

## Appendix H

### Transportation Technical Memorandum

- Final EIS Addendum H, Transportation Technical Memorandum, July 2022
  - Attachment A, Existing Condition
  - Attachment B, No Build
  - Attachment C, Build Condition (Unmitigated)
  - Attachment D, Build Condition (Mitigated)



# Chicago Red Line Extension Project

Transportation

Final EIS Addendum H

July 2022

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**Attachments**

- Attachment A 2020 Existing Condition
- Attachment B 2050 No Build Condition
- Attachment C 2050 Build Condition (Unmitigated)
- Attachment D 2050 Build Condition (Mitigated)

**Abbreviations**

ADA	Americans with Disabilities Act
API	area of potential impact
CCDoTH	Cook County Department of Transportation and Highways
CDOT	Chicago Department of Transportation
CIP	CREATE 75th Street Corridor Improvement Project
CN/MED	Canadian National/Metra Electric District

CMAP	Chicago Metropolitan Agency for Planning
CREATE	Chicago Region Environmental and Transportation Efficiency
CSS & SBRR	Chicago South Shore & South Bend Railroad
CTA	Chicago Transit Authority
EA	Environmental Assessment
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
GIS	Geographic Information System
IDOT	Illinois Department of Transportation
IHB	Indiana Harbor Belt
LOS	level of service
MED	Metra Electric District
MWRD	Metropolitan Water Reclamation District of Greater Chicago
NEPA	National Environmental Policy Act
NICTD	Northern Indiana Commuter Transportation District
NS	Norfolk Southern
RI	Metra Rock Island District
RLE	Red Line Extension
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
UPRR	Union Pacific Railroad

## Section 1 - Summary

This technical memorandum analyzes the potential impacts of the Red Line Extension (RLE) Project on transportation facilities that include public transportation, vehicular and freight traffic, cyclists, pedestrians, and parking.

Impacts on the transportation facilities were identified based on the predicted changes from the existing conditions to the horizon year of 2050 using the regional travel demand model, Chicago Metropolitan Agency for Planning’s (CMAP) *ON TO 2050*. The impacts on transportation facilities were evaluated through a combination of qualitative and quantitative analysis. **Section 3** presents the specific methods used to determine impacts. The following paragraphs summarize the impacts and mitigation measures for the No Build Alternative and the Preferred Alignment of the Union Pacific Railroad (UPRR) Rail Alternative. The summary of these impacts can also be found in **Table 1-1**.

Table 1-1: Transportation - Impacts Summary

Alternative	Permanent Impacts						Construction Impacts
	Public Transportation	Vehicular Traffic	Freight Transportation	Bicycles Facilities	Pedestrians	Parking	
No Build Alternative	No Impacts	Adverse Impacts	No Impacts	No Impacts	No Impacts	No Impacts	No Impacts
Preferred Alignment	Beneficial	Impacts would not be adverse after mitigation	No Impacts	Beneficial	Impacts would not be adverse after mitigation	Impacts would not be adverse after mitigation	No Impacts

People using public transportation would benefit from the extension of the Red Line south from the 95th Street/Dan Ryan terminal. Various bus routes within the area of potential impact (API) would be rerouted to complement the RLE Project and provide a means for connectivity to the expanded service. The extension of the Red Line would provide an alternative mode of travel to reach downtown Chicago (and destinations between downtown Chicago and 95th Street) for people south of the 95th Street/Dan Ryan terminal. There would be no adverse permanent impacts on public transportation services for the Preferred Alignment. Temporary construction impacts on public transportation, including intermittent delays and detours, would occur.

The traffic analysis consisted of analyzing 49 intersections within the API. **Table 1-2** provides a summary of the intersections that are projected to experience impacts from the Preferred Alignment based on 30 percent plans and the 2050 Preferred Alignment condition. A summary of all the intersections within the API can be found in **Tables 4-4, 5-1, 5-2, and 5-4**. At intersections where the level of service (LOS) is undesirable (LOS E or LOS F) or where the existing storage length for turning lanes is insufficient based on the red time queue analysis, mitigation measures have been identified to offset the insufficiencies that are attributable to the RLE Project. After mitigation, there would be no adverse permanent impacts from the Preferred Alignment. Temporary construction impacts on traffic would occur during construction activities. The temporary impacts would be mitigated by following the applicable federal, state, and local requirements for construction activities.

There would be no permanent impacts on freight transportation due to the implementation of the Preferred Alignment. There would be temporary impacts during construction of the Preferred Alignment due to temporary closures of the roadways or highways to erect the aerial structures and superstructures. Railroad flagging would be included where any construction crosses or is adjacent to railroad operations.

There would be no adverse permanent impacts on pedestrians after mitigation for the Preferred Alignment. Mitigation measures include pedestrian crosswalks and/or pedestrian crossing gates at the at-grade railroad crossings of the UPRR tracks near the Preferred Alignment.

Bicycle facilities would benefit from the implementation of the Preferred Alignment. The four proposed RLE stations would have bicycle parking to accommodate bicyclists. The Preferred Alignment would create efficient transit connections, as well as provide potential future connections, to the RLE and the larger network of Chicago Transit Authority (CTA) stops and stations for bicyclists.

There would be no permanent impacts on parking under either the No Build Alternative or Preferred Alignment.

The Preferred Alignment has the potential for cumulative impacts. With the Preferred Alignment, freight traffic would remain on the existing UPRR tracks. Although the project would not increase the number of freight trains, with increased traffic bound for stations (including bus traffic, bicyclists, and pedestrians), delays at the at-grade crossings may increase.

Table 1-2: Summary of Potentially Affected Intersections within the Area of Potential Impact

Intersection ID	Intersection	Control Type	Existing (2020)		No Build Alternative (2050)		Preferred Alignment - Mitigated (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
16	103rd Street and Halsted Street	Signalized	<b>E</b>	C	<b>F</b>	D	<b>F</b>	D
52	115th Street and Michigan Avenue	Signalized	B	D	C	<b>E</b>	C	D
55a	115th Street and Cottage Grove Avenue (West)	Signalized	D	C	D	D	D	D
55b	115th Street and Cottage Grove Avenue (East)	Signalized	<b>F</b>	D	<b>F</b>	<b>F</b>	<b>F</b>	<b>F</b>
60	119th Street and Halsted Street	Signalized	C	C	C	D	C	C
64	127th Street and Paulina Street	Signalized	C	C	D	<b>E</b>	D	D
65	127th Street and Marshfield Avenue	Signalized	D	C	D	D	D	D
66	127th Street and Ashland Avenue	Signalized	C	C	D	C	C	C
68	127th Street and Halsted Street	Signalized	C	C	C	D	C	C
70	127th Street and Vermont Street and Wallace Street	Signalized	C	D	<b>E</b>	<b>F</b>	B	B
71	127th Street and State Street	Signalized	A	B	B	C	B	B
73	130th Street and Indiana Avenue	Signalized	B	B	C	C	C	B



## Section 2 - Project Description and Background

CTA, as project sponsor to the Federal Transit Administration (FTA), proposes to extend the existing Red Line heavy rail transit service 5.6 miles south from the existing 95th/Dan Ryan terminal to Chicago's Far South Side. This project is one part of the Red Ahead Program to extend and enhance the entire Red Line. The Red Line provides rapid transit services 24/7 and is the most heavily traveled rail line in the CTA System.

The RLE Project would reduce commute times for residents, improve mobility and accessibility, and provide connection to other transportation modes. The RLE Project could also foster economic development, where new stations may serve as catalysts for neighborhood revitalization and help reverse decades of disinvestment in local business districts. The RLE Project would also provide a modern, efficient railcar storage yard and shop facility.

CTA undertook an extensive Alternatives Analysis process from 2006 to 2009 that considered multiple modes and corridor options for the RLE Project. The Chicago Transit Board designated the UPRR Rail Alternative as the Locally Preferred Alternative on August 12, 2009. Based on further technical analysis and public input, CTA selected the UPRR Rail Alternative as the NEPA Preferred Alternative in August 2014. The Draft EIS, published on October 6, 2016, disclosed the environmental benefits and impacts of the No Build Alternative and the two UPRR Rail Alternative options: the East Option and the West Option shown in **Figure 2-1**.

Subsequent to the publication of the Draft EIS, continued design and outreach by CTA resulted in the selection of the Preferred Alignment for the RLE Project. The Preferred Alignment was announced to the public on January 26, 2018. The Preferred Alignment is a hybrid of the East and West Options of the UPRR Rail Alternative presented in the Draft EIS. CTA reviewed multiple locations for a cross-over area that would maximize the benefits and reduce the impacts of the East and West Options.

The UPRR provided comments on the Draft EIS where they expressed their preference for the West Option due to concerns for the proximity of the East Option to their tracks. UPRR noted that the location of the Roseland Pumping Station could not accommodate UPRR's requested clearance of 25 feet between the centerlines of the UPRR's potential tracks and the proposed East Option. Therefore, all hybrid options considered in selecting the Preferred Alignment started with the West Option and crossed over from the west to the east side of the UPRR tracks south of the pumping station and north of 115th Street to minimize property impacts. Comparative analysis of parcel impacts and alignment with the goals of the RLE Project identified the vicinity of 108th Place as the cross-over location that would provide the greatest benefit. A cross-over in the vicinity of 108th Place would preserve viable businesses; minimize impacts on schools, residences, and the historic

Roseland Pumping Station; and preserve properties slated for future development surrounding the station areas. However, additional engineering refined the alignment further, which moved the UPRR crossing north from 108th Place to 107th Place. The refinement would lower the 111th Street station platform height and would lower the profile of the elevated structure.

After the announcement of the Preferred Alignment in 2018, CTA continued to conduct stakeholder coordination and further develop design plans. Norfolk Southern Railway (NS) shared their plans for future potential access to Canadian National/Metra Electric District (CN/MED) tracks to the north of Kensington Yard and the national freight rail network at that location. This access would allow restoration of a former connection that the Michigan Central Railroad had with the CN/MED tracks, which were then owned by the Illinois Central Railroad. The 120th Street yard and shop presented in the Draft EIS would have precluded future potential access to those tracks as well as access to All American Recycling located west of the railroad tracks (11900 S. Cottage Grove Avenue). The All American Recycling facility is served by the NS via its joint ownership of Conrail and the Indiana Harbor Belt Railroad (IHB). This coordination with NS resulted in additional adjustments to the Preferred Alignment near the 120th Street yard and shop. The 120th Street yard and shop and the tracks south to 130th Street were shifted approximately 100 feet to the west to accommodate NS railroad access to the All American Recycling and potential improvements to the national freight rail network, namely a future connection from the NS track to CN tracks along the MED corridor. In addition, this design refinement would provide a rail connection to facilitate rail delivery of ballast, ties, and other material to support CTA operations.

In 2019, CTA began exploring an opportunity to relocate the 130th Street station, the terminating station of the RLE Project, to a location south of 130th Street. The Draft EIS had originally proposed the station location north of 130th Street. In 2017, after publication of the Draft EIS, the Chicago Housing Authority (CHA) demolished Blocks 11, 12, and 13 of the Altgeld Gardens neighborhood, creating an opportunity to relocate the station south of 130th Street to the area of the demolished blocks. The demolition of Blocks 11, 12, and 13 of Altgeld Gardens was an activity completed by CHA and was independent and unrelated to the RLE Project. CTA evaluated the station relocation for feasibility. Meetings were held with partner agencies and stakeholder groups of residents in the station area with these agencies and groups expressing support for the station relocation. The design refinement relocated the station from north of 130th Street, as presented in the Draft EIS, to south of 130th Street, adjacent to the Altgeld Gardens neighborhood.

Since the publication of the Draft EIS and selection of the Preferred Alignment, three design refinements were made as discussed above: (1) the location of the 107th Place cross-over between UPRR East and West alignment options evaluated in the Draft EIS required for selection of a hybrid Preferred Alignment; (2) refinement of the 120th Street yard and shop location; and (3) relocation of the 130th Street station to extend the Preferred Alignment farther south so the 130th Street station

would be within the Altgeld Gardens neighborhood. These design refinements were evaluated in a Supplemental Environmental Assessment (EA). The agency coordination and outreach associated with the Supplemental EA have influenced the design refinements incorporated into the Preferred Alignment and that is analyzed in this Final EIS.

Additional details about the Preferred Alignment may be found in **Appendix E**.

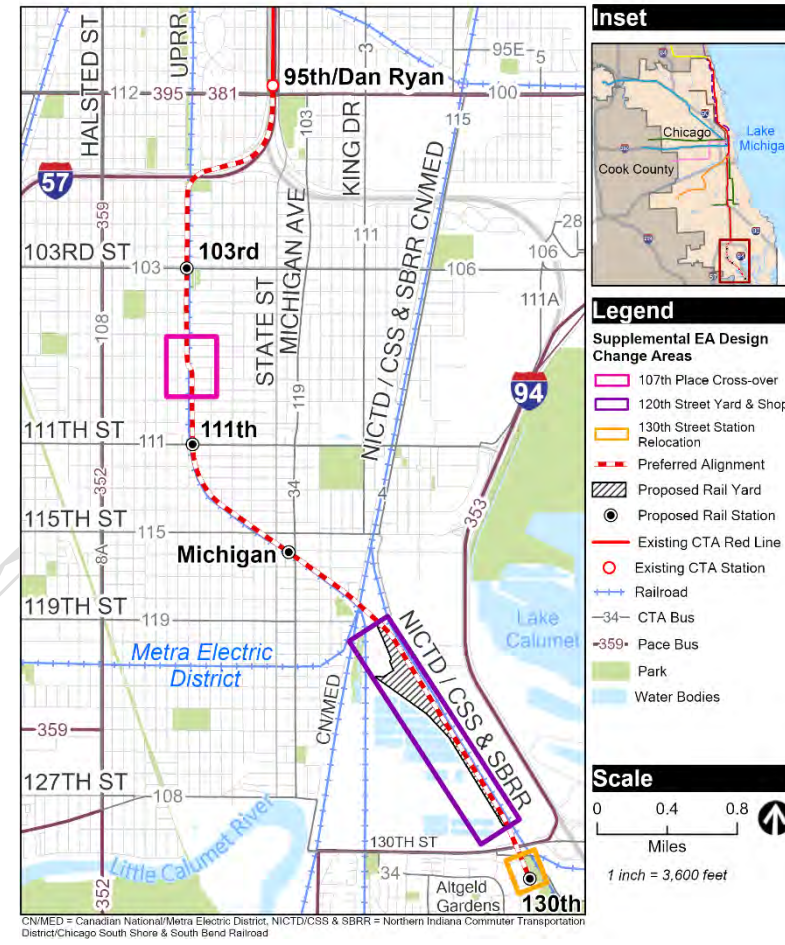
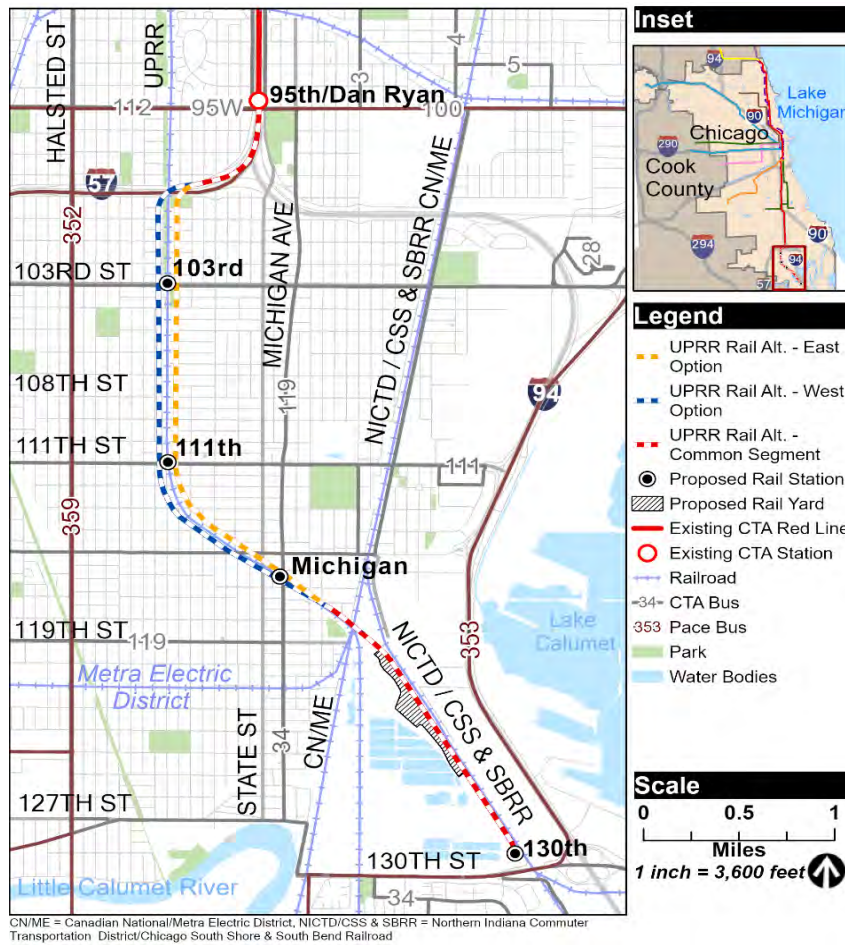


Figure 2-1: Left- East and West Options of the UPRR Rail Alternative (Draft EIS), Right- Preferred Alignment (Final EIS)

## Section 3 - Methods for Impact Evaluation

Methods presented in **Appendix H** for the Draft EIS analysis have been carried forward to evaluate the Preferred Alignment. This section documents the methodology for evaluating the transportation systems within the API, consistency with the methodology used in the Draft EIS, and any methodological changes.

### 3.1 Regulatory Framework

One of the applicable federal regulations used for the Draft EIS, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), expired September 30, 2009. Funding for SAFETEA-LU was renewed following that expiration date until passage of its replacement, Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012. In 2015, MAP-21 expired and was replaced with the Fixing America's Surface Transportation (FAST) Act. This transportation analysis was completed in compliance of FAST Act requirements. However, the updated regulation has no effect on the analysis of transportation impacts of the Preferred Alignment. There are no additional changes to the applicable federal regulations referenced in **Appendix H** of the Draft EIS.

#### 3.1.1 Federal

Applicable federal regulations for the analysis of transportation impacts are provided by the FAST Act, Public Law 114-94, signed into law on December 4, 2015. The FAST Act focuses on reducing traffic congestion, increasing intermodal connectivity, protecting the environment, and reducing delays in project delivery. It provides funding and changes the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure (Federal Highway Administration 2015).

#### 3.1.2 State

There are no changes to the applicable state regulations referenced in **Appendix H** of the Draft EIS. As noted in the Draft EIS, Illinois state law does not require additional transportation environmental analysis to be performed for proposed projects subject to NEPA.

