%	25.0%	25.0%
Maximum Green (s)	53.0	53.0	10.0	68.0	20.0	20.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	5.0	7.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effect Green (s)	56.9	56.9	8.8	70.6	17.4	17.4
Actuated g/C Ratio	0.57	0.57	0.09	0.71	0.17	0.17
v/c Ratio	1.10	0.51	0.43	0.38	0.73	0.50
Control Delay	66.6	5.5	54.5	7.1	46.2	12.8
Queue Delay	1.4	0.0	0.0	0.0	0.0	0.2
Total Delay	68.0	5.5	54.5	7.1	46.2	13.0
LOS	E	A	D	A	D	B
Approach Delay	55.7			11.1	35.5	
Approach LOS	E			B	D	
90th %ile Green (s)	53.0	53.0	10.0	68.0	20.0	20.0
90th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
70th %ile Green (s)	53.0	53.0	10.0	68.0	20.0	20.0
70th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
50th %ile Green (s)	56.2	56.2	9.1	70.3	17.7	17.7
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	59.0	59.0	8.1	72.1	15.9	15.9
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	63.1	63.1	6.7	74.8	13.2	13.2
10th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
Stops (vph)	1009	87	119	377	366	43
Fuel Used(gal)	50	4	3	12	9	2
CO Emissions (g/hr)	3489	280	236	871	601	145
NOx Emissions (g/hr)	679	54	46	170	117	28
VOC Emissions (g/hr)	809	65	55	202	139	34
Dilemma Vehicles (#)	132	0	0	58	0	0
Queue Length 50th (ft)	~854	63	46	104	137	19
Queue Length 95th (ft)	m#908	m85	m75	128	185	82
Internal Link Dist (ft)	640			635	301	
Turn Bay Length (ft)			150		350	
Base Capacity (vph)	2052	1087	350	3664	700	463
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	216	0	0	0	0	23
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.51	0.38	0.38	0.63	0.48

**Intersection Summary**













Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	98 (98%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	39.3
Intersection Capacity Utilization	78.5%
Intersection LOS:	D
ICU Level of Service	D
Analysis Period (min)	15
~	Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Lincoln St & 144th Ave



Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖↗	↑↑↑		↖↗	↗		↖	↗	↖
Traffic Volume (vph)	0	1021	452	82	1569	0	182	1	71	1	0	3
Future Volume (vph)	0	1021	452	82	1569	0	182	1	71	1	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		220	150		200	350		0	100		0
Storage Lanes	0		1	2		1	0		0	1		1
Taper Length (ft)	25			150			150			50		
Lane Util. Factor	1.00	*0.83	1.00	0.97	0.91	0.91	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.852			0.850	0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	4638	1615	3502	5136	0	3502	1619	0	1805	1534	1534
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	4638	1615	3502	5136	0	3502	1619	0	1805	1534	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			502					79			207	207
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		720			715			381			387	
Travel Time (s)		10.9			10.8			8.7			8.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1134	502	91	1743	0	202	1	79	1	0	3
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	1134	502	91	1743	0	202	80	0	1	2	1
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	L NA	R NA
Median Width(ft)		45			36			39			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			30			30	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2		1	2		1	2	1
Detector Template		Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20	20	100		20	100		20	100	20
Trailing Detector (ft)		0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)		0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)		6	20	20	6		20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94		94			94		94
Detector 2 Size(ft)		6			6		6			6		6
Detector 2 Type		Cl+Ex			Cl+Ex		Cl+Ex			Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0		0.0			0.0		0.0
Turn Type		NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

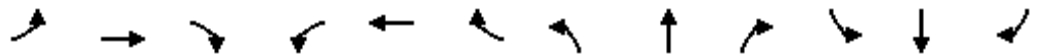
2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4									6
Detector Phase		4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)		15.0	5.0	5.0	15.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)		22.0	10.0	10.0	22.0		10.0	11.0		10.0	11.0	11.0
Total Split (s)		54.0	20.0	15.0	69.0		20.0	21.0		10.0	11.0	11.0
Total Split (%)		54.0%	20.0%	15.0%	69.0%		20.0%	21.0%		10.0%	11.0%	11.0%
Maximum Green (s)		47.0	15.0	10.0	62.0		15.0	15.0		5.0	5.0	5.0
Yellow Time (s)		5.0	4.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)		2.0	1.0	1.0	2.0		1.0	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)		7.0	5.0	5.0	7.0		5.0	6.0		5.0	6.0	6.0
Lead/Lag		Lag	Lead	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode		C-Max	None	None	C-Max		None	None		None	None	None
Act Effct Green (s)		63.6	83.0	8.0	74.4		11.4	10.6		5.0	5.4	5.4
Actuated g/C Ratio		0.64	0.83	0.08	0.74		0.11	0.11		0.05	0.05	0.05
v/c Ratio		0.38	0.35	0.33	0.46		0.51	0.33		0.01	0.01	0.00
Control Delay		11.1	0.6	41.2	6.4		45.6	13.2		46.0	0.0	0.0
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		11.1	0.6	41.2	6.4		45.6	13.2		46.0	0.0	0.0
LOS		B	A	D	A		D	B		D	A	A
Approach Delay		7.9			8.2			36.4			11.5	
Approach LOS		A			A			D			B	
90th %ile Green (s)		47.0	15.0	10.0	62.0		15.0	15.0		5.0	5.0	5.0
90th %ile Term Code		Coord	Max	Max	Coord		Max	Hold		Max	Max	Max
70th %ile Green (s)		61.0	13.2	8.8	74.8		13.2	12.2		0.0	0.0	0.0
70th %ile Term Code		Coord	Gap	Gap	Coord		Gap	Hold		Skip	Skip	Skip
50th %ile Green (s)		63.9	11.1	8.0	76.9		11.1	10.1		0.0	0.0	0.0
50th %ile Term Code		Coord	Gap	Gap	Coord		Gap	Hold		Skip	Skip	Skip
30th %ile Green (s)		66.1	9.8	7.1	78.2		9.8	8.8		0.0	0.0	0.0
30th %ile Term Code		Coord	Gap	Gap	Coord		Gap	Hold		Skip	Skip	Skip
10th %ile Green (s)		80.0	8.0	0.0	80.0		8.0	7.0		0.0	0.0	0.0
10th %ile Term Code		Coord	Gap	Skip	Coord		Gap	Hold		Skip	Skip	Skip
Stops (vph)		392	1	78	540		166	15		3	0	0
Fuel Used(gal)		12	2	2	16		4	1		0	0	0
CO Emissions (g/hr)		835	153	142	1122		271	54		2	0	0
NOx Emissions (g/hr)		162	30	28	218		53	11		0	0	0
VOC Emissions (g/hr)		194	35	33	260		63	13		0	0	0
Dilemma Vehicles (#)		81	0	0	79		0	0		0	0	0
Queue Length 50th (ft)		95	0	29	84		63	1		1	0	0
Queue Length 95th (ft)		212	2	m41	206		95	41		6	0	0
Internal Link Dist (ft)		640			635			301			307	
Turn Bay Length (ft)			220	150			350			100		
Base Capacity (vph)		2949	1450	350	3820		525	310		90	278	278
Starvation Cap Reductn		0	0	0	0		0	0		0	0	0
Spillback Cap Reductn		0	0	0	0		0	0		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0

Lanes, Volumes, Timings  
 15: Lincoln St/Driveway 1 & 144th Ave

2037 Total Future Traffic Volumes  
 AM Peak Hour

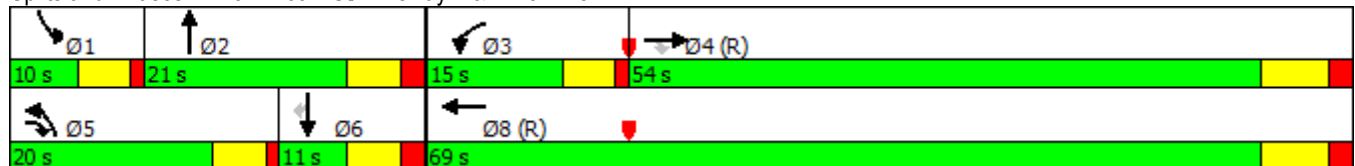


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.38	0.35	0.26	0.46		0.38	0.26		0.01	0.01	0.00

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 10.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 54.7%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 \* User Entered Value  
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 15: Lincoln St/Driveway 1 & 144th Ave





Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗	↖↗	↑↑↑		↖↗	↗		↖	↗	↖
Traffic Volume (vph)	0	2451	763	120	1680	0	401	1	192	1	0	259
Future Volume (vph)	0	2451	763	120	1680	0	401	1	192	1	0	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		220	150		200	350		0	100		0
Storage Lanes	0		1	2		1	0		0	1		1
Taper Length (ft)	25			150			150			50		
Lane Util. Factor	1.00	*0.77	1.00	0.97	0.91	0.91	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.851			0.850	0.850
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	4346	1615	3502	5136	0	3502	1617	0	1805	1534	1534
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	0	4346	1615	3502	5136	0	3502	1617	0	1805	1534	1534
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			642					139			173	173
Link Speed (mph)		45			45			30			30	
Link Distance (ft)		720			715			381			387	
Travel Time (s)		10.9			10.8			8.7			8.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2693	838	132	1846	0	441	1	211	1	0	285
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	2693	838	132	1846	0	441	212	0	1	143	142
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	L NA	R NA
Median Width(ft)		45			36			39			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			30			30	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		2	1	1	2		1	2		1	2	1
Detector Template		Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)		100	20	20	100		20	100		20	100	20
Trailing Detector (ft)		0	0	0	0		0	0		0	0	0
Detector 1 Position(ft)		0	0	0	0		0	0		0	0	0
Detector 1 Size(ft)		6	20	20	6		20	6		20	6	20
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
15: Lincoln St/Driveway 1 & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4									6
Detector Phase		4	5	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)		15.0	5.0	5.0	15.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)		22.0	10.0	10.0	22.0		10.0	11.0		10.0	11.0	11.0
Total Split (s)		75.0	22.0	10.0	85.0		22.0	25.0		10.0	13.0	13.0
Total Split (%)		62.5%	18.3%	8.3%	70.8%		18.3%	20.8%		8.3%	10.8%	10.8%
Maximum Green (s)		68.0	17.0	5.0	78.0		17.0	19.0		5.0	7.0	7.0
Yellow Time (s)		5.0	4.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)		2.0	1.0	1.0	2.0		1.0	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)		7.0	5.0	5.0	7.0		5.0	6.0		5.0	6.0	6.0
Lead/Lag		Lag	Lead	Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode		C-Max	None	None	C-Max		None	None		None	None	None
Act Effct Green (s)		68.0	92.0	6.1	79.1		17.0	25.9		5.0	5.9	5.9
Actuated g/C Ratio		0.57	0.77	0.05	0.66		0.14	0.22		0.04	0.05	0.05
v/c Ratio		1.09	0.60	0.74	0.55		0.89	0.46		0.01	0.60	0.59
Control Delay		75.2	3.3	68.5	15.5		71.5	19.1		56.0	15.1	14.8
Queue Delay		3.3	0.2	0.0	0.0		0.0	0.4		0.0	0.0	0.0
Total Delay		78.6	3.5	68.5	15.5		71.5	19.6		56.0	15.1	14.8
LOS		E	A	E	B		E	B		E	B	B
Approach Delay		60.7			19.0			54.6			15.1	
Approach LOS		E			B			D			B	
90th %ile Green (s)		68.0	17.0	5.0	78.0		17.0	19.0		5.0	7.0	7.0
90th %ile Term Code		Coord	Max	Max	Coord		Max	Max		Max	Max	Max
70th %ile Green (s)		68.0	17.0	6.2	79.2		17.0	27.8		0.0	5.8	5.8
70th %ile Term Code		Coord	Max	Max	Coord		Max	Hold		Skip	Gap	Gap
50th %ile Green (s)		68.0	17.0	6.5	79.5		17.0	27.5		0.0	5.5	5.5
50th %ile Term Code		Coord	Max	Max	Coord		Max	Hold		Skip	Gap	Gap
30th %ile Green (s)		68.0	17.0	6.5	79.5		17.0	27.5		0.0	5.5	5.5
30th %ile Term Code		Coord	Max	Max	Coord		Max	Hold		Skip	Gap	Gap
10th %ile Green (s)		68.0	17.0	6.5	79.5		17.0	27.5		0.0	5.5	5.5
10th %ile Term Code		Coord	Max	Max	Coord		Max	Hold		Skip	Gap	Gap
Stops (vph)		1875	113	108	893		367	66		3	12	12
Fuel Used(gal)		72	5	4	24		11	2		0	1	1
CO Emissions (g/hr)		5055	383	250	1691		745	172		2	60	59
NOx Emissions (g/hr)		984	75	49	329		145	33		0	12	11
VOC Emissions (g/hr)		1172	89	58	392		173	40		1	14	14
Dilemma Vehicles (#)		136	0	0	124		0	0		0	0	0
Queue Length 50th (ft)		~1009	92	55	281		175	46		1	0	0
Queue Length 95th (ft)		m#971	m111	m#88	404		#264	132		7	43	41
Internal Link Dist (ft)		640			635			301			307	
Turn Bay Length (ft)			220	150			350			100		
Base Capacity (vph)		2462	1387	178	3387		496	457		75	252	252
Starvation Cap Reductn		20	118	0	0		0	0		0	0	0
Spillback Cap Reductn		567	0	0	0		0	53		0	0	0
Storage Cap Reductn		0	0	0	0		0	0		0	0	0

Lanes, Volumes, Timings  
 15: Lincoln St/Driveway 1 & 144th Ave

2037 Total Future Traffic Volumes  
 PM Peak Hour

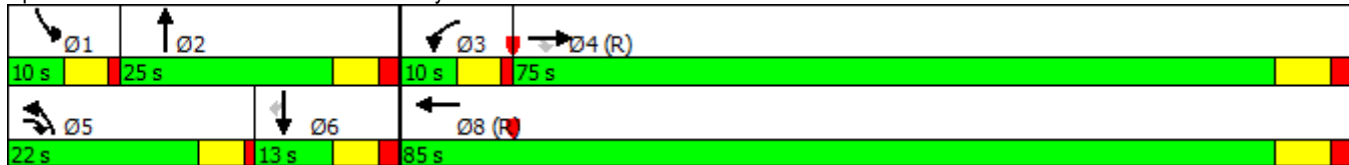


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		1.42	0.66	0.74	0.55		0.89	0.52		0.01	0.57	0.56

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 98 (82%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 45.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 \* User Entered Value  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Lincoln St/Driveway 1 & 144th Ave



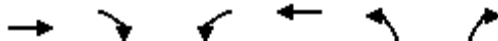
Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖↗	↑↑	↖↗	↗
Traffic Volume (vph)	525	202	81	1404	192	112
Future Volume (vph)	525	202	81	1404	192	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		235				130
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	610	235	94	1633	223	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	610	235	94	1633	223	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

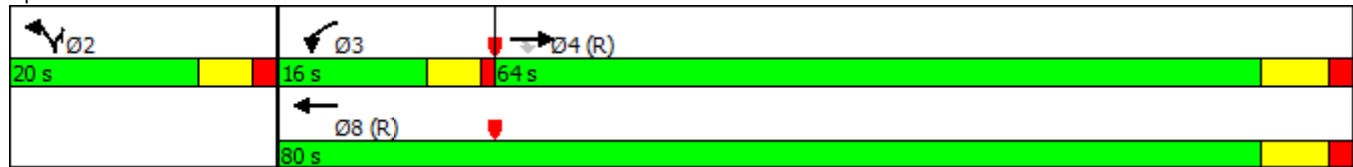


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	64.7	64.7	8.1	75.6	11.4	11.4
Actuated g/C Ratio	0.65	0.65	0.08	0.76	0.11	0.11
v/c Ratio	0.26	0.21	0.33	0.60	0.56	0.43
Control Delay	6.6	1.9	33.8	14.4	47.1	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	1.9	33.8	14.4	47.1	12.0
LOS	A	A	C	B	D	B
Approach Delay	5.3			15.4	34.2	
Approach LOS	A			B	C	
90th %ile Green (s)	57.9	57.9	10.1	73.0	14.0	14.0
90th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
70th %ile Green (s)	60.2	60.2	8.9	74.1	12.9	12.9
70th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
50th %ile Green (s)	62.3	62.3	8.1	75.4	11.6	11.6
50th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
30th %ile Green (s)	64.5	64.5	7.2	76.7	10.3	10.3
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	78.6	78.6	0.0	78.6	8.4	8.4
10th %ile Term Code	Coord	Coord	Skip	Coord	Gap	Gap
Stops (vph)	107	18	78	837	177	19
Fuel Used(gal)	4	1	2	24	4	1
CO Emissions (g/hr)	313	87	144	1658	308	79
NOx Emissions (g/hr)	61	17	28	323	60	15
VOC Emissions (g/hr)	72	20	33	384	71	18
Dilemma Vehicles (#)	48	0	0	141	0	0
Queue Length 50th (ft)	35	0	31	353	70	0
Queue Length 95th (ft)	81	23	m40	510	100	46
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2335	1127	385	2727	490	337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.21	0.24	0.60	0.46	0.39

Intersection Summary

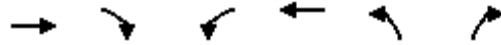
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	45
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	14.8
Intersection LOS:	B
Intersection Capacity Utilization	55.1%
ICU Level of Service	B
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	1914	325	149	1177	307	178
Future Volume (vph)	1914	325	149	1177	307	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	200		150	125
Storage Lanes		1	2		1	0
Taper Length (ft)			150		75	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3610	1615	3502	3610	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3610	1615	3502	3610	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		297				182
Link Speed (mph)	45			45	35	
Link Distance (ft)	715			1010	370	
Travel Time (s)	10.8			15.3	7.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	2103	357	164	1293	337	196
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2103	357	164	1293	337	196
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	L NA	R NA
Median Width(ft)	31			31	31	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			30	20	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	100	20	20	100	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	6	20	20	6	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	94			94		
Detector 2 Size(ft)	6			6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Prot	NA	Prot	Prot
Protected Phases	4		3	8	2	2
Permitted Phases		4				