#### 3.1.3 Local

The Chicago area's comprehensive regional plan identified in the Draft EIS, CMAP's *GO TO 2040*, has been superseded by CMAP's *ON TO 2050* regional plan (adopted in 2018). However, the updated

plan has no effect on the approach of the regional transportation network for the Preferred Alignment. There are no additional changes to the applicable local regulations referenced in **Appendix H** of the Draft EIS.

## 3.2 Impact Analysis Thresholds

The Draft EIS future baseline year of 2030 for transportation analysis has been updated to year 2050 for the Preferred Alignment analysis. Consistent with the Draft EIS approach, FTA, CTA, Chicago Department of Transportation (CDOT), Illinois Department of Transportation (IDOT), and Cook County Department of Transportation and Highways (CCDoTH) transportation analysis criteria guidance are used as the basis for the thresholds of impact for this project. There are no additional changes to the impact analysis thresholds referenced in **Appendix H** of the Draft EIS.

### 3.2.1 Public Transportation

There are no changes to the impact analysis threshold for public transportation referenced in **Appendix H** of the Draft EIS.

### 3.2.2 Traffic

Like the Draft EIS, the impact threshold for traffic for the Final EIS is a change in intersection LOS from LOS A, B, C, or D under the No Build Alternative to LOS E or F under the Build Alternative. This change in intersection LOS would result in an adverse impact. However, the Final EIS also includes analysis of storage capacity for turning lanes. Lanes in which storage capacity was not adequate for vehicle traffic would be considered an adverse impact. Storage capacity for turning lanes is based on red time queue formula provided in the IDOT Bureau of Design and Environment manual. There are no additional changes to the impact analysis threshold for traffic referenced in **Appendix H** of the Draft EIS.

### 3.2.3 Freight Transportation

There are no changes to the impact analysis threshold for freight transportation referenced in **Appendix H** of the Draft EIS.

### 3.2.4 Bicycles

There are no changes to the impact analysis threshold for bicycles referenced in **Appendix H** of the Draft EIS.

### 3.2.5 Pedestrians

There are no changes to the impact analysis threshold for pedestrians referenced in **Appendix H** of the Draft EIS.

### 3.2.6 Parking

There are no changes to the impact analysis threshold for parking referenced in **Appendix H** of the Draft EIS.

## 3.3 Area of Potential Impact

Consistent with the Draft EIS approach, the API for determining potential transportation impacts and benefits for the Preferred Alignment includes transportation facilities directly adjacent to the proposed stations, as well as intersections and roadways of the transportation network that users would utilize to access the stations.

Although there is no change to the approach to identifying an API, the Preferred Alignment was not defined in the Draft EIS. The transportation API for the Final EIS has therefore been revised to reflect the study area for the Preferred Alignment only.

The transportation API is situated 11 miles south of the downtown Chicago (commonly referred to as the “Loop”) and encompasses approximately 10 square miles. The Red Line currently terminates at the 95th Street/Dan Ryan terminal.

The API boundaries are as follows:

- On the north by 95th Street;
- On the south by a varying boundary that includes Vermont Street, 127th Street, and 134th Street;
- On the east by a varying boundary that includes State Street, Michigan Avenue, and I-94 (from the north to south); and
- On the west by a varying boundary that includes Halsted Street and I-57 (from north to south).

**Figure 3-1** shows the API.

## 3.4 Methods

The evaluation of the Preferred Alignment was performed using the same methods as documented in the Draft EIS, consistent with the following sections of **Appendix H**, except when noted.

### 3.4.1 Public Transportation

The Draft EIS ridership estimates were developed using the Chicago New Starts forecasting model for the 2030 project horizon year. However, for the Final EIS, Year 2040 ridership estimates were projected using the Simplified Trips-on-Project Software (STOPS) analysis for the RLE Project. The analysis of public transportation impacts of the Preferred Alignment was performed using the same methods as were documented in the Draft EIS.

### 3.4.2 Traffic

Forty-nine study intersections were identified for traffic analysis within the updated API, reduced from 76 in the larger API presented in the Draft EIS. These intersections are listed in **Table 3-1** and presented in **Figure 3-2**. Existing and historic traffic count data from CDOT, CTA, CMAP, and IDOT were compiled. In addition, new manual traffic counts at intersections where historical data were not available were collected. The following traffic data were compiled and reviewed:

- Traffic distribution and local circulation patterns
- Vehicle occupancy levels
- Road capacity levels
- Road peak-hour traffic volumes
- Intersection lane geometry and traffic signal timing plans
- Planned roadway improvements



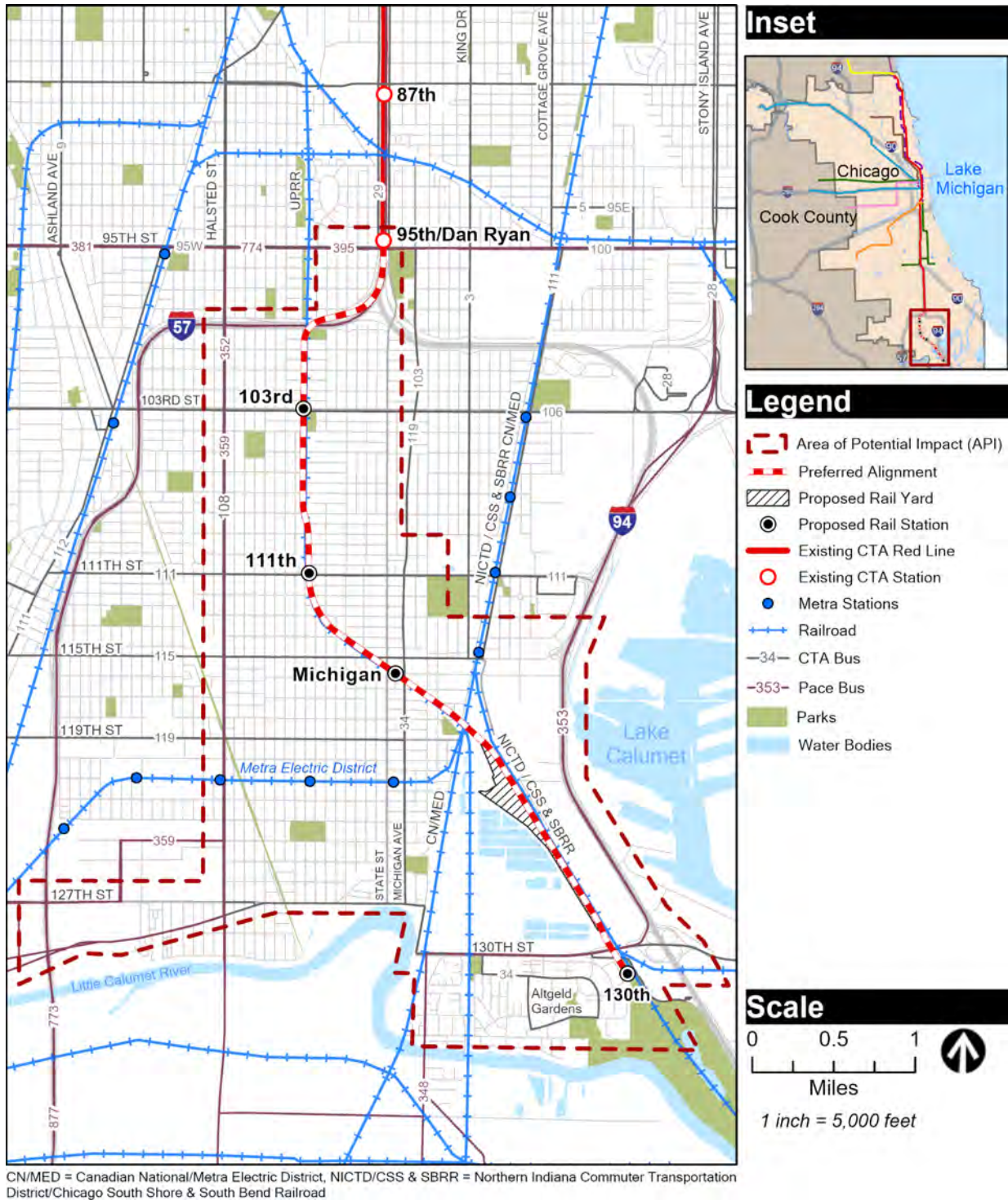


Figure 3-1: Area of Potential Impact

**Table 3-1: Area of Potential Impact Study Intersections**

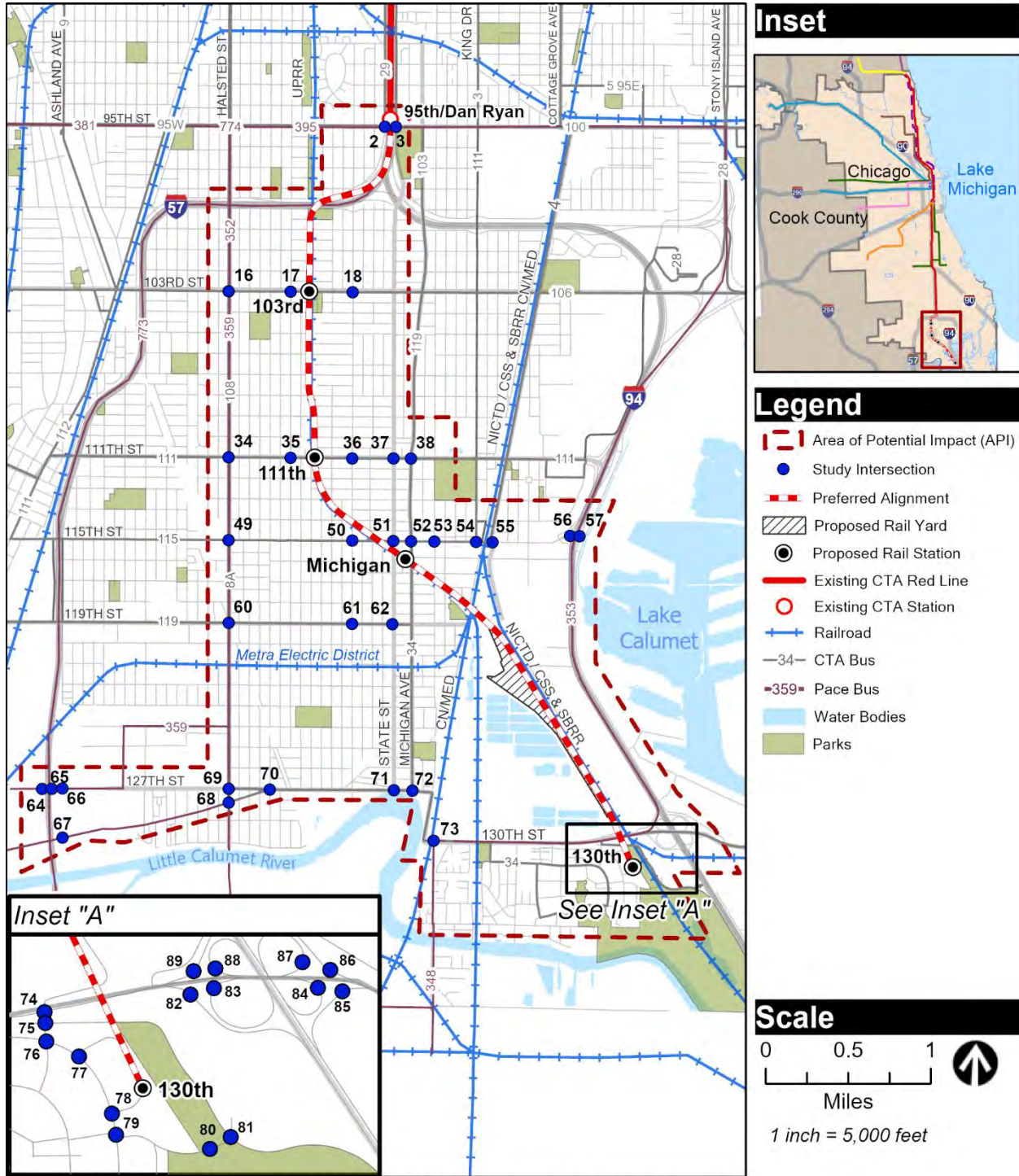
<b>Intersection ID</b>	<b>Intersection</b>	<b>Control Type</b>	<b>Jurisdiction</b>	<b>Freeway Ramp</b>
2	95th Street and Lafayette Avenue	Signalized	IDOT/CDOT	Yes
3	95th Street and State Street	Signalized	IDOT/CDOT	Yes
16	103rd Street and Halsted Street	Signalized	IDOT/CCDoTH	No
17	103rd Street and Normal Avenue	Signalized	CCDoTH/CDOT	No
18	103rd Street and Wentworth Avenue	Signalized	CCDoTH/CDOT	No
34	111th Street and Halsted Street	Signalized	IDOT/CCDoTH	No
35	111th Street and Normal Avenue	Signalized	CCDoTH/CDOT	No
36	111th Street and Wentworth Avenue	Signalized	CCDoTH/CDOT	No
37	111th Street and State Street	Signalized	CCDoTH/CDOT	No
38	111th Street and Michigan Avenue	Signalized	CCDoTH/CDOT	No
49	115th Street and Halsted Street	Signalized	IDOT	No
50	115th Street and Wentworth Avenue	Signalized	CDOT	No
51	115th Street and State Street	Signalized	CCDoTH/CDOT	No
52	115th Street and Michigan Avenue	Signalized	CCDoTH/CDOT	No
53	115th Street and Indiana Avenue	Signalized	CCDoTH/CDOT	No
54	115th Street and Martin Luther King Jr Drive	Unsignalized	CCDoTH	No
55a	115th Street and Cottage Grove Avenue (West)	Signalized	CCDoTH/CDOT	No

<b>Intersection ID</b>	<b>Intersection</b>	<b>Control Type</b>	<b>Jurisdiction</b>	<b>Freeway Ramp</b>
55b	115th Street and Cottage Grove Avenue (East)	Signalized	CCDoTH/CDOT	No
56	115th Street and I-94 EB Ramps	Unsignalized	IDOT	Yes
57	115th Street and I-94 WB Ramps	Unsignalized	IDOT	Yes
60	119th Street and Halsted Street	Signalized	IDOT/CDOT	No
61	119th Street and Wentworth Avenue	Signalized	CDOT	No
62	119th Street and State Street	Signalized	IDOT/CCDoTH/CDOT	No
64	127th Street and Paulina Street	Signalized	IDOT	Yes
65	127th Street and Marshfield Avenue	Signalized	IDOT	Yes
66	127th Street and Ashland Avenue	Signalized	IDOT	No
67	Vermont Street and Ashland Avenue	Signalized	IDOT	No
68	127th Street and Halsted Street	Signalized	IDOT	No
69	Vermont Street and Halsted Street	Signalized	IDOT	No
70	127th Street and Vermont Street and Wallace Street	Signalized	IDOT/CDOT	No
71	127th Street and State Street	Signalized	IDOT	No
72	127th Street and Michigan Avenue	Signalized	IDOT/CDOT	No
73	130th Street and Indiana Avenue	Signalized	IDOT	No
74	130th Street and Ellis Avenue	Signalized	IDOT/CDOT	No

Intersection ID	Intersection	Control Type	Jurisdiction	Freeway Ramp
75	Old 130th Street and Ellis Avenue	Unsignalized	CDOT	No
76	Greenwood Avenue and Ellis Avenue	Unsignalized	CDOT	No
77	130th Place and Greenwood Avenue	Unsignalized	CDOT	No
78	131st Street and Greenwood Avenue	Unsignalized	CDOT	No
79	132nd Street and Greenwood Avenue	Unsignalized	CDOT	No
80	132nd Street and Beaubien Woods Driveway	Unsignalized	CDOT	No
81	132nd Street and Doty Avenue	Unsignalized	CDOT	No
82	EB 130th Street and I-94E On-Ramp (Ramp A)	Uncontrolled	IDOT	Yes
83	EB 130th Street and I-94E Off-Ramp (Ramp B)	Uncontrolled	IDOT	Yes
84	EB 130th Street and I-94W On-Ramp (Ramp C)	Uncontrolled	IDOT	Yes
85	EB 130th Street and I-94W Off-Ramp (Ramp D)	Uncontrolled	IDOT	Yes
86	WB 130th Street and I-94W On-Ramp (Ramp E)	Uncontrolled	IDOT	Yes
87	WB 130th Street and I-94W Off-Ramp (Ramp F)	Uncontrolled	IDOT	Yes
88	WB 130th Street and I-94E On-Ramp (Ramp G)	Uncontrolled	IDOT	Yes
89	WB 130th Street and I-94E Off-Ramp (Ramp H)	Uncontrolled	IDOT	Yes

Source: IDOT – IL Road Jurisdiction GIS Map, 2021

Notes: IDOT – Illinois Department of Transportation; CCDoTH – Cook County Department of Transportation and Highways; CDOT – Chicago Department of Transportation



CN/MED = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad

Figure 3-2: Study Intersections for Transportation Impact Analysis

### 3.4.2.1 Traffic Adjustments Due to COVID-19

Due to the COVID-19 pandemic, travel patterns and traffic volumes have been greatly altered. Traffic data for the 49 locations were acquired through one of three ways: 1) from the Draft EIS, 2) historic traffic data provided by IDOT, and 3) traffic data collected in 2020.

CTA reviewed historic Average Daily Traffic (ADT) volumes, as listed in **Table 3-2**, across the years for the major roadways within the API and it was determined that the ADT values in the 2017-2018 timeframe are either very close or lower than the values in the 2009-2012 timeframe. As a result, of the 49 study intersections, 33 intersections used the 2012 traffic counts from the Draft EIS.

Table 3-2: Historic Average Daily Traffic on Roadways within the API

Street	2004	2006	2008	2009	2010	2012	2013	2014	2015	2017	2018
95th St.	-	-	-	20,000	-	-	18,200	-	15,200	14,100	-
103rd St.	-	14,800	-	-	13,800	-	-	11,700	-	-	10,300
107th St.	-	7,800	-	-	6,600	-	-	4,000	-	-	5,400
111th St.	-	11,000	-	-	9,000	-	-	10,000	-	-	9,650
115th St.	-	10,800	-	-	10,500	-	-	7,350	-	-	11,700
State St.	15,100	-	-	-	-	-	-	3,100	-	-	-
Michigan Ave.	-	8,300	-	-	11,600	-	-	8,150	-	-	10,600
127th St.	-	21,100	-	-	18,800	-	-	13,300	-	-	15,500
130th St.	-	19,600	-	-	20,100	-	-	19,500	-	-	18,200
Bishop Ford Freeway (I-94)	-	-	160,500	166,300	149,400	150,500	146,700	146,600	149,300	158,200	149,000

Source: IDOT Getting Around Illinois Website. Accessed at <http://www.gettingaroundillinois.com/gai.htm?mt=aadt> Accessed on April 13, 2020.

The traffic data collected in 2020 had a growth factor applied to it to account for the variation in traffic patterns as a result of the COVID-19 pandemic. Below are the locations where historic traffic data and applied growth factors to existing traffic data were used.

#### ***130th Street/Ellis Avenue Intersection and 130th Street/I-94 Ramps***

Historic traffic data for the 130th Street and Ellis Avenue intersection and the I-94 ramps were compared to their 2020 volume data to determine if traffic data were affected by the COVID-19 pandemic. The comparison of data determined that additional factors outside population growth impacted traffic volumes, and that the COVID-19 pandemic has affected transportation patterns. The 2020 volume data were collected September 1 and 2, 2020 as video traffic and turning movement counts during the AM and PM period for the 130th Street and Ellis Avenue intersection and the I-94 ramps. For comparison of the 2020 volume data, the intersection of 130th Street and Ellis Avenue used 2012 historic traffic data from the Draft EIS, whereas the I-94 ramps used a

combination of 2018 and 2019 historic traffic data, based on availability from IDOT. For these two locations, the pandemic's effect on traffic has led to a reduction in traffic in the AM and a modest increase in traffic in the PM, compared to historic traffic. As a result of CTA's coordination with IDOT, it was agreed to use all historic volumes for the 130th Street and Ellis Avenue intersection. For the I-94 ramps, per IDOT direction, the higher of the two volumes, between the 2020 counts and the historic data, for each ramp was chosen as the volume to be analyzed for the project.

### ***Altgeld Gardens Neighborhood Intersections***

For these locations, 2020 traffic data were collected. However, no historic traffic data for these intersections were available for comparison; therefore, a separate AM and PM growth factor was applied to the 2020 volumes of these intersections to account for the variation of transportation patterns resulting from the COVID-19 pandemic. These growth factors were calculated using historic volumes from the neighboring intersection of 130th Street and Ellis Avenue.

The volumes that were established using the methods above will be considered existing condition volumes moving forward in the analysis. The type of traffic count data used for each intersection is shown in **Figure 3-3**.

The above data were used to calculate intersection LOS using Synchro 10 and ramp LOS using Highway Capacity Software 7. Peak-hour traffic volumes used for the intersection LOS analysis for Existing Conditions, 2050 No Build Conditions, 2050 Build Conditions (Unmitigated) and 2050 Build Conditions (Mitigated) are included in **Attachments A, B, C, and D**, respectively.

### **3.4.2.2 Traffic Methodology**

Data from CMAP's 2050 Regional Travel Demand model were used to develop "No Build" intersection-level traffic projections. These "No Build" traffic projections accounted for the background growth in traffic due to additional regional and subregional land use development and population growth. The background growth of traffic for roadway segments was determined by using the data from the regional travel demand model. Average annual traffic growth for roadway segments ranged from 0 to 1.1 percent.

The 2050 "No Build" traffic projections were analyzed under the No Build Alternative. To simulate the future year (2050) conditions without the RLE Project, background traffic growth between the existing year (2020) and future conditions year (2050) was grown based on 30-year growth factor. The No Build Alternative traffic projections served as the baseline for evaluating the future "with project."

Conditions for the Preferred Alignment included the generation of park & ride and kiss & ride automobile trips to the stations. While the RLE Project is anticipated to have an impact on mode shift from vehicles to transit, the trip generation did not remove these vehicles to provide a conservative level of analysis. The traffic analysis therefore represents the “worst-case” scenario for impact analysis.

The trip generation is based on the STOPS analysis and data from similar sized existing CTA parking facilities. STOPS is a trip modeling software used to estimate future ridership for transit projects. The software provides station mode-of-access numbers, including estimates of those driving to the new stations. These estimates feed into the traffic analysis. STOPS is used nationally and is recommended for use in trip modeling by the FTA. The STOPS analysis was run for both existing year (2017), to serve as a baseline, and future year (2040) condition. The park & ride generated trips for 2040 will be valid for 2050 because those trips are constrained by parking capacity. The Preferred Alignment generated trips were added to the No Build Alternative traffic projections to develop the total Preferred Alignment traffic volumes. The Preferred Alignment analysis uses the 2050 background No Build Alternative traffic plus the traffic generation from the 2040 STOPS analysis. The Preferred Alignment intersection LOS analyses were conducted for the study intersections.

### 3.4.3 Freight Transportation

There are no changes to the evaluation methodology for freight transportation referenced in **Appendix H** of the Draft EIS.

### 3.4.4 Bicycle Facilities

There are no changes to the evaluation methodology for bicycles referenced in **Appendix H** of the Draft EIS.

### 3.4.5 Pedestrians

There are no changes to the evaluation methodology for pedestrians referenced in **Appendix H** of the Draft EIS.

### 3.4.6 Parking

There are no changes to the evaluation methodology for parking referenced in **Appendix H** of the Draft EIS.



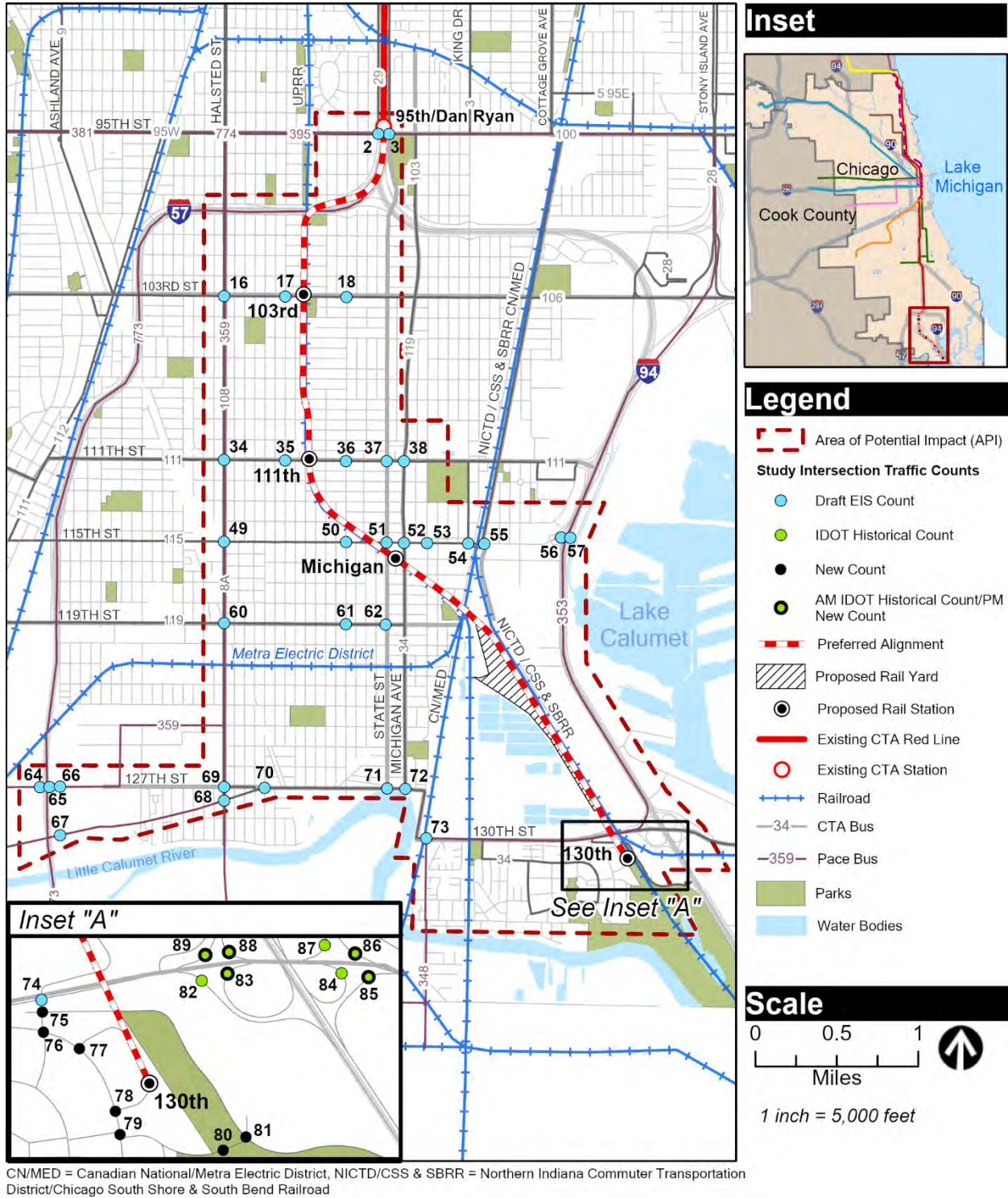


Figure 3-3: Study Intersection Traffic Count

## Section 4 - Affected Environment

This section describes any updates to the existing conditions of the transportation services and facilities near the transportation API since the publication of the Draft EIS. It also documents any updates to the baseline data and planning horizon, as well as any changes to transportation planning and policy framework in the communities and jurisdictions affected by the Preferred Alignment.

Where appropriate, Draft EIS data from **Appendix H** have been included for comparison to provide context to the updates in this addendum. Consistent with the Draft EIS, the analysis includes any changes to the transportation facilities directly adjacent to the Preferred Alignment stations, as well as intersections and roadways of the transportation network that users would utilize to access the stations.

### 4.1 Public Transportation

Changes to the public transportation systems within the API since the Draft EIS publication in 2016 are summarized below.

- CTA bus routes – Routes #3 King Drive and #28 Stony Island no longer fall within the updated API and have been removed from this report. Route #4 Cottage Grove has been added to the report.

**Figure 4-1** shows the existing bus routes provided by CTA and Pace, as well as the Metra routes.

#### 4.1.1 CTA Rail Service

There are no changes to the CTA rail service referenced in **Appendix H** of the Draft EIS.

#### 4.1.2 CTA and Pace Bus Services

Bus ridership data (2012) from the Draft EIS have been updated to the most recent non-COVID-19 affected year, 2019. **Table 4-1** provides a summary of the existing bus routes and its 2019 ridership data within the API. Due to a change in data provided on the RTAMS website, average weekday ridership values are no longer provided. Route #95E and #95W are now represented as a single route. In general, ridership has declined from the 2012 to 2019. **Table 4-2** is also updated to show existing bus service hours and headways (time between buses) in peak hours for CTA and Pace bus service.

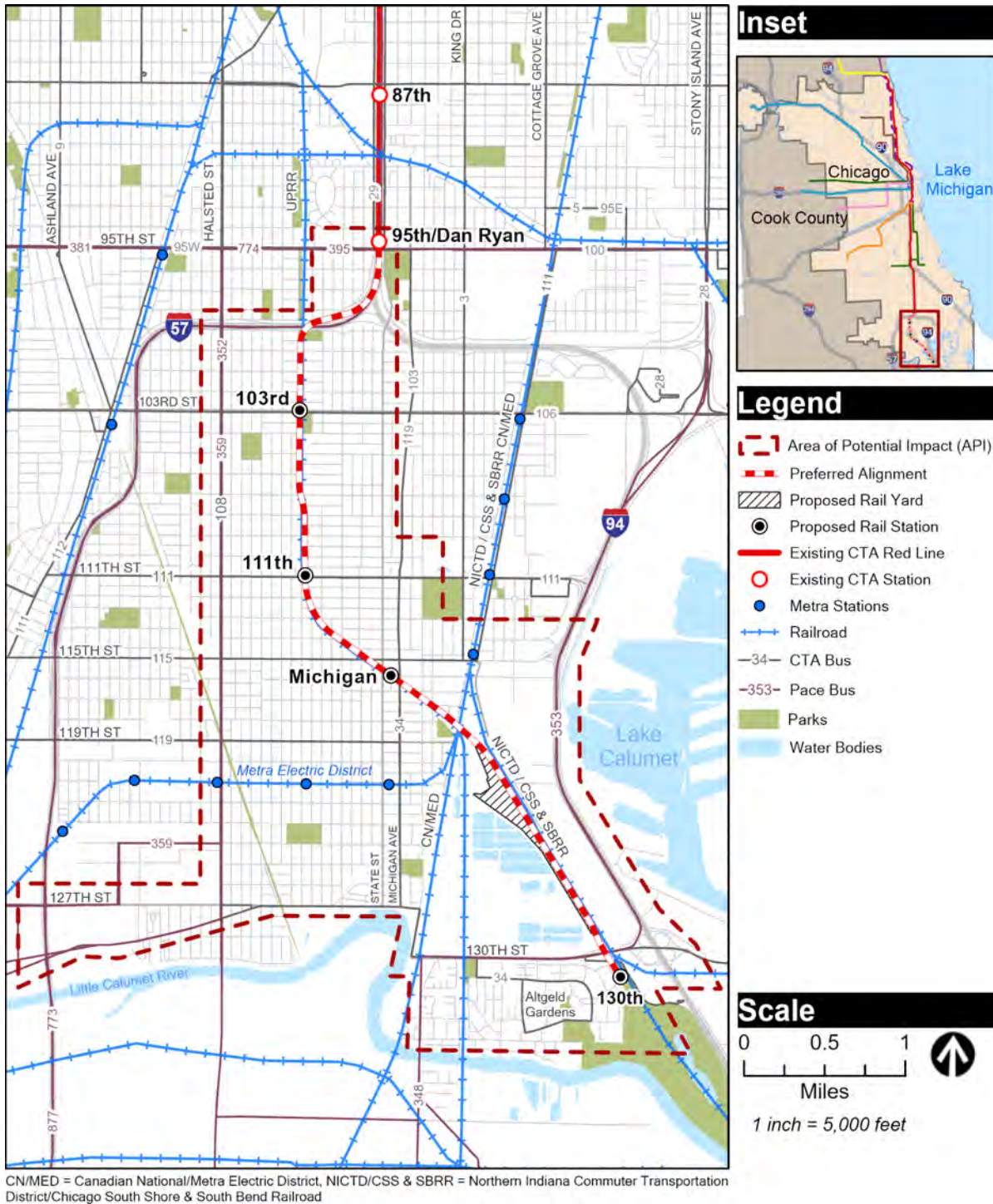


Figure 4-1: Existing Public Transportation in the API

Table 4-1: Existing Bus Route Information within the Area of Potential Impact

Bus Route Number and Name	Operating Agency	Monthly Average Weekday Ridership (September 2019)	Serves 95th Street/Dan Ryan Terminal
#4 Cottage Grove	CTA	20,179	No
#8A South Halsted	CTA	2,931	No
#9 Ashland	CTA	18,388	Yes
#29 State	CTA	12,099	Yes
#34 South Michigan	CTA	5,045	Yes
#95 95th	CTA	5,919	Yes
#100 Jeffery Manor Express	CTA	578	Yes
#103 West 103rd	CTA	2,192	Yes
#106 East 103rd	CTA	1,484	Yes
#108 Halsted/95th	CTA	1,080	Yes
#111 Pullman/111th	CTA	3,412	Yes
#112 Vincennes/111th	CTA	2,046	Yes
#115 Pullman/115th	CTA	3,049	Yes
#119 Michigan/119th	CTA	4,258	Yes
#348 Harvey - Riverdale - Blue Island	Pace	333	No
#352 Halsted	Pace	5,334	Yes
#353 95th/Dan Ryan CTA - River Oaks - Homewood Limited	Pace	1,482	Yes
#359 Robbins - South Kedzie Avenue	Pace	1,201	Yes
#381 95th Street	Pace	2,987	Yes
#395 CTA 95th St Station - UPS	Pace	349	Yes

Source: Regional Transportation Authority Asset Mapping and Statistics (RTAMS) 2021

Notes: - Night service route #N5 is not included in the above table.

- September is considered the peak month for ridership and is typically used for planning purposes.

- #9 Ashland serves the 95th Street/Dan Ryan terminal only with the Night Owl Service.

- Due to a change in data provided on the RTAMS website, average weekday ridership values are no longer provided.

Table 4-2: Existing CTA and Pace Bus Service Hours and Peak Headways

Bus Route Number and Name	Operating Agency	Weekday Hours of Service	Headway in Peak Hours (minutes)
#4 Cottage Grove	CTA	24 hours	6-7
#8A South Halsted	CTA	5:25 AM-8:30 PM	11-17
#9 Ashland	CTA	24 hours	10-15
#29 State	CTA	4:00 AM-12:30 AM	11-13
#34 South Michigan	CTA	24 hours	11-13
#95 95th	CTA	4:30 AM-12:30 AM	11-14
#100 Jeffery Manor Express	CTA	Peak Periods Only	18-22
#103 West 103rd	CTA	4:30 AM-11:20 PM	12-15
#106 East 103rd	CTA	4:45 AM-10:30 PM	11-15
#108 Halsted/95th	CTA	Peak Periods Only	15-19
#111 Pullman/111th	CTA	4:30 AM-11:10 PM	11-15
#112 Vincennes/111th	CTA	4:30 AM-10:20 PM	14-16
#115 Pullman/115th	CTA	4:25 AM-11:15 PM	11-12
#119 Michigan/119th	CTA	4:00 AM-1:00 AM	8-11
#348 Harvey - Riverdale - Blue Island	Pace	5:45 AM-7:30 PM	60
#352 Halsted	Pace	24 hours	10
#353 95th/Dan Ryan CTA - River Oaks - Homewood Limited	Pace	4:45 AM-12:45 AM	20
#359 Robbins - South Kedzie Avenue	Pace	5:00 AM-12:30 AM	30-60
#381 95th Street	Pace	4:45 AM-12:30 AM	20
#395 CTA 95th St Station - UPS	Pace	2:15 AM-10:50 PM	10-20

Source: CTA, 2022, Pace 2022

Notes- Service to 95th Street/Dan Ryan terminal is based on route maps current as of April 2022. Pace route #395 operates with limited service between its hours of service.

There are no changes to the existing bus services for the Preferred Alignment, referenced as the Union Pacific Railroad Rail Alternative, in **Appendix H** of the Draft EIS.

### 4.1.3 Commuter Rail Service

There are no changes to the commuter rail service referenced in **Appendix H** of the Draft EIS. However, 2006 daily boardings from the Draft EIS have been updated to the most recent available non-COVID-19 affected year, 2018. **Table 4-3** presents a summary of the 2018 daily boardings and the 2015 parking statistics at the Metra stations within the API.

Table 4-3: Metra Boardings and Parking by Station

Line/Station	2018 Daily Boardings	Parking Available	Parking Spaces Available (2015)	Parking Utilization Rate (2015)
<i>Metra Electric District Mainline</i>				
103rd Street (Rosemoor)	36	Yes	18	89%
107th Street	27	No	-	-
111th Street (Pullman)	31	No	-	-
Kensington/115th Street	1,136	Yes	359	82%
<i>Metra Electric District Blue Island Branch</i>				
State Street	41	No	-	-
Stewart Ridge	19	No	-	-
West Pullman	13	Yes	27	0%
Racine Avenue	28	Yes	29	41%
Ashland Avenue	97	Yes	89	45%
<i>Metra Rock Island</i>				
95th Street/Longwood	60*	Yes	104	47%
103rd Street/Washington Heights	101	Yes	267	26%

Source: Regional Transportation Authority Asset Mapping and Statistics (RTAMS), Metra, 2021

Notes: - \*2006 Boardings. Boardings for 2018 at 95th Street/Longwood were not available.