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



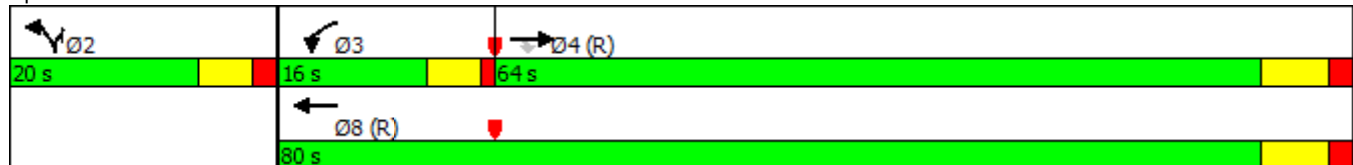
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4	4	3	8	2	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	10.0	22.0	11.0	11.0
Total Split (s)	64.0	64.0	16.0	80.0	20.0	20.0
Total Split (%)	64.0%	64.0%	16.0%	80.0%	20.0%	20.0%
Maximum Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
Yellow Time (s)	5.0	5.0	4.0	5.0	4.0	4.0
All-Red Time (s)	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
Total Lost Time (s)	7.0	7.0	5.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Act Effct Green (s)	59.1	59.1	9.6	73.8	13.2	13.2
Actuated g/C Ratio	0.59	0.59	0.10	0.74	0.13	0.13
v/c Ratio	0.99	0.33	0.49	0.49	0.73	0.53
Control Delay	18.5	1.1	57.3	1.2	51.4	13.1
Queue Delay	31.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.4	1.1	57.3	1.2	51.4	13.1
LOS	D	A	E	A	D	B
Approach Delay	42.4			7.5	37.3	
Approach LOS	D			A	D	
90th %ile Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
90th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
70th %ile Green (s)	57.0	57.0	11.0	73.0	14.0	14.0
70th %ile Term Code	Coord	Coord	Max	Coord	Max	Max
50th %ile Green (s)	58.0	58.0	10.0	73.0	14.0	14.0
50th %ile Term Code	Coord	Coord	Gap	Coord	Max	Max
30th %ile Green (s)	59.9	59.9	8.9	73.8	13.2	13.2
30th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
10th %ile Green (s)	63.8	63.8	7.3	76.1	10.9	10.9
10th %ile Term Code	Coord	Coord	Gap	Coord	Gap	Gap
Stops (vph)	1752	43	123	72	288	33
Fuel Used(gal)	38	2	4	9	7	2
CO Emissions (g/hr)	2647	148	297	622	513	130
NOx Emissions (g/hr)	515	29	58	121	100	25
VOC Emissions (g/hr)	613	34	69	144	119	30
Dilemma Vehicles (#)	11	0	0	12	0	0
Queue Length 50th (ft)	~770	20	46	18	106	8
Queue Length 95th (ft)	m686	m14	m65	m18	154	72
Internal Link Dist (ft)	635			930	290	
Turn Bay Length (ft)			200		150	125
Base Capacity (vph)	2134	1076	385	2663	490	382
Starvation Cap Reductn	184	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.33	0.43	0.49	0.69	0.51



Intersection Summary

























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	30.4
Intersection Capacity Utilization	80.9%
Intersection LOS:	C
ICU Level of Service	D
Analysis Period (min)	15
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	663	202	81	1418	102	192	20	112	1	1	3
Future Volume (vph)	243	663	202	81	1418	102	192	20	112	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	185		0	200		200	150		125	150		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			150			75			150		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3539	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			235			119			130			98
Link Speed (mph)		45			45			35				35
Link Distance (ft)		715			1010			370				429
Travel Time (s)		10.8			15.3			7.2				8.4
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	283	771	235	94	1649	119	223	23	130	1	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	283	771	235	94	1649	119	223	23	130	1	1	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	Right
Median Width(ft)		31			31			31				31
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			30			20				25
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94				94
Detector 2 Size(ft)		6			6			6				6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	22.0	10.0	10.0	22.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
Total Split (s)	10.0	64.0	15.0	10.0	64.0	15.0	15.0	11.0	10.0	15.0	11.0	10.0
Total Split (%)	10.0%	64.0%	15.0%	10.0%	64.0%	15.0%	15.0%	11.0%	10.0%	15.0%	11.0%	10.0%
Maximum Green (s)	5.0	57.0	10.0	5.0	57.0	10.0	10.0	5.0	5.0	10.0	5.0	5.0
Yellow Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	12.5	62.7	81.0	6.8	57.0	71.9	11.3	6.6	12.4	7.9	5.1	14.7
Actuated g/C Ratio	0.12	0.63	0.81	0.07	0.57	0.72	0.11	0.07	0.12	0.08	0.05	0.15
v/c Ratio	0.65	0.35	0.17	0.39	0.81	0.10	0.56	0.10	0.41	0.00	0.01	0.01
Control Delay	59.8	2.7	0.4	35.8	32.1	4.2	47.7	43.9	10.4	44.0	45.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	2.7	0.4	35.8	32.1	4.2	47.7	43.9	10.4	44.0	45.0	0.0
LOS	E	A	A	D	C	A	D	D	B	D	D	A
Approach Delay		14.8			30.5			34.5				17.8
Approach LOS		B			C			C				B
90th %ile Green (s)	5.0	57.0	10.0	5.0	57.0	5.7	10.0	9.3	5.0	5.7	5.0	5.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Max	Max
70th %ile Green (s)	7.9	57.0	18.1	7.9	57.0	5.6	18.1	6.5	7.9	5.6	0.0	7.9
70th %ile Term Code	Max	Coord	Hold	Max	Coord	Gap	Hold	Gap	Max	Gap	Skip	Max
50th %ile Green (s)	16.0	64.9	10.0	8.1	57.0	10.0	10.0	0.0	8.1	10.0	0.0	16.0
50th %ile Term Code	Max	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Max
30th %ile Green (s)	16.0	65.8	10.0	7.2	57.0	10.0	10.0	0.0	7.2	10.0	0.0	16.0
30th %ile Term Code	Max	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Max
10th %ile Green (s)	17.6	68.6	8.4	6.0	57.0	8.4	8.4	0.0	6.0	8.4	0.0	17.6
10th %ile Term Code	Max	Coord	Gap	Gap	Coord	Hold	Gap	Skip	Gap	Hold	Skip	Max
Stops (vph)	178	108	3	78	1120	34	177	20	18	3	3	0
Fuel Used(gal)	6	5	1	2	32	1	4	0	1	0	0	0
CO Emissions (g/hr)	440	334	69	146	2271	82	309	32	76	2	2	1
NOx Emissions (g/hr)	86	65	13	28	442	16	60	6	15	0	0	0
VOC Emissions (g/hr)	102	77	16	34	526	19	72	7	18	1	1	0
Dilemma Vehicles (#)	0	33	0	0	141	0	0	1	0	0	0	0
Queue Length 50th (ft)	95	13	0	27	476	2	71	7	0	0	0	0
Queue Length 95th (ft)	#214	26	0	m37	m585	m17	105	18	43	3	3	0
Internal Link Dist (ft)		635			930			290				349
Turn Bay Length (ft)	185			200		200	150		125	150		250
Base Capacity (vph)	437	2217	1356	239	2037	1226	407	238	314	350	184	320
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

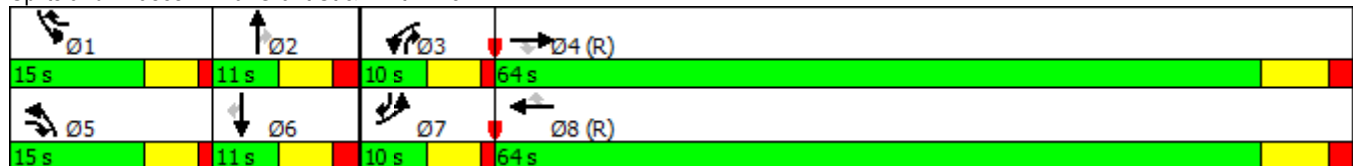
2037 Total Future Traffic Volumes  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.65	0.35	0.17	0.39	0.81	0.10	0.55	0.10	0.41	0.00	0.01	0.01

Intersection Summary

























Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 97 (97%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 25.2      Intersection LOS: C  
 Intersection Capacity Utilization 73.3%      ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	2057	325	149	1319	108	307	22	178	108	22	259
Future Volume (vph)	259	2057	325	149	1319	108	307	22	178	108	22	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	185		0	200		200	150		125	150		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			150			75			150		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3574	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3574	1615	3502	3574	1615	3502	3610	1615	3502	3610	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			340			119			82			82
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		715			1010			370			429	
Travel Time (s)		10.8			15.3			7.2			8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	285	2260	357	164	1449	119	337	24	196	119	24	285
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	2260	357	164	1449	119	337	24	196	119	24	285
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	Right
Median Width(ft)		31			31			31			31	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			30			20			25	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	22.0	10.0	10.0	22.0	10.0	10.0	11.0	10.0	10.0	11.0	10.0
Total Split (s)	15.0	72.0	18.0	15.0	72.0	18.0	18.0	15.0	15.0	18.0	15.0	15.0
Total Split (%)	12.5%	60.0%	15.0%	12.5%	60.0%	15.0%	15.0%	12.5%	12.5%	15.0%	12.5%	12.5%
Maximum Green (s)	10.0	65.0	13.0	10.0	65.0	13.0	13.0	9.0	10.0	13.0	9.0	10.0
Yellow Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	13.6	71.6	91.6	10.8	68.7	87.3	13.0	7.7	19.8	11.6	6.3	21.3
Actuated g/C Ratio	0.11	0.60	0.76	0.09	0.57	0.73	0.11	0.06	0.16	0.10	0.05	0.18
v/c Ratio	0.72	1.06	0.27	0.52	0.71	0.10	0.89	0.10	0.59	0.35	0.13	0.81
Control Delay	60.4	54.5	3.7	52.6	21.3	4.2	78.4	53.1	32.1	54.2	55.4	50.7
Queue Delay	0.0	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	71.7	3.7	52.6	21.3	4.2	78.4	53.1	32.1	54.2	55.4	50.7
LOS	E	E	A	D	C	A	E	D	C	D	E	D
Approach Delay		62.2			23.1			61.0			51.9	
Approach LOS		E			C			E			D	
90th %ile Green (s)	11.7	65.0	13.0	11.7	65.0	12.0	13.0	8.3	11.7	12.0	7.3	11.7
90th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Hold	Max	Gap	Gap	Max
70th %ile Green (s)	12.3	65.1	13.0	12.2	65.0	10.5	13.0	9.2	12.2	10.5	6.7	12.3
70th %ile Term Code	Max	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Max
50th %ile Green (s)	12.8	66.9	13.0	10.9	65.0	9.4	13.0	9.8	10.9	9.4	6.2	12.8
50th %ile Term Code	Max	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Max
30th %ile Green (s)	17.2	78.9	13.0	11.1	72.8	13.0	13.0	0.0	11.1	13.0	0.0	17.2
30th %ile Term Code	Gap	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Gap
10th %ile Green (s)	14.2	82.1	13.0	7.9	75.8	13.0	13.0	0.0	7.9	13.0	0.0	14.2
10th %ile Term Code	Gap	Coord	Max	Gap	Coord	Hold	Max	Skip	Gap	Hold	Skip	Gap
Stops (vph)	222	1817	82	128	1086	24	281	22	93	99	22	180
Fuel Used(gal)	7	55	3	4	28	1	9	1	3	2	0	5
CO Emissions (g/hr)	500	3841	194	291	1947	77	627	38	210	159	34	338
NOx Emissions (g/hr)	97	747	38	57	379	15	122	7	41	31	7	66
VOC Emissions (g/hr)	116	890	45	67	451	18	145	9	49	37	8	78
Dilemma Vehicles (#)	0	9	0	0	21	0	0	1	0	0	1	0
Queue Length 50th (ft)	104	~1107	51	56	515	17	135	9	75	45	9	148
Queue Length 95th (ft)	m101	m#975	m45	m71	m605	m25	#218	24	151	75	24	250
Internal Link Dist (ft)		635			930			290			349	
Turn Bay Length (ft)	185			200		200	150		125	150		250
Base Capacity (vph)	397	2132	1313	326	2046	1224	379	276	340	379	270	353
Starvation Cap Reductn	0	339	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
20: Grant St & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour

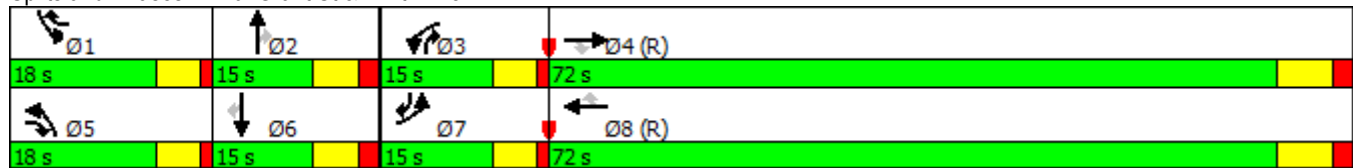
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.72	1.26	0.27	0.50	0.71	0.10	0.89	0.09	0.58	0.31	0.09	0.81

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 20 (17%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 49.2      Intersection LOS: D  
 Intersection Capacity Utilization 91.5%      ICU Level of Service F  
 Analysis Period (min) 15


































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

Splits and Phases: 20: Grant St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	  	
Traffic Volume (vph)	184	318	177	175	1157	68	154	169	40	9	242	226
Future Volume (vph)	184	318	177	175	1157	68	154	169	40	9	242	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3502	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			199			207			207			254
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Adj. Flow (vph)	207	357	199	197	1300	76	173	190	45	10	272	254
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	357	199	197	1300	76	173	190	45	10	272	254
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	25.0	39.0	39.0	15.0	29.0	29.0	15.0	34.0	34.0	12.0	31.0	31.0
Total Split (%)	25.0%	39.0%	39.0%	15.0%	29.0%	29.0%	15.0%	34.0%	34.0%	12.0%	31.0%	31.0%
Maximum Green (s)	20.0	32.0	32.0	10.0	22.0	22.0	10.0	27.0	27.0	7.0	24.0	24.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	11.2	44.6	44.6	10.9	44.2	44.2	9.3	23.3	23.3	5.8	11.2	11.2
Actuated g/C Ratio	0.11	0.45	0.45	0.11	0.44	0.44	0.09	0.23	0.23	0.06	0.11	0.11
v/c Ratio	0.53	0.22	0.24	0.52	0.81	0.09	0.53	0.23	0.08	0.05	0.47	0.63
Control Delay	46.9	12.1	4.0	46.6	30.9	0.2	49.4	32.1	0.3	49.3	43.3	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	12.1	4.0	46.6	30.9	0.2	49.4	32.1	0.3	49.3	43.3	12.1
LOS	D	B	A	D	C	A	D	C	A	D	D	B
Approach Delay		19.4			31.4			35.9			28.6	
Approach LOS		B			C			D			C	
90th %ile Green (s)	14.3	36.8	36.8	13.9	36.4	36.4	10.0	18.9	18.9	6.4	15.3	15.3
90th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
70th %ile Green (s)	12.5	41.4	41.4	12.1	41.0	41.0	10.0	27.5	27.5	0.0	12.5	12.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Gap	Gap
50th %ile Green (s)	11.2	44.5	44.5	10.9	44.2	44.2	10.0	25.6	25.6	0.0	10.6	10.6
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Skip	Gap	Gap
30th %ile Green (s)	10.0	47.6	47.6	9.7	47.3	47.3	9.1	23.7	23.7	0.0	9.6	9.6
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
10th %ile Green (s)	8.1	52.5	52.5	7.9	52.3	52.3	7.4	20.6	20.6	0.0	8.2	8.2
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Hold	Hold	Skip	Gap	Gap
Stops (vph)	153	178	63	160	920	0	143	133	0	12	216	36
Fuel Used(gal)	5	5	2	6	33	1	7	7	1	0	8	3
CO Emissions (g/hr)	340	355	146	410	2331	60	499	475	53	27	560	208
NOx Emissions (g/hr)	66	69	28	80	453	12	97	92	10	5	109	40
VOC Emissions (g/hr)	79	82	34	95	540	14	116	110	12	6	130	48
Dilemma Vehicles (#)	0	27	0	0	56	0	0	7	0	0	10	0
Queue Length 50th (ft)	57	62	0	61	370	0	54	50	0	3	60	0
Queue Length 95th (ft)	68	120	80	93	#573	0	88	86	0	12	66	51
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	700	1608	830	398	1597	829	350	968	588	245	1244	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

2037 Background Traffic Volumes  
 AM Peak Hour

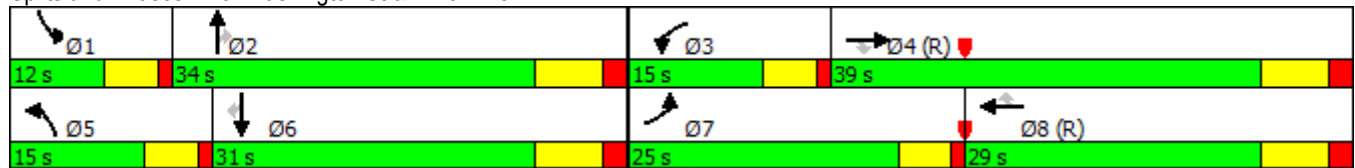


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.30	0.22	0.24	0.49	0.81	0.09	0.49	0.20	0.08	0.04	0.22	0.44

Intersection Summary































Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	45 (45%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	28.7
Intersection LOS:	C
Intersection Capacity Utilization	66.3%
ICU Level of Service	C
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 		
Traffic Volume (vph)	353	1257	565	110	665	73	315	362	132	137	485	320
Future Volume (vph)	353	1257	565	110	665	73	315	362	132	137	485	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	150			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			337			153			153			264
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	406	1445	649	126	764	84	362	416	152	157	557	368
Shared Lane Traffic (%)												
Lane Group Flow (vph)	406	1445	649	126	764	84	362	416	152	157	557	368
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	17.0	10.0	12.0	12.0	10.0	12.0	12.0	10.0	12.0	12.0
Total Split (s)	16.0	33.0	33.0	16.0	33.0	33.0	16.0	35.0	35.0	16.0	35.0	35.0
Total Split (%)	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	16.0%	35.0%	35.0%	16.0%	35.0%	35.0%
Maximum Green (s)	11.0	26.0	26.0	11.0	26.0	26.0	11.0	28.0	28.0	11.0	28.0	28.0
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	17.9	37.3	37.3	8.9	28.4	28.4	11.0	20.2	20.2	9.5	18.7	18.7
Actuated g/C Ratio	0.18	0.37	0.37	0.09	0.28	0.28	0.11	0.20	0.20	0.10	0.19	0.19
v/c Ratio	0.66	1.07	0.80	0.40	0.75	0.15	0.94	0.57	0.34	0.47	0.57	0.71
Control Delay	28.5	77.4	28.0	46.5	38.8	0.6	78.3	38.8	7.2	55.9	35.8	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	77.4	28.0	46.5	38.8	0.6	78.3	38.8	7.2	55.9	35.8	16.2
LOS	C	E	C	D	D	A	E	D	A	E	D	B
Approach Delay		56.6			36.5			49.0			32.0	
Approach LOS		E			D			D			C	
90th %ile Green (s)	12.1	26.8	26.8	11.3	26.0	26.0	11.0	26.9	26.9	11.0	26.9	26.9
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Max	Gap	Gap
70th %ile Green (s)	19.0	35.1	35.1	9.9	26.0	26.0	11.0	20.1	20.1	10.9	20.0	20.0
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
50th %ile Green (s)	19.2	38.3	38.3	8.9	28.0	28.0	11.0	19.0	19.0	9.8	17.8	17.8
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	19.2	41.5	41.5	8.0	30.3	30.3	11.0	17.8	17.8	8.7	15.5	15.5
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	19.8	44.9	44.9	6.6	31.7	31.7	11.0	17.4	17.4	7.1	13.5	13.5
10th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Max	Hold	Hold	Gap	Gap	Gap
Stops (vph)	272	1074	373	100	582	0	279	314	18	134	428	170
Fuel Used(gal)	8	41	12	4	21	1	16	16	3	5	15	7
CO Emissions (g/hr)	541	2895	808	257	1461	65	1132	1089	213	357	1065	468
NOx Emissions (g/hr)	105	563	157	50	284	13	220	212	41	69	207	91
VOC Emissions (g/hr)	125	671	187	60	339	15	262	252	49	83	247	108
Dilemma Vehicles (#)	0	8	0	0	33	0	0	16	0	0	19	0
Queue Length 50th (ft)	106	~548	320	39	234	0	120	128	0	54	123	63
Queue Length 95th (ft)	m#141	m#729	m326	64	300	0	#196	154	42	85	139	141
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	200		200	175		150	225		200	325		250
Base Capacity (vph)	619	1347	813	387	1014	568	385	1010	562	385	1452	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

2037 Background Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.66	1.07	0.80	0.33	0.75	0.15	0.94	0.41	0.27	0.41	0.38	0.57