## 4.2 Traffic

The existing traffic data have been updated from the Draft EIS to year 2020 for the Final EIS. **Figure 4-2** shows the signalized and unsignalized intersections within the API. The existing traffic volumes (2020) and capacity analysis for the intersections can be found in **Attachment A**.

**Table 4-4** provides a comparison of the existing intersection LOS conditions from the Draft EIS and the Final EIS. Due to the updated API, some intersections differ between the Draft EIS and the Final EIS. Intersections that were analyzed only in the Draft EIS are not shown and intersections analyzed only for the Final EIS are listed. Changes in intersection LOS values were a result of updates to signal timings and intersection geometrics since the Draft EIS analysis. These changes would affect both signalized and unsignalized intersections since the traffic analysis takes into account traffic flow along the entire street. For the Final EIS, under existing (2020) conditions, most of the study intersections within the API operate at LOS D or better in both the AM and PM peak hours. Under existing (2020) conditions, the following intersections operate at LOS E or F in either or both the AM and PM peak hours:

- 103rd Street and Halsted Street – AM LOS E
- 115th Street and Martin Luther King Jr Drive – PM LOS E
- 115th Street and Cottage Grove Avenue East – AM LOS F

Table 4-4: Existing Intersection Level of Service Comparing Draft and Final EIS Values

Intersection ID	Intersection	Control Type	Draft EIS		Final EIS	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
2	95th Street and Lafayette Avenue	Signalized	D	D	C	C
3	95th Street and State Street	Signalized	C	C	D	D
16	103rd Street and Halsted Street	Signalized	<b>E</b>	D	<b>E</b>	C
17	103rd Street and Normal Avenue	Signalized	B	B	A	A
18	103rd Street and Wentworth Avenue	Signalized	B	B	B	B
34	111th Street and Halsted Street	Signalized	C	C	B	B
35	111th Street and Normal Avenue	Signalized	A	A	A	A
36	111th Street and Wentworth Avenue	Signalized	A	A	A	B
37	111th Street and State Street	Signalized	A	B	A	B
38	111th Street and Michigan Avenue	Signalized	B	B	B	B
49	115th Street and Halsted Street	Signalized	C	C	C	C
50	115th Street and Wentworth Avenue	Signalized	B	B	B	B
51	115th Street and State Street	Signalized	B	B	B	B

Intersection ID	Intersection	Control Type	Draft EIS		Final EIS	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
52	115th Street and Michigan Avenue	Signalized	B	C	B	D
53	115th Street and Indiana Avenue	Signalized	B	B	B	B
54	115th Street and Martin Luther King Jr Drive	Unsignalized	A	A	C	<b>E</b>
55a	115th Street and Cottage Grove Avenue (West)	Signalized	C	C	D	C
55b	115th Street and Cottage Grove Avenue (East)	Signalized	D	C	<b>F</b>	D
56	115th Street and I-94 EB Ramps	Unsignalized	A	A	A	A
57	115th Street and I-94 WB Ramps	Unsignalized	C	B	C	B
60	119th Street and Halsted Street	Signalized	C	C	C	C
61	119th Street and Wentworth Avenue	Signalized	B	B	B	A
62	119th Street and State Street	Signalized	B	B	A	A
64	127th Street and Paulina Street	Signalized	C	C	C	C
65	127th Street and Marshfield Avenue	Signalized	C	B	D	C
66	127th Street and Ashland Avenue	Signalized	C	C	C	C
67	Vermont Street and Ashland Avenue	Signalized	C	C	C	C
68	127th Street and Halsted Street	Signalized	C	C	C	C
69	Vermont Street and Halsted Street	Signalized	B	B	B	B
70	127th Street and Vermont Street and Wallace Street	Signalized	C	D	C	D
71	127th Street and State Street	Signalized	A	B	A	B
72	127th Street and Michigan Avenue	Signalized	A	B	A	B
73	130th Street and Indiana Avenue	Signalized	B	C	B	B
74	130th Street and Ellis Avenue	Signalized	A	A	B	A
75	Old 130th Street and Ellis Avenue	Unsignalized	---	---	A	A
76	Greenwood Avenue and Ellis Avenue	Unsignalized	---	---	A	A
77	130th Place and Greenwood Avenue	Unsignalized	---	---	A	A



Intersection ID	Intersection	Control Type	Draft EIS		Final EIS	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
78	131st Street and Greenwood Avenue	Unsignalized	---	---	A	A
79	132nd Street and Greenwood Avenue	Unsignalized	---	---	A	A
80	132nd Street and Beaubien Woods Driveway	Unsignalized	---	---	A	A
81	132nd Street and Doty Avenue	Unsignalized	---	---	A	A
82	EB 130th Street and I-94E On-Ramp (Ramp A)	Uncontrolled	---	---	A	B
83	EB 130th Street and I-94E Off-Ramp (Ramp B)	Uncontrolled	---	---	B	B
84	EB 130th Street and I-94W On-Ramp (Ramp C)					
85	EB 130th Street and I-94W Off-Ramp (Ramp D)	Uncontrolled	---	---	B	B
86	WB 130th Street and I-94W On-Ramp (Ramp E)	Uncontrolled	---	---	A	B
87	WB 130th Street and I-94W Off-Ramp (Ramp F)	Uncontrolled	---	---	B	B
88	WB 130th Street and I-94E On-Ramp (Ramp G)					
89	WB 130th Street and I-94E Off-Ramp (Ramp H)	Uncontrolled	---	---	B	A

Notes: - LOS = level of service

- Signalized and unsignalized intersection LOS reported as the average for all movements.

- I-94 ramps B and C, as well as ramps F and G, were analyzed as weaving segments and therefore analyzed as one location per ramp pair.

- “---” indicates that no LOS was reported for those intersections for the Draft EIS since they were not originally included in the Draft EIS API.

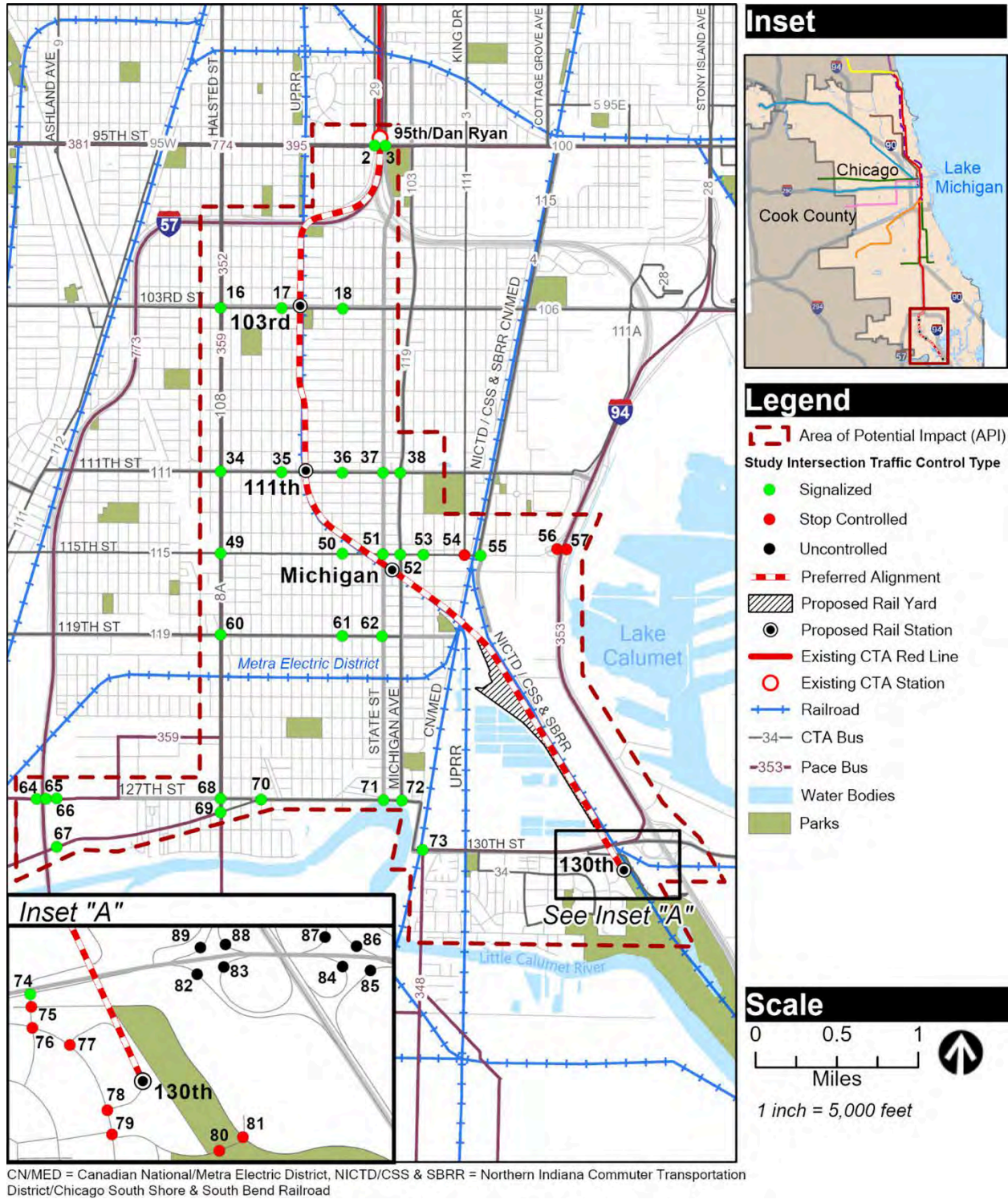


Figure 4-2: Intersection Control Types in the API

## 4.3 Freight Transportation

Approximately 500 freight trains per day operate in the Chicago region (CMAP 2014). In 2007, regional rail tonnage was estimated at more than 631 million tons, with about 24,000 trailers and containers and about 16,800 carload units moving into, out of, or through the region daily (CMAP 2012b). The 2007 forecast has not been updated since the Draft EIS. The following active freight railways operate through the API and are identified on **Figure 4-3**.

- UPRR
- CN/MED
- NICTD/CSS and SBRR
- NS Railway
- IHB Railroad
- Conrail (operated on NS Railway)

The UPRR reported 14 freight trains per day within the API, although multi-day data collection efforts conducted on May 20, 21, 22, and 28 and June 4, 2021 indicate a current average of only eight to ten trains per day. In addition, Amtrak runs two passenger trains three times a week on the UPRR tracks within the API. The CN/MED tracks carry 34 passenger and 12 freight trains. The NICTD/CSS and SBRR tracks carry 34 passenger and 6 freight trains and converge with the CN/MED tracks between 115th Street and Kensington Avenue and both carry passenger and freight trains.



Figure 4-3: Freight Railroads in the API

## 4.4 Bicycle Facilities

The City of Chicago has 200 miles of on-street bike lanes and more than 36 miles of trails. This is an increase of 53 miles of bike lanes since the Draft EIS. In addition, the City has more than 12,000 racks for bicycle parking, including racks at CTA stations (City of Chicago 2012c). CTA identified existing bicycle facilities within ½ mile of the Preferred Alignment (see **Figure 4-4**). Bicycle facilities recommended in the City of Chicago's Bike 2015 Plan (City of Chicago 2006) and pertinent recommended cycling routes from the Chicago Streets for Cycling Plan 2020 are also shown on the figure.

Chicago's bicycle sharing system, Divvy, currently has over 6,000 bicycles at over 600 stations across the city. In the summer and fall of 2020, Divvy expanded to Chicago's Far South Side. Currently there are 12 Divvy stations located within the API. Of the 12 Divvy stations, four Divvy stations are within a ½ mile of the three northern RLE Project stations, and these can be found at 104th Street and Wentworth Avenue, 111th Street and Halsted Street, 111th Street and Wentworth Avenue, and 114th Street and Michigan Avenue. In addition, there is one Divvy station within the Altgeld Gardens neighborhood, located at the Altgeld Branch of the Chicago Public Library and within a ½ mile of the 130th Street station. There were no Divvy stations present in the API in the Draft EIS.

Major Taylor Trail is an off-street cycling trail that runs through the API. Bicycle facilities, which have been constructed within the API since the Draft EIS, are bike lanes located on 103rd Street, 111th Street, 115th Street, and State Street and a greenway located on 124th Street.

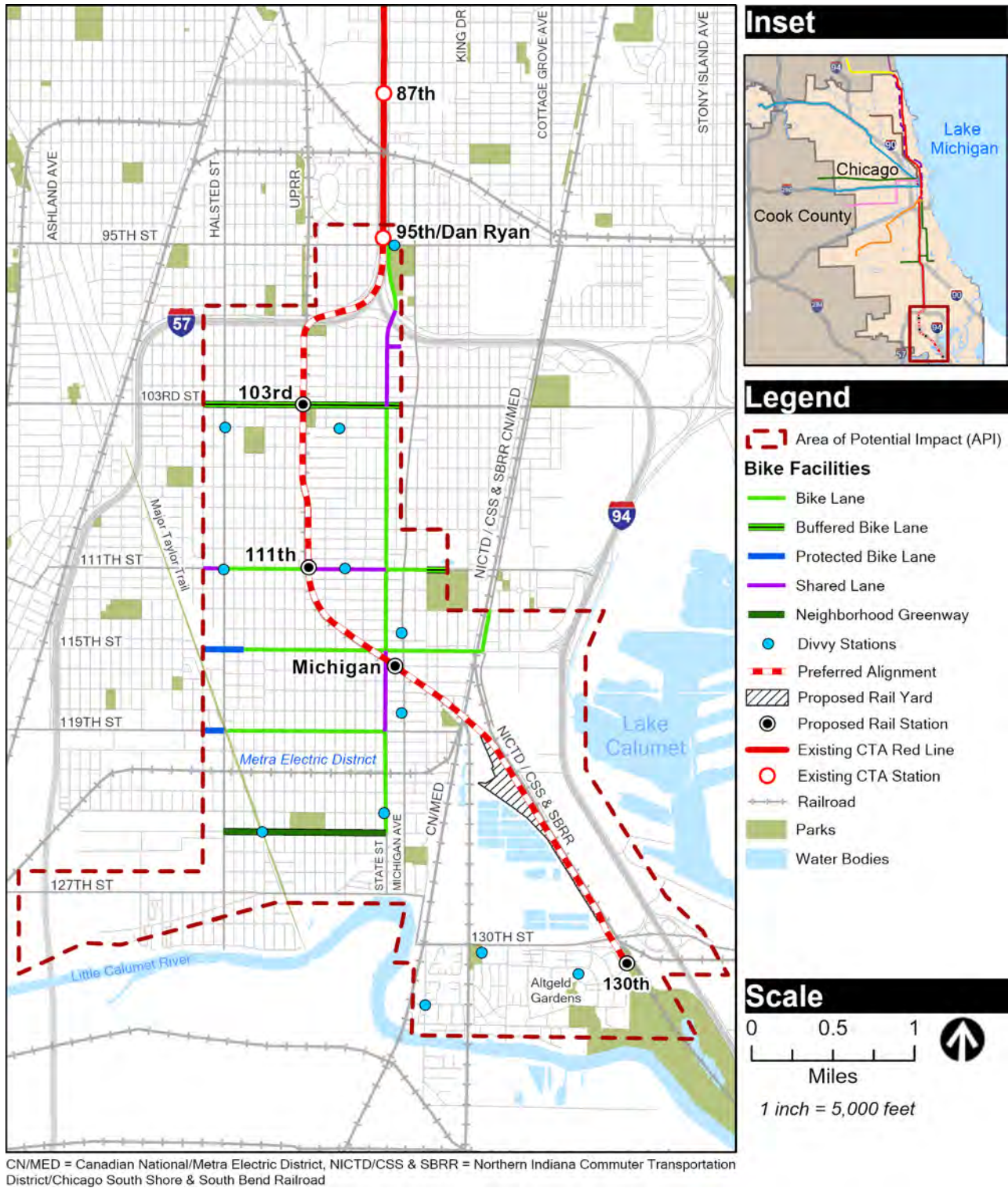


Figure 4-4: Existing Bicycle Facilities within and near the API

## 4.5 Pedestrians

There are no changes to the existing pedestrian network referenced in **Appendix H** of the Draft EIS.

## 4.6 Parking

The relocation of the 130th Street station adjacent to the Altgeld Gardens neighborhood has expanded the potential area used for parking, since the Draft EIS. Most of the streets in the API have on-street parking, including the Altgeld Gardens neighborhood. **Table 4-5** is a summary of the on-street parking at some of the major roadways along the Preferred Alignment. On-street parking is allowed (as posted) on most of the local streets not listed in this table. There is currently no park & ride facility at the existing 95th Street/Dan Ryan terminal.

Table 4-5: Existing On-Street Parking

Street	Roadway Functional Classification	On-Street Parking
95th Street	Other Principal Arterial	No
103rd Street	Minor Arterial	Yes
111th Street	Minor Arterial	Yes
115th Street	Major Collector	Yes
119th Street	Major Collector	Yes
127th Street	Other Principal Arterial	No
130th Street	Other Principal Arterial	No
Wentworth Avenue	Major Collector	Yes
State Street	Minor Arterial/Local Road	Yes
Michigan Avenue	Major Collector	Yes
Indiana Avenue	Minor Arterial	No

Source: IDOT – Roadway Functional Classification GIS Map, 2021

A permit or fee is not required to park on the streets within the API. There are a number of existing off-street surface parking lots in the Altgeld Gardens neighborhood, but they are strictly reserved for local private residences and businesses. Many of the commercial and retail buildings within the API have plenty of parking available either through on-street or parking lots associated with the buildings. TCA Health has a parking lot off Old 130th Street adjacent to the Altgeld Gardens neighborhood. The Agape Community Center uses a City-owned parcel of land that is located immediately west of the center for parking.

## Section 5 - Impacts and Mitigation

Consistent with the Draft EIS, the impacts and mitigation summaries are organized into three impact categories—permanent, construction, and cumulative—with references to affected communities.

- Permanent impacts relate to system operations after the project has been constructed, as well as land acquisitions necessary for the permanent right-of-way.
- Construction impacts are temporary and are anticipated to occur for the construction phase of the project, up to five years, including construction staging and utility relocations.
- Cumulative impacts are those of the project combined with other past, present, or near future projects within the API.

This section also documents any new or revised mitigation measures for identified project impacts, where applicable. If there is no change in the mitigation measures, this section indicates where there is no change when compared to the East or West Options of the UPRR Alternative evaluated in the Draft EIS. Likewise, this section indicates what additional (or fewer) mitigation measures apply to the Preferred Alignment.

### 5.1 No Build Alternative

As described in **Appendix H** in the Draft EIS, there would be no impacts on public transportation, freight transportation, bicycle facilities, pedestrians, and parking from the No Build Alternative.

#### 5.1.1 Permanent Impacts and Mitigation - No Build Alternative

##### 5.1.1.1 Traffic

Under No Build (2050) conditions, 84 percent (41 intersections) of the study intersections within the API would operate at LOS D or better in both the AM and PM peak hours. **Table 5-1** provides a comparison of the No Build conditions from the Draft EIS (2030) and Final EIS (2050) intersection LOS. Due to the updated API, some intersections differ between the Draft and Final EIS. Intersections that were analyzed only in the Draft EIS are not shown and intersections analyzed only for the Final EIS are listed. **Attachment B** contains the No Build traffic data used in the traffic impact analysis. Under No Build (2050) conditions, there would be eight intersections that would operate at LOS E or F in either or both the AM and PM peak hours. Because eight intersections would operate at LOS E or F, there would be an adverse impact on transportation, specifically vehicular traffic, under the No Build Alternative.



Table 5-1: No Build Intersection Level of Service Comparing Draft and Final EIS Values

Intersection ID	Intersection	Control Type	Draft EIS No Build (2030)		Final EIS No Build (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
2	95th Street and Lafayette Avenue	Signalized	D	D	D	D
3	95th Street and State Street	Signalized	D	C	<b>F</b>	<b>E</b>
16	103rd Street and Halsted Street	Signalized	<b>F</b>	D	<b>F</b>	D
17	103rd Street and Normal Avenue	Signalized	B	B	B	A
18	103rd Street and Wentworth Avenue	Signalized	B	B	B	B
34	111th Street and Halsted Street	Signalized	C	C	C	C
35	111th Street and Normal Avenue	Signalized	B	A	A	B
36	111th Street and Wentworth Avenue	Signalized	B	A	B	B
37	111th Street and State Street	Signalized	A	B	A	B
38	111th Street and Michigan Avenue	Signalized	B	B	B	B
49	115th Street and Halsted Street	Signalized	C	C	C	C
50	115th Street and Wentworth Avenue	Signalized	B	B	B	B
51	115th Street and State Street	Signalized	B	B	B	B
52	115th Street and Michigan Avenue	Signalized	B	D	C	<b>E</b>
53	115th Street and Indiana Avenue	Signalized	B	B	B	C
54	115th Street and Martin Luther King Jr Drive	Unsignalized	A	B	D	<b>F</b>
55a	115th Street and Cottage Grove Avenue (West)	Signalized	D	C	D	D
55b	115th Street and Cottage Grove Avenue (East)	Signalized	<b>E</b>	C	<b>F</b>	<b>F</b>
56	115th Street and I-94 EB Ramps	Unsignalized	A	A	A	A
57	115th Street and I-94 WB Ramps	Unsignalized	C	B	<b>E</b>	B
60	119th Street and Halsted Street	Signalized	C	C	C	D
61	119th Street and Wentworth Avenue	Signalized	B	B	B	B
62	119th Street and State Street	Signalized	B	B	B	B

Intersection ID	Intersection	Control Type	Draft EIS No Build (2030)		Final EIS No Build (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
64	127th Street and Paulina Street	Signalized	C	C	D	<b>E</b>
65	127th Street and Marshfield Avenue	Signalized	C	C	D	D
66	127th Street and Ashland Avenue	Signalized	C	C	D	C
67	Vermont Street and Ashland Avenue	Signalized	C	C	C	D
68	127th Street and Halsted Street	Signalized	C	C	C	D
69	Vermont Street and Halsted Street	Signalized	B	B	B	B
70	127th Street and Vermont Street and Wallace Street	Signalized	D	D	<b>E</b>	<b>F</b>
71	127th Street and State Street	Signalized	B	B	B	C
72	127th Street and Michigan Avenue	Signalized	A	B	A	B
73	130th Street and Indiana Avenue	Signalized	C	C	C	C
74	130th Street and Ellis Avenue	Signalized	A	A	B	B
75	Old 130th Street and Ellis Avenue	Unsignalized	---	---	A	A
76	Greenwood Avenue and Ellis Avenue	Unsignalized	---	---	A	A
77	130th Place and Greenwood Avenue	Unsignalized	---	---	A	A
78	131st Street and Greenwood Avenue	Unsignalized	---	---	A	A
79	132nd Street and Greenwood Avenue	Unsignalized	---	---	A	A
80	132nd Street and Beaubien Woods Driveway	Unsignalized	---	---	A	A
81	132nd Street and Doty Avenue	Unsignalized	---	---	A	A
82	EB 130th Street and I-94E On-Ramp (Ramp A)	Uncontrolled	---	---	A	B
83	EB 130th Street and I-94E Off-Ramp (Ramp B)	Uncontrolled	---	---	B	B
84	EB 130th Street and I-94W On-Ramp (Ramp C)					

Intersection ID	Intersection	Control Type	Draft EIS No Build (2030)		Final EIS No Build (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
85	EB 130th Street and I-94W Off-Ramp (Ramp D)	Uncontrolled	---	---	B	B
86	WB 130th Street and I-94W On-Ramp (Ramp E)	Uncontrolled	---	---	B	B
87	WB 130th Street and I-94W Off-Ramp (Ramp F)	Uncontrolled	---	---	C	C
88	WB 130th Street and I-94E On-Ramp (Ramp G)					
89	WB 130th Street and I-94E Off-Ramp (Ramp H)	Uncontrolled	---	---	B	B

Notes: - LOS = level of service

- Signalized and unsignalized intersection LOS reported as the average for all movements.

- I-94 ramps B and C, as well as ramps F and G, were analyzed as weaving segments and therefore analyzed as one location per ramp pair.

- “---” indicates that no LOS was reported for those intersections for the Draft EIS since they were not originally included in the Draft EIS API.

### 5.1.2 Construction Impacts and Mitigation - No Build Alternative

As described in **Appendix H** in the Draft EIS, there would be no construction impacts or mitigation measures from the No Build Alternative.

### 5.1.3 Cumulative Impacts and Mitigation - No Build Alternative

As described in **Appendix H** in the Draft EIS, there would be no cumulative impacts or mitigation measures from the No Build Alternative.

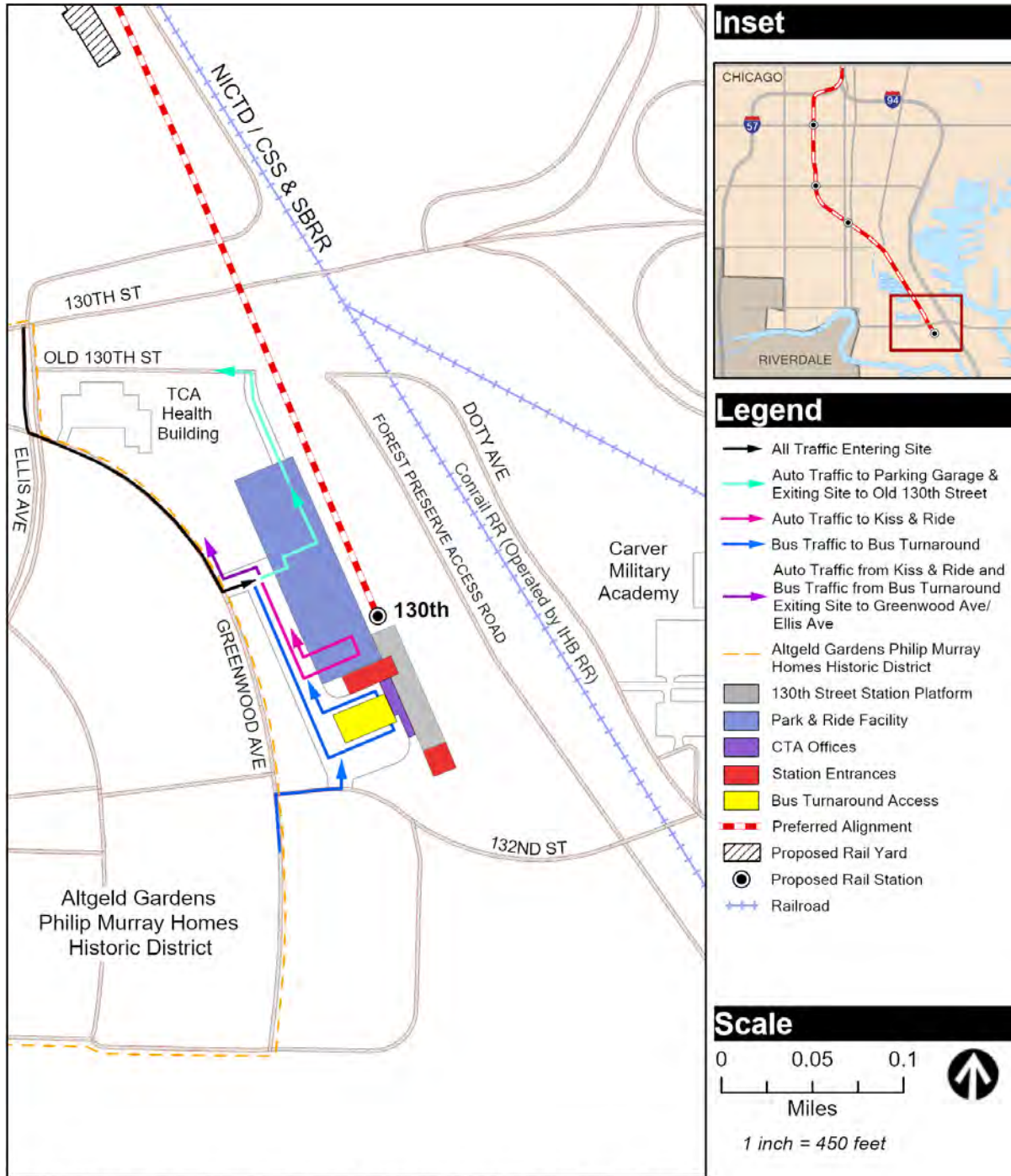
## 5.2 Union Pacific Railroad Alternative - Preferred Alignment

### 5.2.1 Permanent Impacts and Mitigation - Preferred Alignment

#### 5.2.1.1 Public Transportation

Currently the 95th Street/Dan Ryan terminal is the southern terminus of the Red Line. Many of the existing bus routes within the API terminate at this location. From this station, passengers continue to travel north on the Red Line or connect to a different bus route. With the expansion of the Red Line, some existing bus routes would be rerouted to feed into the RLE stations. Passengers would benefit from reduced travel times to connecting rail service, farther south of the 95th Street/Dan Ryan terminal. Transportation modeling indicates over 21,500 average weekday boardings for the Preferred Alignment for year 2040 based on the STOPS analysis.

The 130th Street station access would be from the east side of Greenwood Avenue. At the 130th Street station, buses would enter the same entrance as other vehicles at the station access from Greenwood Avenue and would use the south driveway leading to a bus turnaround and bus bay to unload and pick up riders at the southern entrance access point. Based on the layout, an option under consideration, is to have the buses that serve the Altgeld Gardens neighborhood from the south, enter the station at the 132nd Street entrance and unload and pick up riders at the same bus bay. When exiting the station, all buses would exit using the station access from Greenwood Avenue. **Figure 5-1** shows the 130th Street station traffic circulation plan.



CN/MED = Canadian National/Metra Electric District, NICTD/CSS & SBRR = Northern Indiana Commuter Transportation District/Chicago South Shore & South Bend Railroad, IHB = Indiana Harbor Belt Railroad

Figure 5-1: 130th Street Station Traffic Circulation

The following describes the potential modifications to existing bus routes to create more efficient bus routes and to directly connect riders to their nearest RLE station. These recommendations may change before the RLE Project opens and would take into account public feedback at that time. While some bus routes have changed from what was proposed in the Draft EIS, as a result of additional coordination with Pace and through internal coordination within CTA, overall concept of bus routes connecting to new stations remains the same.

- CTA route #4 (Cottage Grove) select trips (those currently terminating at 115th/Kensington Metra station) would be extended to the new Michigan Avenue station.
- CTA route #8A South Halsted would be extended to 127th Street for all trips; currently all but midday and evening trips terminate at 120th Street.
- CTA route #24 (Wentworth) would be extended south to 119th Street/Ashland Avenue via Vincennes Avenue, covering a portion of the current CTA route #112, which would be eliminated, and a portion of CTA route #111, which would be realigned. As a result, Vincennes Avenue would be served by one route instead of three.
- CTA route #103 (West 103rd) and #106 (East 103rd) would be combined into one route operating between a west terminal at Pulaski Road and an east terminal at the 103rd Street bus garage. This change would eliminate the Michigan Avenue and 95th Street segments of both routes. This route would serve the 103rd Street station providing connections from east and west of the Preferred Alignment.
- CTA route #111 (111th/King Drive) would be extended to 111th Street and Pulaski Road, covering a portion of CTA route #112 (Vincennes/111th), which would be eliminated. CTA route #111 would operate on 111th Street between Pulaski Road and Corliss Avenue, serving the new 111th Street station. The segments of CTA route #111 north of 111th Street would be eliminated. The segment of CTA route #111 south of 111th Street would be served by the extended CTA route #24 instead.
- CTA route #115 (Pullman/115th) would be realigned, operating via Doty Avenue and Woodlawn Avenue to the 103rd Street bus garage instead of terminating at the 95th Street/Dan Ryan terminal. The realignment would cover most of CTA route #111A, which would be eliminated. This route will serve the Michigan Avenue station.
- CTA route #119 (Michigan/119th) would terminate at the new Michigan Avenue station instead of the 95th Street/Dan Ryan terminal, eliminating the segments north of 115th Street.
- CTA route #30 (South Chicago) would be extended from its current terminal at 130th Street/Exchange Avenue to terminate at the new 130th Street station.

- CTA routes #108 (Halsted/95th), 111A (Pullman Shuttle), and 112 (Vincennes-111th) would be eliminated and coverage would be provided by extension and realignment of other bus routes, as explained above.
- Pace route #348 (Harvey – Riverdale – Blue Island) would be restructured into two routes to provide connectivity to the new 130th Street station. One route would cover the northern portion of the existing route #348, operating east-west through the City of Blue Island, with an eastward extension to the 130th Street station via 138th Street. The second route would cover the southern portion of the existing route, operating from the Harvey Transportation Center to the 130th Street station through the Village of Riverdale.
- Pace route #353 (95th/Dan Ryan CTA – River Oaks – Homewood Limited), rather than running along I-94 to the 95th Street/Dan Ryan terminal, would be shortened to terminate at the 130th Street station, providing passengers a transfer at the 130th Street station.
- Pace route #355 (Wentworth Limited) would be extended to connect to the new 130th Street station. This route would provide connections to the Hegewisch neighborhood and communities to the south.
- Pace route #358 (Torrence Avenue) would be extended to connect to the new 130th Street station. This route would provide connections to the Hegewisch neighborhood and communities to the south.
- Pace route #359 (Robbins – South Kedzie Avenue) would be shortened to terminate at the Michigan Avenue station instead of the 95th Street/Dan Ryan terminal, connecting from Halsted Street to Michigan Avenue via 115th Street.
- Pace Route #385 (87th/111th/127th) would be restructured and extended to the new 130th Street station via 127th Street. This route would provide connections to communities to the west of the 130th Street station. Portions of the route south of 127th Street would be eliminated, served instead by Pace route #348.

Public transportation would be restructured to supplement the Preferred Alignment, allowing riders reduced travel times to the Loop. Congestion at the 95th Street/Dan Ryan terminal would be reduced by minimizing the number of bus transfers riders need because they would be able to transfer to or directly board at the proposed stations closer to their origins. Consistent with the Draft EIS, there would be no adverse impacts on public transportation from the Preferred Alignment. Public transportation would benefit from the Preferred Alignment.

### 5.2.1.2 Traffic

Under Preferred Alignment (2050) conditions, most of the study intersections within the API would operate at LOS D or better in both the AM and PM peak hours, as shown in **Table 5-2**. The traffic data and Synchro results for the unmitigated intersections are in **Attachment C** for the Preferred Alignment. A red time queue analysis using Preferred Alignment volumes was performed at 130th Street/Ellis Avenue and 127th Street/Vermont Street/Wallace Street intersections to determine the storage lengths required for the auxiliary turn lanes. The results of this analysis determined that the eastbound right turn and westbound left turn lanes at the 130th Street/Ellis Avenue intersection currently provide sufficient storage space to accommodate Preferred Alignment traffic volumes in the AM peak hour. However, in coordination with IDOT (having jurisdiction of 130th Street) and CDOT (having jurisdiction of Ellis Avenue), CTA could extend turn lane storage lengths and recommend adjusting the signal timing per the Intersection Design Study and the traffic analysis results to support potential ancillary development associated with the 130th Street station. This mitigation would be based on actual (measured) traffic volumes, agency requirements, coordination within the traffic network, and any traffic demand management and/or traffic calming measures being implemented at the time of mitigation.

All increases in traffic volumes are related to vehicle access to park & ride facilities at stations. Under the Preferred Alignment (2050) conditions, there would be ten intersections that would operate at an undesirable LOS (LOS E or F) in either or both the AM and PM peak hours. Of those ten intersections, five would operate at conditions worse than the No Build conditions.