Intersection Summary

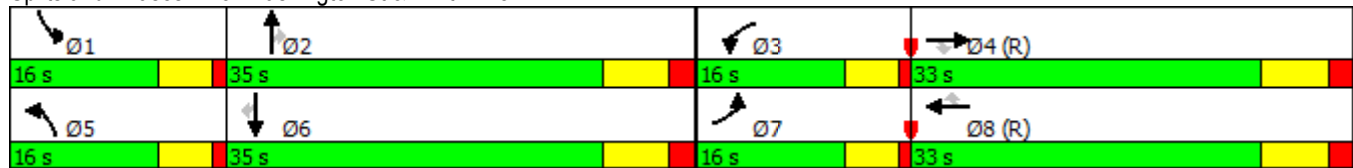
Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 93 (93%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 46.9      Intersection LOS: D  
 Intersection Capacity Utilization 77.3%      ICU Level of Service D  
 Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

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


































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

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	  	
Traffic Volume (vph)	322	318	178	175	1157	119	256	352	40	10	244	240
Future Volume (vph)	322	318	178	175	1157	119	256	352	40	10	244	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	165			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3335	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3335	3610	1615	3502	3610	1615	3502	3574	1615	3502	5187	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			197			153			153			98
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	5%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	6%
Adj. Flow (vph)	362	357	200	197	1300	134	288	396	45	11	274	270
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	357	200	197	1300	134	288	396	45	11	274	270
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	10.0	10.0	12.0	10.0	10.0	12.0	10.0	10.0	12.0	10.0
Total Split (s)	25.0	39.0	15.0	15.0	29.0	12.0	15.0	34.0	15.0	12.0	31.0	25.0
Total Split (%)	25.0%	39.0%	15.0%	15.0%	29.0%	12.0%	15.0%	34.0%	15.0%	12.0%	31.0%	25.0%
Maximum Green (s)	20.0	32.0	10.0	10.0	22.0	7.0	10.0	27.0	10.0	7.0	24.0	20.0
Yellow Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	16.2	42.8	59.8	10.9	37.5	50.3	10.0	16.5	34.4	5.9	12.3	35.5
Actuated g/C Ratio	0.16	0.43	0.60	0.11	0.38	0.50	0.10	0.16	0.34	0.06	0.12	0.36
v/c Ratio	0.67	0.23	0.19	0.52	0.96	0.15	0.82	0.67	0.07	0.05	0.43	0.45
Control Delay	42.5	10.7	3.2	46.6	49.4	2.6	64.2	44.9	0.2	46.1	59.9	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	10.7	3.2	46.6	49.4	2.6	64.2	44.9	0.2	46.1	59.9	17.6
LOS	D	B	A	D	D	A	E	D	A	D	E	B
Approach Delay		21.6			45.2			49.8			39.0	
Approach LOS		C			D			D			D	
90th %ile Green (s)	21.0	35.0	10.0	13.9	27.9	6.5	10.0	20.6	13.9	6.5	17.1	21.0
90th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Gap	Gap	Gap	Hold	Gap
70th %ile Green (s)	17.8	39.8	10.0	12.1	34.1	6.0	10.0	18.1	12.1	6.0	14.1	17.8
70th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Gap	Gap	Gap	Hold	Gap
50th %ile Green (s)	16.0	42.9	10.0	10.9	37.8	5.8	10.0	16.4	10.9	5.8	12.2	16.0
50th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Gap	Gap	Gap	Hold	Gap
30th %ile Green (s)	14.3	46.2	10.0	9.7	41.6	5.5	10.0	14.6	9.7	5.5	10.1	14.3
30th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Gap	Gap	Gap	Hold	Gap
10th %ile Green (s)	11.8	49.9	10.0	7.9	46.0	5.5	10.0	12.7	7.9	5.5	8.2	11.8
10th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Gap
Stops (vph)	264	168	44	160	910	9	235	320	0	12	232	108
Fuel Used(gal)	8	5	2	6	38	2	13	16	1	0	9	5
CO Emissions (g/hr)	572	340	128	410	2628	117	880	1109	53	28	641	330
NOx Emissions (g/hr)	111	66	25	80	511	23	171	216	10	5	125	64
VOC Emissions (g/hr)	133	79	30	95	609	27	204	257	12	6	149	77
Dilemma Vehicles (#)	0	23	0	0	51	0	0	15	0	0	24	0
Queue Length 50th (ft)	108	61	13	61	417	0	94	126	0	3	69	54
Queue Length 95th (ft)	122	83	23	93	#681	26	#158	165	0	13	97	72
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	300		200	175		150	225		200	325		250
Base Capacity (vph)	674	1543	1044	398	1353	905	350	964	662	245	1244	661
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

2037 Total Future Traffic Volumes  
 AM Peak Hour

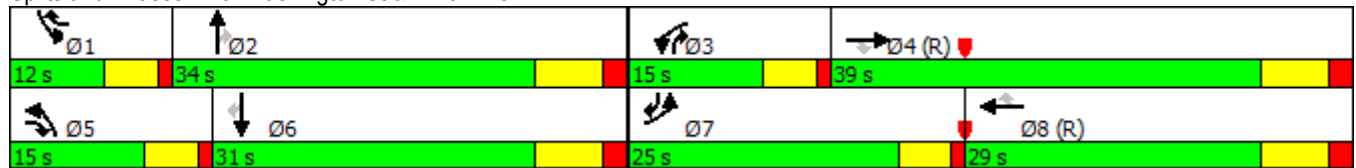


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.54	0.23	0.19	0.49	0.96	0.15	0.82	0.41	0.07	0.04	0.22	0.41

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	45 (45%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	39.5
Intersection LOS:	D
Intersection Capacity Utilization	75.1%
ICU Level of Service	D
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

























Splits and Phases: 3: Washington St & 144th Ave





Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	496	1257	673	110	665	127	423	556	132	191	679	462
Future Volume (vph)	496	1257	673	110	665	127	423	556	132	191	679	462
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		200	175		150	225		200	325		250
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	165			125			100			200		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3400	3610	1615	3502	3574	1615	3502	3610	1615	3502	5187	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			127			127			82
Link Speed (mph)		45			45			55			55	
Link Distance (ft)		1010			525			623			1222	
Travel Time (s)		15.3			8.0			7.7			15.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	570	1445	774	126	764	146	486	639	152	220	780	531
Shared Lane Traffic (%)												
Lane Group Flow (vph)	570	1445	774	126	764	146	486	639	152	220	780	531
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		31			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		50			40			50			50	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lanes, Volumes, Timings  
3: Washington St & 144th Ave

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	17.0	10.0	10.0	12.0	10.0	10.0	12.0	10.0	10.0	12.0	10.0
Total Split (s)	25.0	46.0	23.0	16.0	37.0	23.0	23.0	35.0	16.0	23.0	35.0	25.0
Total Split (%)	20.8%	38.3%	19.2%	13.3%	30.8%	19.2%	19.2%	29.2%	13.3%	19.2%	29.2%	20.8%
Maximum Green (s)	20.0	39.0	18.0	11.0	30.0	18.0	18.0	28.0	11.0	18.0	28.0	20.0
Yellow Time (s)	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	23.5	44.7	69.7	9.4	30.5	50.4	18.0	29.1	45.5	12.8	23.9	54.5
Actuated g/C Ratio	0.20	0.37	0.58	0.08	0.25	0.42	0.15	0.24	0.38	0.11	0.20	0.45
v/c Ratio	0.86	1.08	0.80	0.46	0.84	0.19	0.93	0.73	0.22	0.59	0.75	0.70
Control Delay	41.2	77.5	34.7	58.1	52.2	5.5	75.2	47.4	6.7	57.3	50.1	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	77.5	34.7	58.1	52.2	5.5	75.2	47.4	6.7	57.3	50.1	27.7
LOS	D	E	C	E	D	A	E	D	A	E	D	C
Approach Delay		58.2			46.3			53.1			43.4	
Approach LOS		E			D			D			D	
90th %ile Green (s)	20.0	39.0	18.0	11.0	30.0	16.3	18.0	29.7	11.0	16.3	28.0	20.0
90th %ile Term Code	Max	Coord	Max	Max	Coord	Gap	Max	Max	Max	Gap	Max	Max
70th %ile Green (s)	21.4	40.7	18.0	10.7	30.0	14.3	18.0	30.3	10.7	14.3	26.6	21.4
70th %ile Term Code	Max	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Max
50th %ile Green (s)	24.0	44.3	18.0	9.7	30.0	12.8	18.0	29.2	9.7	12.8	24.0	24.0
50th %ile Term Code	Max	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Max
30th %ile Green (s)	25.7	47.1	18.0	8.6	30.0	11.4	18.0	28.9	8.6	11.4	22.3	25.7
30th %ile Term Code	Max	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Max
10th %ile Green (s)	26.5	52.2	18.0	7.0	32.7	9.3	18.0	27.5	7.0	9.3	18.8	26.5
10th %ile Term Code	Gap	Coord	Max	Gap	Coord	Gap	Max	Hold	Gap	Gap	Gap	Gap
Stops (vph)	410	1090	585	101	605	17	383	500	22	179	621	318
Fuel Used(gal)	13	42	16	4	23	2	22	25	3	7	24	12
CO Emissions (g/hr)	875	2911	1150	276	1608	137	1513	1764	217	492	1657	845
NOx Emissions (g/hr)	170	566	224	54	313	27	294	343	42	96	322	164
VOC Emissions (g/hr)	203	675	266	64	373	32	351	409	50	114	384	196
Dilemma Vehicles (#)	0	15	0	0	27	0	0	21	0	0	25	0
Queue Length 50th (ft)	202	~678	587	48	298	9	193	240	12	85	210	273
Queue Length 95th (ft)	m216	m#711	m570	76	358	43	#276	293	50	118	237	384
Internal Link Dist (ft)		930			445			543			1142	
Turn Bay Length (ft)	300		200	175		150	225		200	325		250
Base Capacity (vph)	666	1343	972	321	909	816	525	879	711	525	1210	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0