The intersections that would operate at worse than the No Build conditions are shown in bold in **Table 5-2** and are listed below:

- Intersection #16: 103rd Street and Halsted Street – AM LOS = F; PM LOS = E
- Intersection #54: 115th Street and Martin Luther King Jr Drive – AM LOS = E; PM LOS = F
- Intersection #64: 127th Street and Paulina Street – PM LOS = E
- Intersection #70: 127th Street and Vermont Street and Wallace Street– AM LOS = F; PM LOS = F
- Intersection #71: 127th Street and State Street – PM LOS = E



Table 5-2: Union Pacific Railroad Alternative Intersection Level of Service Comparing Draft and Final EIS Values

Intersection ID	Intersection	Control Type	Draft EIS Build: UPRR (2030)		Final EIS Build: Preferred Alignment (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
2	95th Street and Lafayette Avenue	Signalized	D	D	D	D
3	95th Street and State Street	Signalized	D	C	F	E
16	<b>103rd Street and Halsted Street</b>	Signalized	F	E	F	E
17	103rd Street and Normal Avenue	Signalized	B	C	B	B
18	103rd Street and Wentworth Avenue	Signalized	B	B	B	C
34	111th Street and Halsted Street	Signalized	C	C	C	C
35	111th Street and Normal Avenue	Signalized	B	B	A	B
36	111th Street and Wentworth Avenue	Signalized	B	A	B	B
37	111th Street and State Street	Signalized	A	B	B	B
38	111th Street and Michigan Avenue	Signalized	B	B	B	B
49	115th Street and Halsted Street	Signalized	C	C	C	C
50	115th Street and Wentworth Avenue	Signalized	B	B	B	C
51	115th Street and State Street	Signalized	B	B	B	B
52	115th Street and Michigan Avenue	Signalized	F	E	C	E
53	115th Street and Indiana Avenue	Signalized	B	C	B	C
54	<b>115th Street and Martin Luther King Jr Drive</b>	Unsignalized	A	C	E	F
55a	115th Street and Cottage Grove Avenue (West)	Signalized	D	F	D	D
55b	115th Street and Cottage Grove Avenue (East)	Signalized	F	D	F	F
56	115th Street and I-94 EB Ramps	Unsignalized	A	A	A	A
57	115th Street and I-94 WB Ramps	Unsignalized	D	B	E	B
60	119th Street and Halsted Street	Signalized	C	D	C	D
61	119th Street and Wentworth Avenue	Signalized	B	F	B	B

Intersection ID	Intersection	Control Type	Draft EIS Build: UPRR (2030)		Final EIS Build: Preferred Alignment (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
62	119th Street and State Street	Signalized	F	F	B	B
64	<b>127th Street and Paulina Street</b>	Signalized	C	D	D	E
65	127th Street and Marshfield Avenue	Signalized	D	C	D	D
66	127th Street and Ashland Avenue	Signalized	C	D	D	C
67	Vermont Street and Ashland Avenue	Signalized	C	C	C	D
68	127th Street and Halsted Street	Signalized	E	F	D	D
69	Vermont Street and Halsted Street	Signalized	B	B	B	B
70	<b>127th Street and Vermont Street and Wallace Street</b>	Signalized	F	F	F	F
71	<b>127th Street and State Street</b>	Signalized	E	E	B	D
72	127th Street and Michigan Avenue	Signalized	B	D	A	B
73	130th Street and Indiana Avenue	Signalized	F	F	C	D
74	130th Street and Ellis Avenue	Signalized	B	E	B	B
75	Old 130th Street and Ellis Avenue	Unsignalized	---	---	A	A
76	Greenwood Avenue and Ellis Avenue	Unsignalized	---	---	A	A
77	130th Place and Greenwood Avenue	Unsignalized	---	---	A	A
78	131st Street and Greenwood Avenue	Unsignalized	---	---	A	A
79	132nd Street and Greenwood Avenue	Unsignalized	---	---	A	A
80	132nd Street and Beaubien Woods Driveway	Unsignalized	---	---	A	A
81	132nd Street and Doty Avenue	Unsignalized	---	---	A	A
82	EB 130th Street and I-94E On-Ramp (Ramp A)	Uncontrolled	---	---	A	B
83	EB 130th Street and I-94E Off-Ramp (Ramp B)	Uncontrolled	---	---	B	B
84	EB 130th Street and I-94W On-Ramp (Ramp C)					
85	EB 130th Street and I-94W Off-Ramp (Ramp D)	Uncontrolled	---	---	B	B

Intersection ID	Intersection	Control Type	Draft EIS Build: UPRR (2030)		Final EIS Build: Preferred Alignment (2050)	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
86	WB 130th Street and I-94W On-Ramp (Ramp E)	Uncontrolled	---	---	B	B
87	WB 130th Street and I-94W Off-Ramp (Ramp F)	Uncontrolled	---	---	C	C
88	WB 130th Street and I-94E On-Ramp (Ramp G)					
89	WB 130th Street and I-94E Off-Ramp (Ramp H)	Uncontrolled	---	---	B	B

Notes: - LOS = level of service, UPRR = Union Pacific Railroad  
 - Signalized and unsignalized intersection LOS reported as the average for all movements.  
 - I-94 ramps B and C, as well as ramps F and G, were analyzed as weaving segments and therefore analyzed as one location per ramp pair.  
 - “---” indicates that no LOS was reported for those intersections for the Draft EIS since they were not originally included in the Draft EIS API.

The number of intersections operating at an undesirable LOS (LOS E or F) differs from the 2030 UPRR Alternative of **Appendix H** in the Draft EIS, because there were 21 intersections operating at an undesirable LOS (LOS E or F) in either or both the AM and PM peak hours. Of those 21 intersections, 15 would operate at conditions worse than the No Build conditions.

Mitigation measures to reduce or minimize impacts were evaluated for the transportation network surrounding the Preferred Alignment. Mitigation measures for intersections near the affected intersection may also be necessary to provide better flow of traffic; therefore, the provided mitigation measures include the affected intersections as well as adjacent or nearby intersections. **Table 5-3** lists recommendations for consideration by the agencies of jurisdiction - IDOT, CDOT, and CCDoTH - based on the Preferred Alignment (2050) conditions. At intersections where adverse impacts are projected (2050), potential improvements have been identified to offset the portion of the LOS deterioration or insufficient storage length attributable to the RLE Project. CTA has provided RLE Project traffic analysis to these agencies of jurisdiction through ongoing coordination and recommended improvements as documented in the Final Environmental Impact Statement (EIS)/Record of Decision (ROD) through 30 percent design. CTA would coordinate intersection improvements with IDOT, CDOT, and CCDoTH for intersections affected by the change in traffic volumes and patterns associated with the final design of the RLE Project. However, the mitigation measures would be based on actual (measured) traffic volumes, agency requirements, coordination within the traffic network, and any traffic demand management and/or traffic calming measures being implemented at the time of mitigation. Agency requirements may include level of service analysis under Complete Streets guidelines, examining an overall level of service for pedestrians,

bicycles, transit modes, and other vehicles (rather than placing an emphasis on the movement of automobiles).

Table 5-3: Potential Improvement to Support the Preferred Alignment (2050) Conditions

Intersection ID	Intersection	Mitigation Measure
16	103rd Street and Halsted Street	AM/PM: Adjusted signal timing splits AM/PM: Changed westbound left movement to permissive-protected
52	115th Street and Michigan Avenue	PM: Increased cycle length to 85 seconds
55a	115th Street and Cottage Grove Avenue (West)	AM/PM: Adjusted signal timing splits
55b	115th Street and Cottage Grove Avenue (East)	AM/PM: Adjusted signal timing splits
60	119th Street and Halsted Street	PM: Adjusted signal timing splits
64	127th Street and Paulina Street	AM/PM: Adjusted signal timing splits (Maintained existing offset timing)
65	127th Street and Marshfield Avenue	AM/PM: Adjusted signal timing splits (Maintained existing offset timing)
66	127th Street and Ashland Avenue	AM: Adjusted signal timing splits (Maintained existing offset timing)
68	127th Street and Halsted Street	AM/PM: Increased cycle length to 90 seconds
70	127th Street and Vermont Street and Wallace Street	AM/PM: Adjusted signal timing splits AM/PM: Prohibited left turns for the northeast bound leg, right turn only AM/PM: Changed the northeast bound right turn movement to overlap AM/PM: Converted westbound thru-left lane to a westbound left turn lane
71	127th Street and State Street	PM: Increased cycle length to 90 seconds
73	130th Street and Indiana Avenue	AM/PM: Increased cycle length to 85 seconds

The intersection of 119th Street and Halsted Street is the only intersection from **Table 5-3** not included in the Draft EIS for mitigation. The intersections from the Draft EIS that required

mitigation measures but no longer do in the Final EIS are 119th Street and Wentworth Avenue and 127th Street and Michigan Avenue. Only intersections that fall within the Final EIS API are listed.

Under the Preferred Alignment (2050) conditions, if the recommended improvements were implemented by the respective jurisdictions, then most of the study intersections within the API would operate at LOS D or better in both the AM and PM peak hours, as shown in **Table 5-4**. Under these Preferred Alignment mitigated (2050) conditions, some intersections would operate at LOS E or F. Coordination regarding LOS thresholds was conducted with IDOT and CDOT. LOS D is considered to be acceptable for urban areas. The traffic data and Synchro results are in **Attachment D** for the Preferred Alignment (Mitigated).

Table 5-4: Preferred Alignment Intersection (2050) Level of Service with Improvements

Intersection ID	Intersection	Control Type	Final EIS No Build (2050)		Final EIS Preferred Alignment (2050) Mitigated	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
2	95th Street and Lafayette Avenue	Signalized	D	D	D	D
3	95th Street and State Street	Signalized	F	E	F	E
16	103rd Street and Halsted Street	Signalized	F	D	F	D
17	103rd Street and Normal Avenue	Signalized	B	A	B	B
18	103rd Street and Wentworth Avenue	Signalized	B	B	B	C
34	111th Street and Halsted Street	Signalized	C	C	C	C
35	111th Street and Normal Avenue	Signalized	A	B	A	B
36	111th Street and Wentworth Avenue	Signalized	B	B	B	B
37	111th Street and State Street	Signalized	A	B	B	B
38	111th Street and Michigan Avenue	Signalized	B	B	B	B
49	115th Street and Halsted Street	Signalized	C	C	C	C
50	115th Street and Wentworth Avenue	Signalized	B	B	B	B
51	115th Street and State Street	Signalized	B	B	B	B
52	115th Street and Michigan Avenue	Signalized	C	E	C	D
53	115th Street and Indiana Avenue	Signalized	B	C	B	C
54	115th Street and Martin Luther King Jr Drive	Unsignalized	A	C	E	F

Intersection ID	Intersection	Control Type	Final EIS No Build (2050)		Final EIS Preferred Alignment (2050) Mitigated	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
55a	115th Street and Cottage Grove Avenue (West)	Signalized	D	D	D	D
55b	115th Street and Cottage Grove Avenue (East)	Signalized	F	F	F	F
56	115th Street and I-94 EB Ramps	Unsignalized	A	A	A	A
57	115th Street and I-94 WB Ramps	Unsignalized	D	B	E	B
60	119th Street and Halsted Street	Signalized	C	D	C	D
61	119th Street and Wentworth Avenue	Signalized	B	B	B	B
62	119th Street and State Street	Signalized	B	B	B	B
64	127th Street and Paulina Street	Signalized	D	E	D	D
65	127th Street and Marshfield Avenue	Signalized	D	D	D	D
66	127th Street and Ashland Avenue	Signalized	D	C	C	C
67	Vermont Street and Ashland Avenue	Signalized	C	D	C	D
68	127th Street and Halsted Street	Signalized	C	D	C	C
69	Vermont Street and Halsted Street	Signalized	B	B	B	B
70	127th Street and Vermont Street and Wallace Street	Signalized	E	F	B	B
71	127th Street and State Street	Signalized	B	C	B	B
72	127th Street and Michigan Avenue	Signalized	A	B	A	B
73	130th Street and Indiana Avenue	Signalized	C	C	C	B
74	130th Street and Ellis Avenue	Signalized	B	B	B	B
75	Old 130th Street and Ellis Avenue	Unsignalized	A	A	A	A
76	Greenwood Avenue and Ellis Avenue	Unsignalized	A	A	A	A
77	130th Place and Greenwood Avenue	Unsignalized	A	A	A	A
78	131st Street and Greenwood Avenue	Unsignalized	A	A	A	A
79	132nd Street and Greenwood Avenue	Unsignalized	A	A	A	A
80	132nd Street and Beaubien Woods Driveway	Unsignalized	A	A	A	A

Intersection ID	Intersection	Control Type	Final EIS No Build (2050)		Final EIS Preferred Alignment (2050) Mitigated	
			AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
81	132nd Street and Doty Avenue	Unsignalized	A	A	A	A
82	EB 130th Street and I-94E On-Ramp (Ramp A)	Uncontrolled	A	B	A	B
83	EB 130th Street and I-94E Off-Ramp (Ramp B)	Uncontrolled	B	B	B	B
84	EB 130th Street and I-94W On-Ramp (Ramp C)					
85	EB 130th Street and I-94W Off-Ramp (Ramp D)	Uncontrolled	B	B	B	B
86	WB 130th Street and I-94W On-Ramp (Ramp E)	Uncontrolled	B	B	B	B
87	WB 130th Street and I-94W Off-Ramp (Ramp F)	Uncontrolled	C	C	C	C
88	WB 130th Street and I-94E On-Ramp (Ramp G)					
89	WB 130th Street and I-94E Off-Ramp (Ramp H)	Uncontrolled	B	B	B	B

Notes: - LOS = level of service, UPRR = Union Pacific Railroad

- Signalized and unsignalized intersection LOS reported as the average for all movements.

- I-94 ramps B and C, as well as ramps F and G, were analyzed as weaving segments and therefore analyzed as one location per ramp pair.

At the 130th Street station, nearly all automobiles and most buses would enter using the same entrance at the station access from Greenwood Avenue. An option that is in consideration, based on the layout, is to have the buses that serve Altgeld Gardens from the south, to enter the station at the 132nd Street entrance and unload and pick up riders at the same bus bay. Kiss & ride vehicles would drop off their passenger(s) and exit using the same station access that they had used entering the station. Park & ride vehicles would exit on the northern end of the garage using Old 130th Street westbound and follow that to the 130th Street and Ellis Avenue intersection. Old 130th Street east of Ellis Avenue would maintain two-way access. Minimal traffic is expected to enter Old 130th Street from Ellis Avenue because southbound left turns are not a possible movement due to a barrier median on Ellis Avenue. All buses would proceed to the bus turnaround and exit using the same station access from Greenwood Avenue.

The impacts on vehicular circulation would not be adverse due to the relocation of 130th Street station. **Figure 5-1** shows the 130th Street station traffic circulation plan.

The 130th Street station would close Old 130th Street across the new RLE tracks. Old 130th Street currently provides access to the TCA Health building and Carver Military Academy High School

and would serve as the park & ride exit from the 130th Street station. Access from Old 130th Street would remain to both driveways leading to TCA Health and from 130th Place to Greenwood Avenue. Carver Military Academy High School has two existing access points: the primary inbound and outbound access from Greenwood Avenue to 132nd Street and secondary access via Doty Avenue and Old 130th Street when traveling north to/from the high school. Under the Preferred Alignment, the secondary access via Doty Avenue would be closed and vehicles traveling to Carver Military Academy High School would only use the primary entrance at Greenwood Avenue to 132nd Street. However, Doty Avenue can still be used for access to/from the south of the high school. While unlikely, this access from Doty Avenue can also be used by automobiles accessing the 130th Street station on Greenwood Avenue.

### 5.2.1.3 Freight Transportation

For the Preferred Alignment, the impacts to freight transportation are the same as described in the Draft EIS, unless otherwise stated.

#### *Rail*

As part of the Preferred Alignment, the UPRR tracks would continue to be operational. Because the RLE track would be elevated, there would be no permanent impacts on UPRR freight train operations. Future freight train movements on the UPRR track may increase, causing additional delays to motorists at at-grade crossings.

The Preferred Alignment would provide enhanced crossing protection for vehicles and pedestrians across UPRR at-grade rail crossings adjacent to RLE stations (103rd Street, 111th Street, 115th Street, and State Street). At the four RLE stations, CTA would provide parking on the same side of the tracks so riders that use park & ride facilities do not have to cross the UPRR tracks to access the station. CTA would coordinate with the UPRR regarding fencing or other appropriate design elements and CTA will include the agreed upon design features in final design of the RLE Project to deter trespassing into UPRR property.

#### *Truck*

According to CMAP's *On TO 2050*, the biggest challenge to the trucking industry is highway congestion. CMAP congestion data show that on several corridors where truck volumes are over 10,000 per day, congestion during the morning peak period increases travel times an average of 60 percent. Because the RLE track would be elevated above local streets, there would be no impact on truck routes, other than the impacts on all motorized vehicular traffic. The 130th Street station park & ride facility may divert motorists from I-94 commuting into the city during these peak periods.



This may marginally help alleviate congestion on the expressway, reducing freight truck travel times and cost.

#### 5.2.1.4 Bicycle Facilities

The impacts to bicycle facilities are the same as described in the Draft EIS.

Under the Preferred Alignment there would be no adverse permanent impacts on existing or recommended bike routes. Bike routes along 103rd, 111th, 115th Streets, and State Street have the potential to be used by bicyclists to access the RLE Project. CTA would provide bicycle parking at the four RLE stations to accommodate bicyclists. The impacts to bicycle facilities would be beneficial. Bicyclists would benefit from the addition of bicycle parking at stations and connections to nearby existing and proposed bike routes via expanded transit access from the RLE Project.

#### 5.2.1.5 Pedestrians

The impacts and mitigation measures to pedestrians are the same as described in the Draft EIS, unless otherwise stated.

The Preferred Alignment would provide pedestrians with more choices, flexibility, and potentially reduced travel times as compared to the No Build Alternative. The existing at-grade crossings at 101st Street, 103rd Street, 107th Street, 109th Street, 111th Street, 113th Street (pedestrian only), Wentworth Avenue, 115th Street, and State Street would remain. At the crossings directly adjacent to stations, CTA would include implementation of at-grade warning device enhancements including pedestrian gates and improvements for Americans with Disabilities Act (ADA) compliance in the final design of the RLE Project in coordination with the UPRR, Illinois Commerce Commission (ICC), CDOT, and CCDoTH.

##### *103rd Street Station*

Existing striped crosswalks at Eggleston Avenue and 103rd Street, and Harvard Avenue and 103rd Street, could be used to access the station. CTA would coordinate with CDOT to include crosswalks at the existing intersection adjacent to 103rd Street station and determine if additional improvements are merited at the 103rd Station location to enhance safety for crossing pedestrians. These crosswalks would be improved with the construction of the proposed bus turnaround and station. The auxiliary entrance to the station would be adjacent to the surface parking lot, allowing for a direct route from the platform to the parking lot. The parking lot on the south side of 103rd Street would have an entrance at 103rd Place, allowing cars to leave the parking lot farther away from the station, where the majority of pedestrian traffic would occur. These improvements would contribute to convenient, safe, and secure access for all users. This station narrative has been

updated to reflect the design refinements since the Draft EIS; however, the impacts are generally the same. There would be no adverse impacts after mitigation.

### *111th Street Station*

Because the majority of the properties adjacent to the existing railroad tracks are currently undeveloped, proposed sidewalks would need to be provided for pedestrian access and egress to the primary entrance and auxiliary exit of the station. Existing striped crosswalks are not close to the proposed primary entrance of the station. At 111th Street station, where the proposed pedestrian roadway crossing is considered “mid-block,” CTA would provide enhanced crosswalk warning devices (in coordination with CDOT) in the final design of the RLE Project. This crosswalk enhancement may include a raised-table style crosswalk with the addition of rapid flash, pedestrian-activated warning lights. A surface parking lot would be on the south side of 111th Street, east of the UPRR tracks. The location of the parking lot would require pedestrians to cross 111th Street to access the station. Existing railroad crossing signals with road gates and railroad crossing pavement markings are at the crossing on 111th Street. These improvements would contribute to convenient, safe, and secure access for all users. This station narrative has been updated to reflect the design refinements since the Draft EIS; however, the impacts are generally the same. There would be no adverse impacts after mitigation.