Lanes, Volumes, Timings  
 3: Washington St & 144th Ave

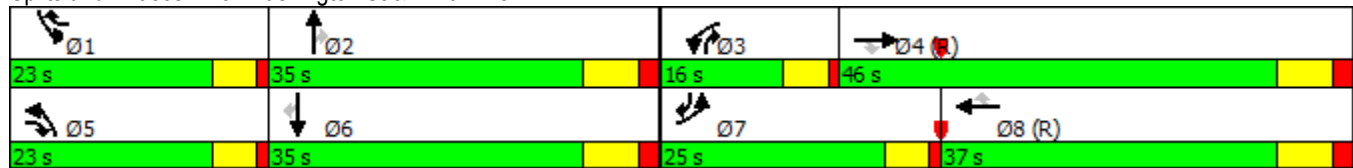
2037 Total Future Traffic Volumes  
 PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.86	1.08	0.80	0.39	0.84	0.18	0.93	0.73	0.21	0.42	0.64	0.70

Intersection Summary



























Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 93 (78%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 52.0 Intersection LOS: D  
 Intersection Capacity Utilization 84.1% ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Washington St & 144th Ave



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Background Traffic Volumes  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				 			  	
Traffic Volume (vph)	0	0	0	2	0	2	0	280	15	2	454	0
Future Volume (vph)	0	0	0	2	0	2	0	280	15	2	454	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3574	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					611				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	2	0	2	0	308	16	2	499	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	2	2	0	0	308	16	2	499	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Background Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases									2			6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				7.6	6.0			94.0	94.0	5.7	96.2	
Actuated g/C Ratio				0.08	0.06			0.94	0.94	0.06	0.96	
v/c Ratio				0.01	0.00			0.09	0.01	0.02	0.10	
Control Delay				42.5	0.0			0.3	0.0	45.0	0.6	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				42.5	0.0			0.3	0.0	45.0	0.6	
LOS				D	A			A	A	D	A	
Approach Delay					21.3			0.3			0.8	
Approach LOS					C			A			A	
90th %ile Green (s)	0.0	0.0		7.8	7.8		0.0	70.1	70.1	6.1	81.2	81.2
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
70th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
50th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
30th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				3	0			4	0	3	22	
Fuel Used(gal)				0	0			2	0	0	7	
CO Emissions (g/hr)				2	0			158	8	7	478	
NOx Emissions (g/hr)				0	0			31	2	1	93	
VOC Emissions (g/hr)				1	0			37	2	2	111	
Dilemma Vehicles (#)				0	0			1	0	0	6	
Queue Length 50th (ft)				0	0			0	0	1	0	
Queue Length 95th (ft)				4	0			6	0	9	24	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	761			3360	1533	270	4992	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2037 Background Traffic Volumes  
 AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio				0.00	0.00			0.09	0.01	0.01	0.10	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	12 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.10
Intersection Signal Delay:	0.7
Intersection LOS:	A
Intersection Capacity Utilization	25.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 23: Washington St & 146th Ave/School Drwy

Ø1	Ø2 (R)	Ø3	Ø4
20 s	49 s	20 s	11 s
Ø5	Ø6 (R)	Ø7	Ø8
11 s	58 s	11 s	20 s

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	84	0	13	0	566	40	10	701	0
Future Volume (vph)	0	0	0	84	0	13	0	566	40	10	701	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		0	275		125	175		75
Storage Lanes	1		0	2		0	1		1	1		1
Taper Length (ft)	50			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Frt					0.850				0.850			
Flt Protected				0.950						0.950		
Satd. Flow (prot)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	1900	1900	0	3502	1615	0	1900	3610	1615	1805	5187	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					402				240			
Link Speed (mph)		35			25			55			55	
Link Distance (ft)		415			277			1222			393	
Travel Time (s)		8.1			7.6			15.1			4.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	0	0	98	0	15	0	658	47	12	815	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	98	15	0	0	658	47	12	815	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Background Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0		10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0		20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%		20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0		15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0		4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)				10.1	9.6			80.2	80.2	6.3	82.7	
Actuated g/C Ratio				0.10	0.10			0.80	0.80	0.06	0.83	
v/c Ratio				0.28	0.03			0.23	0.04	0.11	0.19	
Control Delay				43.1	0.1			1.2	0.1	45.8	2.6	
Queue Delay				0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay				43.1	0.1			1.2	0.1	45.8	2.6	
LOS				D	A			A	A	D	A	
Approach Delay					37.4			1.2			3.2	
Approach LOS					D			A			A	
90th %ile Green (s)	0.0	0.0		12.2	12.2		0.0	64.2	64.2	7.6	76.8	76.8
90th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0		11.0	11.0		0.0	78.0	78.0	0.0	78.0	78.0
70th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0		10.1	10.1		0.0	78.9	78.9	0.0	78.9	78.9
50th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0		9.3	9.3		0.0	79.7	79.7	0.0	79.7	79.7
30th %ile Term Code	Skip	Skip		Gap	Hold		Skip	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0		0.0	0.0		0.0	94.0	94.0	0.0	94.0	94.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Skip	Coord	Coord	Skip	Coord	Coord
Stops (vph)				75	0			24	0	11	136	
Fuel Used(gal)				1	0			5	0	0	13	
CO Emissions (g/hr)				85	2			347	22	31	891	
NOx Emissions (g/hr)				17	0			68	4	6	173	
VOC Emissions (g/hr)				20	1			81	5	7	206	
Dilemma Vehicles (#)				0	0			30	0	0	30	
Queue Length 50th (ft)				30	0			3	0	7	37	
Queue Length 95th (ft)				52	0			30	m0	25	50	
Internal Link Dist (ft)		335			197			1142			313	
Turn Bay Length (ft)				100					125	175		
Base Capacity (vph)				525	583			2893	1342	270	4288	
Starvation Cap Reductn				0	0			0	0	0	0	
Spillback Cap Reductn				0	0			0	0	0	0	
Storage Cap Reductn				0	0			0	0	0	0	
Reduced v/c Ratio				0.19	0.03			0.23	0.04	0.04	0.19	



Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	58 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.28
Intersection Signal Delay:	4.7
Intersection LOS:	A
Intersection Capacity Utilization	29.0%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	4	2	0	2	356	296	15	2	467	20
Future Volume (vph)	1	0	4	2	0	2	356	296	15	2	467	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		250	100		0	275		125	175		75
Storage Lanes	1		1	2		0	2		1	1		1
Taper Length (ft)	135			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt			0.850		0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	3502	1615	0	3502	3406	1615	1805	5036	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1900	1615	3502	1615	0	3502	3406	1615	1805	5036	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			438		593				240			185
Link Speed (mph)		35		25				55				55
Link Distance (ft)		509		277				1222				393
Travel Time (s)		9.9		7.6				15.1				4.9
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	3%	0%
Adj. Flow (vph)	1	0	4	2	0	2	391	325	16	2	513	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	0	4	2	2	0	391	325	16	2	513	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	L NA	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24		24				32			32	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		40		40				40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94		94				94			94	
Detector 2 Size(ft)		6		6				6			6	
Detector 2 Type		Cl+Ex		Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0		0.0				0.0			0.0	
Turn Type	Prot		pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0	11.0	20.0	20.0		11.0	49.0	49.0	20.0	58.0	58.0
Total Split (%)	11.0%	11.0%	11.0%	20.0%	20.0%		11.0%	49.0%	49.0%	20.0%	58.0%	58.0%
Maximum Green (s)	6.0	6.0	6.0	15.0	15.0		6.0	43.0	43.0	15.0	52.0	52.0
Yellow Time (s)	4.0	3.0	4.0	4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.6		23.9	9.3	5.5		23.9	92.3	92.3	5.7	60.8	60.8
Actuated g/C Ratio	0.06		0.24	0.09	0.06		0.24	0.92	0.92	0.06	0.61	0.61
v/c Ratio	0.01		0.01	0.01	0.00		0.47	0.10	0.01	0.02	0.17	0.02
Control Delay	45.0		0.0	38.0	0.0		53.7	0.6	0.0	45.0	9.0	0.1
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0		0.0	38.0	0.0		53.7	0.6	0.0	45.0	9.0	0.1
LOS	D		A	D	A		D	A	A	D	A	A
Approach Delay		9.0			19.0			29.0			8.7	
Approach LOS		A			B			C			A	
90th %ile Green (s)	5.9	0.0	15.6	16.4	5.5		15.6	61.5	61.5	6.1	52.0	52.0
90th %ile Term Code	Gap	Skip	Max	Hold	Gap		Max	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	0.0	0.0	20.1	0.0	0.0		20.1	94.0	94.0	0.0	68.9	68.9
70th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0	21.5	0.0	0.0		21.5	94.0	94.0	0.0	67.5	67.5
50th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0	25.2	0.0	0.0		25.2	94.0	94.0	0.0	63.8	63.8
30th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0	37.0	0.0	0.0		37.0	94.0	94.0	0.0	52.0	52.0
10th %ile Term Code	Skip	Skip	Max	Skip	Skip		Max	Coord	Coord	Skip	Coord	Coord
Stops (vph)	3		0	3	0		350	6	0	3	189	0
Fuel Used(gal)	0		0	0	0		13	2	0	0	9	0
CO Emissions (g/hr)	3		2	2	0		919	171	8	6	608	13
NOx Emissions (g/hr)	1		0	0	0		179	33	2	1	118	3
VOC Emissions (g/hr)	1		0	1	0		213	40	2	2	141	3
Dilemma Vehicles (#)	0		0	0	0		0	3	0	0	23	0
Queue Length 50th (ft)	1		0	0	0		136	0	0	1	38	0
Queue Length 95th (ft)	6		0	4	0		187	11	m0	9	81	0
Internal Link Dist (ft)		429			197			1142			313	
Turn Bay Length (ft)	100		250	100			275		125	175		75
Base Capacity (vph)	108		719	535	746		836	3144	1509	270	3063	1055
Starvation Cap Reductn	0		0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0		0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0		0	0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
 AM Peak Hour

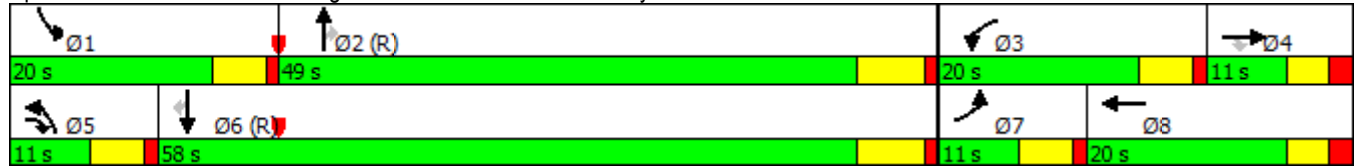


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.01		0.01	0.00	0.00		0.47	0.10	0.01	0.01	0.17	0.02

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 12 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 20.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 40.2%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



Lanes, Volumes, Timings  
23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	0	378	84	0	13	378	579	40	10	713	22
Future Volume (vph)	22	0	378	84	0	13	378	579	40	10	713	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		250	100		0	275		125	175		75
Storage Lanes	1		1	2		0	2		1	1		1
Taper Length (ft)	135			25			150			100		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.91	1.00
Frt			0.850		0.850				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1615	3502	1615	0	3502	3539	1615	1805	5085	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1805	1900	1615	3502	1615	0	3502	3539	1615	1805	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		407				185			185
Link Speed (mph)		35			25			55				55
Link Distance (ft)		509			277			1222				393
Travel Time (s)		9.9			7.6			15.1				4.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Adj. Flow (vph)	26	0	440	98	0	15	440	673	47	12	829	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	0	440	98	15	0	440	673	47	12	829	26
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	L NA	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(ft)		24			24			32			32	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		40			40			40			37	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot		pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	5	3	8		5	2		1	6	

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4						2			6
Detector Phase	7	4	5	3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	10.0	10.0	10.0	10.0		10.0	21.0	21.0	10.0	21.0	21.0
Total Split (s)	11.0	11.0	20.0	20.0	20.0		20.0	49.0	49.0	20.0	49.0	49.0
Total Split (%)	11.0%	11.0%	20.0%	20.0%	20.0%		20.0%	49.0%	49.0%	20.0%	49.0%	49.0%
Maximum Green (s)	6.0	6.0	15.0	15.0	15.0		15.0	43.0	43.0	15.0	43.0	43.0
Yellow Time (s)	4.0	3.0	4.0	4.0	3.0		4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0		1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	5.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	5.9		22.2	12.1	7.2		22.2	78.2	78.2	6.3	52.3	52.3
Actuated g/C Ratio	0.06		0.22	0.12	0.07		0.22	0.78	0.78	0.06	0.52	0.52
v/c Ratio	0.25		0.92	0.23	0.03		0.57	0.24	0.04	0.11	0.31	0.03
Control Delay	50.8		49.4	39.8	0.1		37.2	5.0	0.1	45.8	15.9	0.0
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8		49.4	39.8	0.1		37.2	5.0	0.1	45.8	15.9	0.0
LOS	D		D	D	A		D	A	A	D	B	A
Approach Delay		49.4			34.5			17.0			15.9	
Approach LOS		D			C			B			B	
90th %ile Green (s)	6.0	0.0	24.5	16.5	5.5		24.5	59.9	59.9	7.6	43.0	43.0
90th %ile Term Code	Max	Skip	Max	Hold	Gap		Max	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	6.0	0.0	24.5	16.5	5.5		24.5	72.5	72.5	0.0	43.0	43.0
70th %ile Term Code	Max	Skip	Max	Hold	Gap		Max	Coord	Coord	Skip	Coord	Coord
50th %ile Green (s)	0.0	0.0	25.6	10.1	10.1		25.6	78.9	78.9	0.0	48.3	48.3
50th %ile Term Code	Skip	Skip	Gap	Gap	Hold		Gap	Coord	Coord	Skip	Coord	Coord
30th %ile Green (s)	0.0	0.0	21.6	9.3	9.3		21.6	79.7	79.7	0.0	53.1	53.1
30th %ile Term Code	Skip	Skip	Gap	Gap	Hold		Gap	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	0.0	0.0	14.8	0.0	0.0		14.8	94.0	94.0	0.0	74.2	74.2
10th %ile Term Code	Skip	Skip	Gap	Skip	Skip		Gap	Coord	Coord	Skip	Coord	Coord
Stops (vph)	23		232	73	0		324	162	0	11	403	0
Fuel Used(gal)	1		8	1	0		12	8	0	0	16	0
CO Emissions (g/hr)	39		578	81	2		825	565	22	27	1147	14
NOx Emissions (g/hr)	8		113	16	0		161	110	4	5	223	3
VOC Emissions (g/hr)	9		134	19	1		191	131	5	6	266	3
Dilemma Vehicles (#)	0		0	0	0		0	25	0	0	35	0
Queue Length 50th (ft)	16		176	30	0		123	45	0	7	115	0
Queue Length 95th (ft)	41		#318	49	0		164	128	0	25	153	0
Internal Link Dist (ft)		429			197			1142			313	
Turn Bay Length (ft)	100		250	100			275		125	175		75
Base Capacity (vph)	108		481	546	588		778	2767	1303	270	2660	933
Starvation Cap Reductn	0		0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0		0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0		0	0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 23: Washington St & 146th Ave/School Drwy

2037 Total Future Traffic Volumes  
 PM Peak Hour

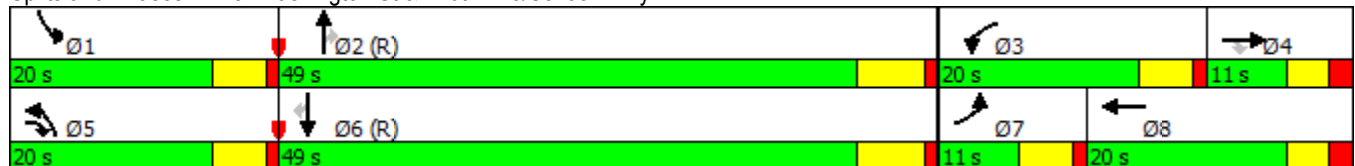


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.24		0.91	0.18	0.03		0.57	0.24	0.04	0.04	0.31	0.03

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 58 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 23.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 54.7%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 23: Washington St & 146th Ave/School Drwy



**Intersection**

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	36	0	85	0	26	117	5
Future Vol, veh/h	13	0	0	0	0	36	0	85	0	26	117	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	0	0	0	46	0	109	0	33	150	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	352	329	153	329	332	109	156	0	0	109	0	0
Stage 1	220	220	-	109	109	-	-	-	-	-	-	-
Stage 2	132	109	-	220	223	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	607	593	898	628	591	950	1436	-	-	1494	-	-
Stage 1	787	725	-	901	809	-	-	-	-	-	-	-
Stage 2	876	809	-	787	723	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	567	579	898	616	577	950	1436	-	-	1494	-	-
Mov Cap-2 Maneuver	567	579	-	616	577	-	-	-	-	-	-	-
Stage 1	787	708	-	901	809	-	-	-	-	-	-	-
Stage 2	833	809	-	768	706	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	9	0	1.3
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1436	-	-	567	-	950	1494	-	-
HCM Lane V/C Ratio	-	-	-	0.029	-	0.049	0.022	-	-
HCM Control Delay (s)	0	-	-	11.5	0	9	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.2	0.1	-	-



**Intersection**

Int Delay, s/veh 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕				↕	
Traffic Vol, veh/h	11	2	0	2	3	59	1	285	3	47	296	18
Future Vol, veh/h	11	2	0	2	3	59	1	285	3	47	296	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	3	0	3	4	79	1	380	4	63	395	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	956	915	407	916	927	380	419	0	0	380	0	0
Stage 1	532	532	-	383	383	-	-	-	-	-	-	-
Stage 2	424	383	-	533	544	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	240	275	648	255	270	671	1151	-	-	1190	-	-
Stage 1	535	529	-	644	616	-	-	-	-	-	-	-
Stage 2	612	616	-	534	522	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	198	256	648	239	251	671	1151	-	-	1190	-	-
Mov Cap-2 Maneuver	198	256	-	239	251	-	-	-	-	-	-	-
Stage 1	534	492	-	643	615	-	-	-	-	-	-	-
Stage 2	536	615	-	494	486	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.2	12	0	1.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	205	239	621	1190	-	-
HCM Lane V/C Ratio	0.001	-	-	0.085	0.011	0.133	0.053	-	-
HCM Control Delay (s)	8.1	0	-	24.2	20.2	11.7	8.2	0	-
HCM Lane LOS	A	A	-	C	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.5	0.2	-	-

**Intersection**

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	13	0	0	0	0	36	0	85	0	26	117	249
Future Vol, veh/h	13	0	0	0	0	36	0	85	0	26	117	249
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	0	0	0	0	46	0	109	0	33	150	319

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	508	485	310	485	645	109	469	0	0	109	0	0
Stage 1	376	376	-	109	109	-	-	-	-	-	-	-
Stage 2	132	109	-	376	536	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	479	485	735	496	393	950	1103	-	-	1494	-	-
Stage 1	649	620	-	901	809	-	-	-	-	-	-	-
Stage 2	876	809	-	649	527	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	445	470	735	484	381	950	1103	-	-	1494	-	-
Mov Cap-2 Maneuver	445	470	-	484	381	-	-	-	-	-	-	-
Stage 1	649	601	-	901	809	-	-	-	-	-	-	-
Stage 2	833	809	-	629	511	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	9	0	0.5
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1103	-	-	445	-	950	1494	-	-
HCM Lane V/C Ratio	-	-	-	0.037	-	0.049	0.022	-	-
HCM Control Delay (s)	0	-	-	13.4	0	9	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.2	0.1	-	-