### *Michigan Avenue Station*

Pedestrian access for the Michigan Avenue station would be located along the north side of the UPRR with entry points on the east and west sides of Michigan Avenue. The surface parking lot would be near the primary entrance of the station, allowing commuters who park in this parking lot to avoid crossing Michigan Avenue or the UPRR. Existing striped, signalized crosswalks on 115th Street at State Street and Michigan Avenue could be used to access the station. In addition to the parking lot driveway, another access driveway just south of the surface parking lot entrance on State Street would serve as a busway with five bays and would connect with the west side of Michigan Avenue with direct access the main stationhouse. A kiss & ride lot would be located on the east side of Michigan Avenue south of Kensington Avenue, where the auxiliary stationhouse would be located. CTA would coordinate with CDOT to include crosswalks at an existing intersection at Michigan Avenue and Kensington Avenue and evaluate the need for a traffic signal related to exiting buses. If the intersection is signalized, pedestrian signals with pedestrian activation will be included. . These improvements would contribute to convenient, safe, and secure access for all users. This station narrative has been updated to reflect the design refinements since the Draft EIS; however, the impacts are generally the same. There would be no adverse impacts after mitigation.

### *130th Street Station*

Since the Draft EIS, the 130th Street station was relocated, so the impacts have changed. Parking facilities for the 130th Street station would be west of the Conrail tracks and south of 130th Street in the Altgeld Gardens neighborhood. Pedestrians would benefit from the 130th Street station, as intersections would be upgraded immediately adjacent to the station with ADA-accessible curb ramps and deteriorated sidewalks would be replaced in the Altgeld Gardens neighborhood adjacent to the 130th Street station. The station area intersections would receive these improvements. The park & ride facility for the 130th Street station would be located to the south of 130th Street in the Altgeld Gardens neighborhood. The bus turnaround and bays would be on-site for the 130th Street station. These improvements would provide access for all users and would improve pedestrian safety.

The impacts on pedestrian circulation would not be adverse due to the relocation of 130th Street station. No mitigation measures would be required.

#### **5.2.1.6 Parking**

The permanent impacts and mitigation measures to parking are the same as described in **Appendix H** of the Draft EIS, unless otherwise stated.

Each of the station locations would have a surface parking lot and/or parking garage. These parking facilities would expand the reach of the RLE Project and provide an opportunity for users to access the stations by car. These users may benefit from reduced travel time and costs by taking the Red Line. Another benefit would be that motorists could be diverted from congested sections of roadway. Sufficient parking capacity, within the CTA parking facilities, would be provided in all locations to accommodate all CTA ridership traveling by vehicle. Existing on-street parking along the east side of Greenwood Avenue from Ellis Avenue to the proposed 130th Street station entrance would be removed to allow for CTA buses to travel on Greenwood Avenue. On-street parking along the west side of Greenwood Avenue, from Ellis Avenue to 132nd Street and along the east side of Greenwood Avenue south of the 130th Street Station entrance, would remain.

Existing bus stops are on 103rd Street and 111th Street at the location of the proposed stations. These existing stops already have a no parking zone in the locations of the existing bus lanes, so there would be no impact to on-street parking due to bus stop locations.

The park & ride facility for the 130th Street station would be near the I-94 and 130th Street interchange. This facility would expand the reach of the RLE Project to south suburban Cook County and northwest Indiana automobile commuters. These commuters could benefit from

decreased travel times and cost by riding the Red Line and avoiding congestion and travel delays on I-94. **Table 5-5** presents a summary of the proposed parking for each of the stations.

Table 5-5: Preferred Alignment Park & Ride Facilities

Station	Number of Parking Spaces for Preferred Alignment	Parking Facility Description
103rd Street	175	Station Area Surface Parking Lot
111th Street	225	Station Area Surface Parking Lot
Michigan Avenue	180	Station Area Surface Parking Lot
130th Street	760	Parking Garage and Surface Parking Lot
<b>Total Parking Spaces</b>	<b>1,340</b>	

Notes: - Capacity indicates customer parking supply. CTA staff parking is not shown.

The parking capacity at each station has changed since the Draft EIS. While the parking at 111th Street station would increase by 25 spaces, parking at all three other stations has been reduced since the Draft EIS proposed a total of 3,700 parking spaces.

Existing parking facilities at the Agape Community Center would be affected by the Preferred Alignment because a City-owned parcel that is currently used for parking would be acquired. Replacement parking is being proposed in the parcel directly east with the alley behind the Agape Community Center providing access to the new parking lot.

Existing parking facilities at TCA Health would be affected by the Preferred Alignment and would require mitigation measures. Mitigation measures would include maintaining access to the parking lot and replacing parking spaces, if any are impacted, at a ratio of 1 to 1. Any redesign of the parking lot would be done in coordination with TCA Health.

## 5.2.2 Construction Impacts and Mitigation - Preferred Alignment

### 5.2.2.1 Public Transportation

The construction impacts and mitigation measures to public transportation are the same as described in **Appendix H** of the Draft EIS, unless otherwise stated.

#### *Bus Transit*

The construction activities associated with the Preferred Alignment would temporarily affect the physical capacity of roadways and intersections requiring detours. This may lead to increased travel times and a possible shift in traffic volumes, which would increase travel times for bus transit users.

Bus stop locations may be eliminated or relocated temporarily, and buses may be rerouted during construction activities. With adherence to local, state, and federal construction and temporary traffic and public transportation management guidelines, no adverse impacts would result from the Preferred Alignment.

### *Commuter Rail*

The Preferred Alignment would run over existing Canadian National/Metra Electric District (CN/MED) tracks. Construction at the CN/MED crossing would be phased to minimize the impacts on Metra Electric operations. During construction for the new access road for the existing Metropolitan Water Reclamation District of Greater Chicago (MWRD) facility, construction over and adjacent to the NICTD/CSS & SBRR right-of-way would occur. Construction activities would be coordinated with the affected railroads for appropriate flagging, and scheduled track outages to minimize the impacts on passenger trains.

The rail cross-over taking place at 107th Place differs from the UPRR West Option in the Draft EIS because that cross-over would take place farther southeast along the alignment at Prairie Avenue. The Amtrak Cardinal service trains travel three times a week in each direction along the UPRR. However, construction impacts are expected to be similar to impacts noted in the Draft EIS.

### **5.2.2.2 Traffic**

The construction impacts and mitigation measures to traffic are the same as described in **Appendix H** of the Draft EIS.

The construction activities associated with the Preferred Alignment would temporarily affect the physical capacity of local roadways and intersections. This may lead to increased travel times, possible shift in traffic volumes, and the need to reroute traffic patterns during construction.

Work within the median of I-94 would require temporary lane closures. Proposed structure construction would be sequenced to minimally affect traffic flow on I-94. Increased traffic congestion due to construction activities may temporarily increase travel times along this portion of I-94.

Dual-track, elevated structures would be constructed through the I-94/I-57 interchange, across the westbound I-57 entrance ramp from northbound I-94, and within the I-57 corridor. For

superstructure erection over expressway traffic lanes, intermittent, temporary shutdown of all traffic would be required at nighttime, per IDOT approval. Temporary shutdown of other traffic would occur at nighttime and low traffic volume intervals per IDOT approval. Proposed structure construction in the vicinity of the I-94/I-57 interchange would be sequenced to limit effect on I-57 traffic flow to the extent practicable per IDOT traffic management requirements. Increased traffic congestion due to construction activities may temporarily increase travel times along this portion of I-57.

Traffic management and maintenance of traffic plans would be prepared that identify traffic detours and emergency response access routes. Coordination with IDOT, CCDoTH, CDOT, and local businesses, and organizations would occur to select the most appropriate access and traffic management for each situation. With adherence to local, state, and federal construction and temporary traffic management guidelines, no adverse traffic impacts would result from the Preferred Alignment.

### 5.2.2.3 Freight Transportation

The construction impacts and mitigation measures to freight transportation are the same as described in **Appendix H** of the Draft EIS, unless otherwise stated.

#### *Rail*

The Preferred Alignment would consist of new construction of a dual-track, elevated structure crossing over the UPRR at Fernwood Parkway just south of I-57 and continuing immediately adjacent to and west of the UPRR right-of-way, crossing over the UPRR tracks again at 107th Place and running along the east side of the UPRR corridor and over existing CN/MED tracks. Construction activities would be coordinated with the UPRR for appropriate flagging, and scheduled track outages to minimize impacts on UPRR freight operations, such as sequencing the construction of crossings..

All construction would be specified to be completed with minimal impact on UPRR operations and in a manner that would provide safe conditions for vehicles, pedestrian and bicycles using the road across the railroad right-of-way.

Construction activities would be phased to reduce construction impacts on UPRR operations as much as possible. Construction at the CN/MED crossing would be phased to minimize the impacts on CN and Metra Electric operations. Railroad flagging and scheduled track closures would be needed to construct the crossing.

### *Truck*

Work within the median of I-94 would require temporary lane closures. Proposed structure construction would be sequenced to minimally affect traffic flow on I-94. Increased traffic congestion due to construction activities may temporarily increase freight truck travel times for shipping routes that include this portion of I-94.

Dual-track, elevated structures would be constructed through the I-94/I-57 interchange, across the westbound I-57 entrance ramp from northbound I-94, and within the I-57 corridor. For superstructure erection over expressway traffic lanes, intermittent, temporary shutdown of all traffic would be required at nighttime, per IDOT approval. Temporary shutdown of other traffic would occur at nighttime and low traffic volume intervals per IDOT approval. Proposed structure construction would be sequenced to minimally affect traffic flow on I-57. Increased traffic congestion due to construction activities may temporarily increase freight truck travel times for shipping routes that include this portion of I-57.

#### **5.2.2.4 Bicycle Facilities**

The construction impacts and mitigation measures to bicycle facilities are the same as described in **Appendix H** of the Draft EIS.

Bicyclists using 103rd Street, 111th Street, or 115th Street may incur increased travel times due to detours or increase vehicular traffic due to construction activities.

#### **5.2.2.5 Pedestrians**

The construction impacts and mitigation measures to pedestrians are the same as described in **Appendix H** of the Draft EIS.

Due to the construction of the aerial structure and stations, sidewalks would need to be temporarily closed during these construction activities. Increased travel distance and time may be incurred due to pedestrian traffic reroutes. Impacts would be minimized by adhering to local, state, and federal guidelines for maintaining pedestrian and ADA access during construction.

#### **5.2.2.6 Parking**

The construction impacts and mitigation measures to parking are the same as described in **Appendix H** of the Draft EIS.

On-street parking would be temporarily affected during construction of the aerial structure and stations. Construction along roadways would also contribute to temporary on-street parking loss due to maintenance of traffic.

### 5.2.3 Cumulative Impacts and Mitigation - Preferred Alignment

The cumulative impacts and mitigation measures to the Preferred Alignment are the same as described in **Appendix H** of the Draft EIS, unless otherwise stated.

#### 5.2.3.1 Freight Transportation

The cumulative impacts and mitigation measures to freight transportation are the same as described in **Appendix H** of the Draft EIS, unless otherwise stated.

The Chicago Region Environmental and Transportation Efficiency (CREATE) Program 75th Street Corridor Improvement Project (CIP) consists of the following improvements:

- Reconfiguring the Belt Railway of Chicago main tracks between the Dan Ryan and Belt Junction, where there are existing conflicts between the freight railroads and Metra SouthWest Service.
- Reconfiguring and building a third Belt Railway Company main track and constructing a flyover to connect the Metra SouthWest Service to the Metra Rock Island District (RI) Line in the vicinity of 74th Street and Normal Avenue and 75th Street and Parnell Avenue.
- Constructing a bridge that reduces conflicts between CSX and Belt Railway Company, Metra RI, and NS.
- Road-rail grade separation of 71st Street and CSX freight line north of project boundary.

The corridor improvements would be north of the Preferred Alignment.

The UPRR tracks currently average 14 trains per day. Because the UPRR tracks would remain in the Preferred Alignment, future increases in freight trains on the UPRR tracks may have potential impacts on pedestrian and vehicular traffic near the proposed stations. This could affect travel times for bus transit servicing the stations and increase delays for commuters who choose to park & ride.



## Section 6 - Impacts Remaining after Mitigation

Impacts can be adverse or beneficial. In the category of transportation, as summarized below, there would be no adverse impacts after mitigation. The project would provide transportation benefits by improving travel times and transit access. Existing average travel times to work are higher in the RLE Project API than many other parts of Chicago. Within the API, some sections are somewhat isolated from transit access. Benefits that directly address needs within the API are summarized below for each alternative.

### 6.1 No Build Alternative

Consistent with the findings of the Draft EIS, there would be no adverse impacts on transportation as a result of the No Build Alternative.

### 6.2 Union Pacific Railroad Alternative - Preferred Alignment

Benefits applicable to the Preferred Alignment include:

- Direct rail service (without requiring one or more bus transfers) from 130th Street, an area currently isolated from transportation connectivity; and
- Bicycle parking provided at each station to allow for future bicycle facility connections to the station.

There is no change from the benefits made for the East and West Options of the UPRR Alternative in the Draft EIS.

## Section 7 - References Cited

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**Attachment A**  
**2020 Existing Condition**

<p>319/(361) 8/(85) 461/(651)</p> <p>50/(35) 508/(555) 23/(28)</p> <p>25/(25) 882/(778) 7/(5)</p>	<p>29/(28) 41/(37)</p> <p>253/(257) 428/(499) 21/(49)</p> <p>438/(329) 786/(787) 119/(213)</p> <p>59/(51) 489/(233) 124/(91)</p>	<p>93/(90) 445/(723) 65/(131)</p> <p>106/(110) 258/(270) 63/(103)</p> <p>96/(64) 285/(294) 95/(137)</p> <p>108/(76) 1435/(576) 125/(95)</p>	<p>41/(78) 323/(367) 41/(78)</p> <p>46/(74) 366/(347) 46/(74)</p> <p>43/(59) 48/(52) 52/(44)</p>	<p>26/(45) 192/(225) 151/(51)</p> <p>33/(32) 338/(441) 27/(66)</p> <p>18/(19) 383/(382) 50/(64)</p> <p>79/(72) 139/(76) 41/(37)</p>
<b>2</b> 95TH STREET LAFAYETTE AVENUE	<b>3</b> 95TH STREET STATE STREET	<b>16</b> 103RD STREET HALSTED STREET	<b>17</b> 103RD STREET NORMAL AVENUE	<b>18</b> 103RD STREET WENTWORTH AVENUE
<p>42/(62) 476/(842) 88/(96)</p> <p>88/(91) 142/(198) 45/(90)</p> <p>126/(76) 202/(205) 54/(100)</p> <p>50/(59) 921/(538) 35/(65)</p>	<p>63/(69) 253/(278)</p> <p>34/(76) 306/(305)</p> <p>76/(30) 49/(39) 22/(47)</p>	<p>18/(40) 100/(142) 48/(50)</p> <p>38/(41) 262/(285) 16/(32)</p> <p>35/(19) 306/(289) 24/(27)</p> <p>28/(30) 140/(91) 13/(22)</p>	<p>16/(48) 74/(175) 37/(64)</p> <p>61/(70) 280/(362) 28/(66)</p> <p>39/(41) 204/(255) 16/(39)</p> <p>69/(95) 246/(211) 36/(42)</p>	<p>26/(67) 118/(271) 38/(45)</p> <p>82/(40) 313/(316) 37/(69)</p> <p>64/(55) 293/(287) 20/(68)</p> <p>44/(52) 302/(207) 11/(40)</p>
<b>34</b> 111TH STREET HALSTED STREET	<b>35</b> 111TH STREET NORMAL AVENUE	<b>36</b> 111TH STREET WENTWORTH AVENUE	<b>37</b> 111TH STREET STATE STREET	<b>38</b> 111TH STREET MICHIGAN AVENUE
<p>70/(117) 373/(752) 66/(76)</p> <p>62/(65) 176/(311) 50/(159)</p> <p>169/(106) 202/(201) 39/(88)</p> <p>58/(52) 828/(415) 59/(96)</p>	<p>39/(61) 54/(111) 19/(34)</p> <p>8/(23) 216/(375) 14/(32)</p> <p>38/(48) 256/(295) 18/(30)</p> <p>25/(32) 113/(77) 35/(26)</p>	<p>30/(50) 191/(70) 30/(50)</p> <p>58/(88) 96/(197) 70/(50)</p> <p>30/(30) 200/(240) 15/(40)</p> <p>65/(75) 235/(305) 10/(20)</p> <p>20/(20) 190/(100) 10/(10)</p>	<p>20/(50) 115/(270) 20/(50)</p> <p>40/(55) 200/(285) 90/(175)</p> <p>35/(60) 235/(250) 15/(65)</p> <p>20/(20) 275/(245) 25/(25)</p>	<p>65/(65) 306/(522) 65/(65)</p> <p>14/(16) 247/(293) 14/(16)</p> <p>152/(152) 88/(101) 24/(49)</p>
<b>49</b> 115TH STREET HALSTED STREET	<b>50</b> 115TH STREET WENTWORTH AVENUE	<b>51</b> 115TH STREET STATE STREET	<b>52</b> 115TH STREET MICHIGAN AVENUE	<b>53</b> 115TH STREET INDIANA AVENUE
<p>66/(149) 58/(112)</p> <p>42/(34) 370/(503)</p> <p>76/(73) 323/(372)</p>	<p>65/(103) 33/(101) 38/(156)</p> <p>71/(34) 487/(498) 24/(1) 24/(1)</p> <p>69/(37) 388/(462) 1/(0) 1/(0)</p> <p>1/(27) 0/(2) 0/(3)</p>	<p>199/(220) 9/(9) 0/0</p> <p>507/(311) 23/(25)</p> <p>176/(203) 182/(542)</p>	<p>179/(218)</p> <p>530/(336)</p>	<p>96/(94) 608/(846) 102/(178)</p> <p>44/(61) 136/(190) 34/(81)</p> <p>192/(130) 238/(239) 66/(126)</p> <p>55/(60) 730/(443) 78/(92)</p>
<b>54</b> 115TH STREET MARTIN LUTHER KING JR. DRIVE	<b>55</b> 115TH STREET COTTAGE GROVE AVENUE	<b>56</b> 115TH STREET I-94 EASTBOUND RAMP	<b>57</b> 115TH STREET I-94 WESTBOUND RAMP	<b>60</b> 119TH STREET HALSTED STREET
<p>33/(58) 37/(76) 10/(18)</p> <p>19/(19) 182/(251) 5/(11)</p> <p>40/(35) 243/(275) 15/(54)</p> <p>15/(17) 75/(51) 33/(32)</p>	<p>26/(54) 45/(142) 8/(12)</p> <p>6/(9) 133/(180) 6/(10)</p> <p>58/(53) 160/(172) 19/(37)</p> <p>17/(15) 176/(88) 32/(28)</p>	<p>366/(334) 196/(284) 196/(284) 14/(34)</p> <p>1004/(842) 236/(292)</p> <p>765/(866) 212/(289)</p>	<p>234/(261) 815/(811)</p> <p>301/(341) 734/(1038)</p> <p>297/(237) 281/(270) 425/(323)</p>	<p>91/(121) 162/(111) 111/(111)</p> <p>38/(48) 683/(564) 71/(94)</p> <p>95/(122) 405/(571) 204/(368)</p> <p>40/(66) 178/(179) 226/(227)</p>
<b>61</b> 119TH STREET WENTWORTH AVENUE	<b>62</b> 119TH STREET STATE STREET	<b>64</b> 127TH STREET PAULINA STREET	<b>65</b> 127TH STREET MARSHALL AVENUE	<b>66</b> 127TH STREET ASHLAND AVENUE