**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	11	2	0	2	3	59	1	285	3	47	296	278
Future Vol, veh/h	11	2	0	2	3	59	1	285	3	47	296	278
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	3	0	3	4	79	1	380	4	63	395	371

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1129	1088	580	1090	1274	380	765	0	0	380	0	0
Stage 1	705	705	-	383	383	-	-	-	-	-	-	-
Stage 2	424	383	-	707	891	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	183	218	518	194	169	671	857	-	-	1190	-	-
Stage 1	430	442	-	644	616	-	-	-	-	-	-	-
Stage 2	612	616	-	429	363	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	146	196	518	177	152	671	857	-	-	1190	-	-
Mov Cap-2 Maneuver	146	196	-	177	152	-	-	-	-	-	-	-
Stage 1	430	398	-	643	615	-	-	-	-	-	-	-
Stage 2	536	615	-	384	327	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.7	12.7	0	0.6
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	857	-	-	152	177	576	1190	-	-
HCM Lane V/C Ratio	0.002	-	-	0.114	0.015	0.144	0.053	-	-
HCM Control Delay (s)	9.2	0	-	31.7	25.7	12.3	8.2	0	-
HCM Lane LOS	A	A	-	D	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0.5	0.2	-	-

**Intersection**

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↖	↗	
Traffic Vol, veh/h	1	13	16	284	478	32
Future Vol, veh/h	1	13	16	284	478	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	0	0	6
Mvmt Flow	1	14	17	309	520	35

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	880	537	554	0	-
Stage 1	537	-	-	-	-
Stage 2	343	-	-	-	-
Critical Hdwy	6.9	6.7	4.6	-	-
Critical Hdwy Stg 1	5.9	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-
Follow-up Hdwy	3.95	3.75	2.65	-	-
Pot Cap-1 Maneuver	263	461	815	-	-
Stage 1	500	-	-	-	-
Stage 2	623	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	256	461	815	-	-
Mov Cap-2 Maneuver	256	-	-	-	-
Stage 1	500	-	-	-	-
Stage 2	607	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	815	-	256	461	-	-
HCM Lane V/C Ratio	0.021	-	0.004	0.031	-	-
HCM Control Delay (s)	9.5	0	19.1	13.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0.1	-	-

**Intersection**

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	12	13	610	741	34
Future Vol, veh/h	34	12	13	610	741	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	50	50	0	0	6
Mvmt Flow	37	13	14	663	805	37

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1515	824	842	0	- 0
Stage 1	824	-	-	-	- -
Stage 2	691	-	-	-	- -
Critical Hdwy	6.43	6.7	4.6	-	- -
Critical Hdwy Stg 1	5.43	-	-	-	- -
Critical Hdwy Stg 2	5.43	-	-	-	- -
Follow-up Hdwy	3.527	3.75	2.65	-	- -
Pot Cap-1 Maneuver	131	309	622	-	- -
Stage 1	429	-	-	-	- -
Stage 2	495	-	-	-	- -
Platoon blocked, %				-	- -
Mov Cap-1 Maneuver	126	309	622	-	- -
Mov Cap-2 Maneuver	126	-	-	-	- -
Stage 1	429	-	-	-	- -
Stage 2	477	-	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	37.7	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	622	-	126	309	-	-
HCM Lane V/C Ratio	0.023	-	0.293	0.042	-	-
HCM Control Delay (s)	10.9	0	45	17.2	-	-
HCM Lane LOS	B	A	E	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.1	-	-

**Intersection**

Int Delay, s/veh 3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Traffic Vol, veh/h	14	0	30	18	1	1
Future Vol, veh/h	14	0	30	18	1	1
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	0	33	20	1	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	15
Stage 1	-	-	15
Stage 2	-	-	85
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1616	904
Stage 1	-	-	1013
Stage 2	-	-	943
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1616	885
Mov Cap-2 Maneuver	-	-	885
Stage 1	-	-	1013
Stage 2	-	-	923

Approach	EB	WB	NB
HCM Control Delay, s	0	4.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	1070	-	-	1616	-
HCM Lane V/C Ratio	0.001	0.001	-	-	0.02	-
HCM Control Delay (s)	9.1	8.4	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-

**Intersection**

Int Delay, s/veh 5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Traffic Vol, veh/h	13	0	32	15	1	33
Future Vol, veh/h	13	0	32	15	1	33
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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	0	35	16	1	36

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	14	100
Stage 1	-	-	14
Stage 2	-	-	86
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1617	904
Stage 1	-	-	1014
Stage 2	-	-	942
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1617	884
Mov Cap-2 Maneuver	-	-	884
Stage 1	-	-	1014
Stage 2	-	-	921

Approach	EB	WB	NB
HCM Control Delay, s	0	5	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	884	1072	-	-	1617	-
HCM Lane V/C Ratio	0.001	0.033	-	-	0.022	-
HCM Control Delay (s)	9.1	8.5	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-

**Intersection**

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↖	↖↗	
Traffic Vol, veh/h	0	1	0	365	3	0
Future Vol, veh/h	0	1	0	365	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	0	397	3	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	2	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.9	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.3	-
Pot Cap-1 Maneuver	0	1088	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1088	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1088	-	-
HCM Lane V/C Ratio	-	0.001	-	-
HCM Control Delay (s)	-	8.3	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-



**Intersection**

Int Delay, s/veh 1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↖	↖↗	
Traffic Vol, veh/h	0	130	0	389	259	0
Future Vol, veh/h	0	130	0	389	259	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	141	0	423	282	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	141	- 0
Stage 1	-	-	- -
Stage 2	-	-	- -
Critical Hdwy	-	6.9	- -
Critical Hdwy Stg 1	-	-	- -
Critical Hdwy Stg 2	-	-	- -
Follow-up Hdwy	-	3.3	- -
Pot Cap-1 Maneuver	0	888	0 -
Stage 1	0	-	0 -
Stage 2	0	-	0 -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	-	888	- -
Mov Cap-2 Maneuver	-	-	- -
Stage 1	-	-	- -
Stage 2	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	888	-	-
HCM Lane V/C Ratio	-	0.159	-	-
HCM Control Delay (s)	-	9.8	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-

**Intersection**

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Traffic Vol, veh/h	1	0	0	0	0	30
Future Vol, veh/h	1	0	0	0	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	0	0	0	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	16	16	33	0	-	0
Stage 1	16	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	1006	1066	1592	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	1006	1066	1592	-	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-	-
Stage 1	1010	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1592	-	1006	-	-
HCM Lane V/C Ratio	-	-	0.001	-	-
HCM Control Delay (s)	0	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

**Intersection**

Int Delay, s/veh 4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑↑	↑↑	
Traffic Vol, veh/h	33	0	0	0	0	32
Future Vol, veh/h	33	0	0	0	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	36	0	0	0	0	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	17	17	35	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	1004	1064	1589	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	1004	1064	1589	-	-	-
Mov Cap-2 Maneuver	1004	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1589	-	1004	-	-
HCM Lane V/C Ratio	-	-	0.036	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Intersection Delay, s/veh	8.5					
Intersection LOS	A					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2	2		
Conflicting Circle Lanes	2	2	2	2		
Adj Approach Flow, veh/h	7	409	397	0		
Demand Flow Rate, veh/h	7	409	397	0		
Vehicles Circulating, veh/h	0	397	4	806		
Vehicles Exiting, veh/h	806	4	3	0		
Follow-Up Headway, s	3.186	3.186	3.186	3.186		
Ped Vol Crossing Leg, #/h	0	0	0	0		
Ped Cap Adj	1.000	1.000	1.000	1.000		
Approach Delay, s/veh	3.2	10.4	6.7	0.0		
Approach LOS	A	B	A	-		
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	L	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	1.000	0.000	0.500	0.500
Critical Headway, s	4.113	4.113	4.293	4.113	4.293	4.113
Entry Flow, veh/h	7	409	397	0	0	0
Cap Entry Lane, veh/h	1130	856	1127	1127	617	643
Entry HV Adj Factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Entry, veh/h	7	409	397	0	0	0
Cap Entry, veh/h	1130	856	1127	1127	617	643
V/C Ratio	0.006	0.478	0.352	0.000	0.000	0.000
Control Delay, s/veh	3.2	10.4	6.7	3.2	5.8	5.6
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	3	2	0	0	0

Intersection						
Intersection Delay, s/veh	11.6					
Intersection LOS	B					
Approach	EB	WB	NB		SB	
Entry Lanes	1	1	2		2	
Conflicting Circle Lanes	2	2	2		2	
Adj Approach Flow, veh/h	717	435	423		0	
Demand Flow Rate, veh/h	717	435	423		0	
Vehicles Circulating, veh/h	0	423	435		858	
Vehicles Exiting, veh/h	858	435	282		0	
Follow-Up Headway, s	3.186	3.186	3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0	0		0	
Ped Cap Adj	1.000	1.000	1.000		1.000	
Approach Delay, s/veh	11.7	11.4	11.7		0.0	
Approach LOS	B	B	B		-	
Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	L	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	1.000	0.000	0.500	0.500
Critical Headway, s	4.113	4.113	4.293	4.113	4.293	4.113
Entry Flow, veh/h	717	435	423	0	0	0
Cap Entry Lane, veh/h	1130	840	815	833	594	620
Entry HV Adj Factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Entry, veh/h	717	435	423	0	0	0
Cap Entry, veh/h	1130	840	815	833	594	620
V/C Ratio	0.635	0.518	0.519	0.000	0.000	0.000
Control Delay, s/veh	11.7	11.4	11.7	4.3	6.1	5.8
LOS	B	B	B	A	A	A
95th %tile Queue, veh	5	3	3	0	0	0