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<p>54/(56) 258/(408) 91/(206)</p> <p>85/(87) 139/(164) 47/(56)</p> <p>50/(46) 106/(193) 229/(367)</p> <p>62/(78) 375/(340) 323/(362)</p>	<p>81/(141) 251/(469) 65/(153)</p> <p>100/(66) 372/(376) 6/(10)</p> <p>151/(86) 359/(491) 73/(115)</p> <p>6/(9) 490/(259) 56/(94)</p>	<p>35/(54) 291/(63) 8/(2)</p> <p>11/(22) 111/(129) 59/(84)</p> <p>40/(67) 90/(198) 37/(136)</p> <p>65/(71) 529/(409) 31/(64)</p>	<p>4/(5) 0/(0) 0/(0) 0/(0)</p> <p>13/(16) 505/(479) 146/(198) 0/(0)</p> <p>0/(2) 403/(628) 0/(0) 0/(0) 0/(0)</p> <p>41/(41) 3/(8) 12/(9) 3/(3)</p>	<p>156/(180) 4/(4)</p> <p>57/(57) 508/(513)</p> <p>157/(230) 469/(689)</p>
<p><b>67</b> VERMONT STREET ASHLAND AVENUE</p>	<p><b>68</b> 127TH STREET HALSTED STREET</p>	<p><b>69</b> VERMONT STREET HALSTED STREET</p>	<p><b>70</b> 127TH STREET/VERMONT STREET/WALLACE STREET</p>	<p><b>71</b> 127TH STREET STATE STREET</p>
<p>49/(80) 118/(239)</p> <p>169/(136) 516/(490)</p> <p>46/(70) 464/(693)</p>	<p>472/(504) 92/(104)</p> <p>64/(45) 326/(158)</p> <p>420/(562) 127/(218)</p>	<p>8/(1) 552/(599) 227/(96)</p> <p>144/(121) 0/(0) 56/(48)</p> <p>1/(1) 454/(823) 69/(32)</p>	<p>19/(27)</p> <p>102/(2) 166/(144)</p>	<p>31/(17) 4/(1) 2/(2)</p> <p>8/(2) 127/(154) 4/(2) 0/(1)</p> <p>6/(9) 2/(1) 2/(4)</p>
<p><b>72</b> 127TH STREET MICHIGAN AVENUE</p>	<p><b>73</b> 130TH STREET INDIANA AVENUE</p>	<p><b>74</b> 130TH STREET ELLIS AVENUE</p>	<p><b>75</b> OLD 130TH STREET ELLIS AVENUE</p>	<p><b>76</b> GREENWOOD AVENUE ELLIS AVENUE</p>
<p>35/(29) 6/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 39/(18)</p>	<p>17/(20) 0/(0) 0/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 14/(12)</p>	<p>12/(1) 8/(14) 0/(0) 0/(1) 2/(1)</p> <p>4/(0) 4/(0) 0/(0) 2/(0)</p> <p>2/(0) 15/(7) 6/(1) 2/(0)</p> <p>8/(2) 0/(0) 14/(5)</p>	<p>0/(1) 0/(0) 0/(0) 0/(0) 1/(0)</p> <p>0/(0) 2/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0)</p> <p>0/(2) 15/(0) 0/(5)</p>	<p>0/(0) 0/(0) 0/(0)</p> <p>0/(0) 2/(2) 0/(0) 0/(0)</p> <p>0/(1) 10/(2) 4/(0) 4/(1)</p> <p>0/(0) 0/(3) 4/(1)</p>
<p><b>77</b> 130TH PLACE GREENWOOD AVENUE</p>	<p><b>78</b> 131ST STREET GREENWOOD AVENUE</p>	<p><b>79</b> 132ND STREET GREENWOOD AVENUE</p>	<p><b>80</b> 132ND STREET BEAUBIEN WOODS</p>	<p><b>81</b> 132ND STREET DOTY AVENUE</p>
<p>264/(257)</p> <p>523/(425)</p> <p>351/(492) 248/(452)</p>	<p>319/(623) 523/(425)</p> <p>288/(377)</p> <p>351/(492)</p>	<p>335/(297)</p> <p>507/(751)</p> <p>407/(599) 232/(270)</p>	<p>302/(395) 507/(751)</p> <p>425/(601)</p>	
<p><b>82</b> 130TH STREET EB: I-94 EB ON-RAMP WB: I-94 EB OFF-RAMP (1 OF 4)</p>	<p><b>83</b> 130TH STREET EB: I-94 EB OFF-RAMP WB: I-94 EB ON-RAMP (2 OF 4)</p>	<p><b>84</b> 130TH STREET EB: I-94 WB ON-RAMP WB: I-94 WB OFF-RAMP (3 OF 4)</p>	<p><b>85</b> 130TH STREET EB: I-94 WB OFF-RAMP WB: I-94 WB ON-RAMP (4 OF 4)</p>	

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Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	454	69	227	552	8	56	0	144	1	0	0
Future Volume (vph)	1	454	69	227	552	8	56	0	144	1	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1710	3109	1471	1644	3138	1366	0	1449	1443	0	969	0
Flt Permitted	0.436			0.435				0.757			0.719	
Satd. Flow (perm)	785	3109	1471	753	3138	1366	0	1155	1443	0	733	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		5340			1172			141			331	
Travel Time (s)		104.0			22.8			3.2			7.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	10%	4%	4%	9%	12%	18%	0%	6%	100%	0%	0%
Adj. Flow (vph)	1	473	72	236	575	8	58	0	150	1	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	473	72	236	575	8	0	58	150	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	48.4	48.4	48.4	61.1	60.1	60.1		16.9	16.9			16.9
Actuated g/C Ratio	0.57	0.57	0.57	0.72	0.71	0.71		0.20	0.20			0.20
v/c Ratio	0.00	0.27	0.09	0.37	0.26	0.01		0.25	0.52			0.01
Control Delay	10.0	10.7	10.3	6.4	5.4	5.1		30.2	36.7			24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
Total Delay	10.0	10.7	10.3	6.4	5.4	5.1		30.2	36.7			24.0
LOS	A	B	B	A	A	A		C	D			C
Approach Delay		10.6			5.7			34.9				24.0
Approach LOS		B			A			C				C
90th %ile Green (s)	43.0	43.0	43.0	7.9	53.9	53.9	23.1	23.1	23.1	23.1	23.1	23.1
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	43.9	43.9	43.9	11.0	57.9	57.9	19.1	19.1	19.1	19.1	19.1	19.1
70th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	47.8	47.8	47.8	9.4	60.2	60.2	16.8	16.8	16.8	16.8	16.8	16.8
50th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	51.5	51.5	51.5	8.1	62.6	62.6	14.4	14.4	14.4	14.4	14.4	14.4
30th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	55.9	55.9	55.9	7.0	65.9	65.9	11.1	11.1	11.1	11.1	11.1	11.1
10th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	1	225	33	73	186	3		47	128			2
Fuel Used(gal)	0	20	3	3	8	0		1	2			0
CO Emissions (g/hr)	3	1411	213	220	532	8		47	136			1
NOx Emissions (g/hr)	1	274	42	43	103	2		9	26			0
VOC Emissions (g/hr)	1	327	49	51	123	2		11	31			0
Dilemma Vehicles (#)	0	26	0	0	33	0		0	0			0
Queue Length 50th (ft)	0	63	16	34	48	1		27	74			0
Queue Length 95th (ft)	3	105	41	77	90	6		58	127			4
Internal Link Dist (ft)		5260			1092			61				251
Turn Bay Length (ft)	165		165	165		165						
Base Capacity (vph)	447	1770	838	632	2218	966		326	407			206
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
Reduced v/c Ratio	0.00	0.27	0.09	0.37	0.26	0.01		0.18	0.37			0.00

Intersection Summary

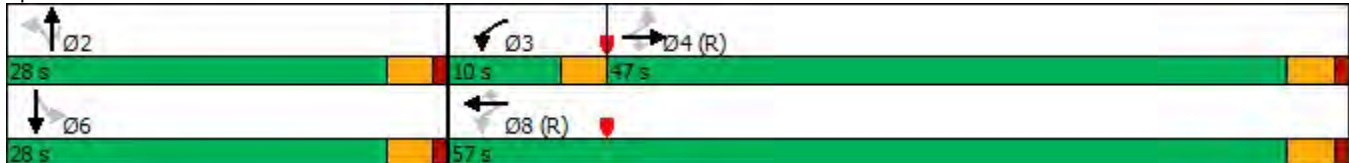
Area Type: Other

Lanes, Volumes, Timings  
 1: Ellis Avenue & 130th Street

AM Peak  
 Existing Conditions

Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	












Splits and Phases: 1: Ellis Avenue & 130th Street
















Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

AM Peak  
Existing Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	19	166	102	0	296
Future Volume (vph)	0	19	166	102	0	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.865	0.943			
Fl <sub>t</sub> Protected						
Satd. Flow (prot)	0	1557	3225	0	0	3420
Fl <sub>t</sub> Permitted						
Satd. Flow (perm)	0	1557	3225	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	642		174			141
Travel Time (s)	14.6		4.0			3.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	21	184	113	0	329
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	21	297	0	0	329
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Ellis Avenue & Old 130th Street

AM Peak  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	0	19	166	102	0	296
Future Volume (Veh/h)	0	19	166	102	0	296
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	21	184	113	0	329
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						141
pX, platoon unblocked						
vC, conflicting volume	405	148			297	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	148			297	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	579	878			1276	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	21	123	174	164	164	
Volume Left	0	0	0	0	0	
Volume Right	21	0	113	0	0	
cSH	878	1700	1700	1700	1700	
Volume to Capacity	0.02	0.07	0.10	0.10	0.10	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.2	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			18.3%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	6	2	2	2	4	31	4	127	8	87	25	135
Future Volume (vph)	6	2	2	2	4	31	4	127	8	87	25	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.975			0.885			0.992				
Flt Protected		0.969			0.998			0.999				0.978
Satd. Flow (prot)	0	1701	0	0	1590	0	0	1727	0	0	0	1737
Flt Permitted		0.969			0.998			0.999				0.978
Satd. Flow (perm)	0	1701	0	0	1590	0	0	1727	0	0	0	1737
Link Speed (mph)		30			30			30				30
Link Distance (ft)		472			392			265				174
Travel Time (s)		10.7			8.9			6.0				4.0
Confl. Peds. (#/hr)			4	4		1			1	4	1	
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%	0%	0%	0%	0%	0%	0%	2%	25%	0%	8%	1%
Adj. Flow (vph)	7	2	2	2	4	34	4	141	9	97	28	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	40	0	0	154	0	0	0	275
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.6%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

AM Peak  
 Existing Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	1800
Flt Permitted	
Satd. Flow (perm)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	4
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

AM Peak  
Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↔			↔			↔				↔
Traffic Volume (veh/h)	6	2	2	2	4	31	4	127	8	87	25	135
Future Volume (Veh/h)	6	2	2	2	4	31	4	127	8	87	25	135
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	7	2	2	2	4	34	4	141	9	0	28	150
Pedestrians		4			1			4				1
Lane Width (ft)		12.0			12.0			12.0				12.0
Walking Speed (ft/s)		4.0			4.0			4.0				4.0
Percent Blockage		0			0			0				0
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												315
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99		0.00			
vC, conflicting volume	400	369	158	368	364	148	154		0		151	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385	353	139	351	348	148	134		0		151	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1		0.0		4.2	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2		0.0		2.3	
p0 queue free %	99	100	100	100	99	96	100		0		98	
cM capacity (veh/h)	531	552	896	581	555	903	1437		0		1393	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	11	40	154	178	0							
Volume Left	7	2	4	28	0							
Volume Right	2	34	9	0	0							
cSH	578	828	1437	1393	1700							
Volume to Capacity	0.02	0.05	0.00	0.02	0.00							
Queue Length 95th (ft)	1	4	0	2	0							
Control Delay (s)	11.3	9.6	0.2	1.3	0.0							
Lane LOS	B	A	A	A								
Approach Delay (s)	11.3	9.6	0.2	1.3								
Approach LOS	B	A										
<b>Intersection Summary</b>												
Average Delay			2.0									
Intersection Capacity Utilization			36.6%	ICU Level of Service	A							
Analysis Period (min)			15									










HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue

AM Peak  
 Existing Conditions

Movement	SBR
Lane Configurations	7
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	










Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

AM Peak  
Existing Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	39	0	6	35
Future Volume (vph)	0	0	39	0	6	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.992
Satd. Flow (prot)	1765	0	1765	0	0	1751
Flt Permitted						0.992
Satd. Flow (perm)	1765	0	1765	0	0	1751
Link Speed (mph)	30		30			30
Link Distance (ft)	330		257			242
Travel Time (s)	7.5		5.8			5.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	42	0	7	38
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	42	0	0	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	10.7%		ICU Level of Service A			
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
4: Greenwood Avenue & 130th Place










AM Peak  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	39	0	6	35
Future Volume (Veh/h)	0	0	39	0	6	35
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	42	0	7	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	94	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	42			42	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	902	1029			1567	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	42	45			
Volume Left	0	0	7			
Volume Right	0	0	0			
cSH	1700	1700	1567			
Volume to Capacity	0.00	0.02	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	1.2			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	1.2			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			10.7%		ICU Level of Service	A
Analysis Period (min)			15			












Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street

AM Peak  
Existing Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	14	0	0	17
Future Volume (vph)	0	0	14	0	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1800	0	1800	0	0	1622
Flt Permitted						
Satd. Flow (perm)	1800	0	1800	0	0	1622
Link Speed (mph)	30		30			30
Link Distance (ft)	383		252			706
Travel Time (s)	8.7		5.7			16.0
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	11%
Adj. Flow (vph)	0	0	16	0	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	16	0	0	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	7.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
5: Greenwood Avenue & 131st Street

AM Peak  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	14	0	0	17
Future Volume (Veh/h)	0	0	14	0	0	17
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	16	0	0	19
Pedestrians	3		3			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	41	19			19	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	41	19			19	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	971	1062			1607	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	16	19			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1607			
Volume to Capacity	0.00	0.01	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			7.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Frt		0.914				0.946				0.990		
Flt Protected		0.982				0.990				0.984		
Satd. Flow (prot)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Flt Permitted		0.982				0.990				0.984		
Satd. Flow (perm)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Link Speed (mph)		30				30				30		
Link Distance (ft)		311				1025				274		
Travel Time (s)		7.1				23.3				6.2		
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Adj. Flow (vph)	9	0	16	2	0	4	4	2	7	17	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	0	10	0	0	0	28	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	R NA	Left	Left	Right	R NA
Median Width(ft)		0				0				0		
Link Offset(ft)		0				0				0		
Crosswalk Width(ft)		16				16				16		
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	9	15		9	9	15		9	9
Sign Control		Stop				Stop				Free		
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	13.3%					ICU Level of Service A						
Analysis Period (min)	15											

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
Existing Conditions


















Lane Group	SBL	SBT	SBR
Lane Configurations		↕	
Traffic Volume (vph)	10	8	12
Future Volume (vph)	10	8	12
Ideal Flow (vphpl)	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00
Fr <sub>t</sub>		0.950	
Fl <sub>t</sub> Protected		0.982	
Satd. Flow (prot)	0	1578	0
Fl <sub>t</sub> Permitted		0.982	
Satd. Flow (perm)	0	1578	0
Link Speed (mph)		30	
Link Distance (ft)		252	
Travel Time (s)		5.7	
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	25%	0%
Adj. Flow (vph)	11	9	13
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	35	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		0	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	15		9
Sign Control		Free	
<b>Intersection Summary</b>			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Greenwood Avenue & 132nd Street

AM Peak  
Existing Conditions

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (Veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Sign Control		Stop				Stop				Free		
Grade		0%				0%				0%		
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
Hourly flow rate (vph)	9	0	16	0	0	4	4	0	7	17	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked				0.00				0.00				0.00
vC, conflicting volume	76	70	16	0	86	76	18	0	22			0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	76	70	16	0	86	76	18	0	22			0
tC, single (s)	7.1	6.5	6.2	0.0	7.1	6.5	6.2	0.0	4.1			0.0
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	0.0	3.5	4.0	3.3	0.0	2.2			0.0
p0 queue free %	99	100	99	0	100	100	100	0	100			0
cM capacity (veh/h)	905	815	1070	0	884	809	1066	0	1607			0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	25	8	26	33								
Volume Left	9	0	7	11								
Volume Right	16	4	2	13								
cSH	1004	920	1607	1611								
Volume to Capacity	0.02	0.01	0.00	0.01								
Queue Length 95th (ft)	2	1	0	1								
Control Delay (s)	8.7	8.9	2.0	2.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	8.9	2.0	2.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			13.3%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
6: Greenwood Avenue & 132nd Street

















AM Peak  
Existing Conditions



Movement	SBL	SBT	SBR
Lane Configurations		↔	
Traffic Volume (veh/h)	10	8	12
Future Volume (Veh/h)	10	8	12
Sign Control		Free	
Grade		0%	
Peak Hour Factor	0.90	0.90	0.90
Hourly flow rate (vph)	11	9	13
Pedestrians			
Lane Width (ft)			
Walking Speed (ft/s)			
Percent Blockage			
Right turn flare (veh)			
Median type		None	
Median storage (veh)			
Upstream signal (ft)			
pX, platoon unblocked			
vC, conflicting volume	19		
vC1, stage 1 conf vol			
vC2, stage 2 conf vol			
vCu, unblocked vol	19		
tC, single (s)	4.1		
tC, 2 stage (s)			
tF (s)	2.2		
p0 queue free %	99		
cM capacity (veh/h)	1611		
Direction, Lane #			

















Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Frt												
Flt Protected												
Satd. Flow (prot)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
Flt Permitted												
Satd. Flow (perm)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1025			255			543			489	
Travel Time (s)		23.3			5.8			12.3			11.1	
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%	63%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	6.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
7: Beaubien Woods Driveway & 132nd Street

















AM Peak  
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2			17			19	19	2	19	19	17
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2			17			19	19	2	19	19	17
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1634			1613			1000	879	1088	1000	879	1068
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	17	2	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1634	1613	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			6.7%		ICU Level of Service				A			
Analysis Period (min)			15									



















Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.972									0.932	
Fl <sub>t</sub> Protected		0.972						0.950				
Satd. Flow (prot)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Fl <sub>t</sub> Permitted		0.972						0.950				
Satd. Flow (perm)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		357			354			334			259	
Travel Time (s)		8.1			8.0			7.6			5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	4	4	0	0	0	4	0	0	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	0	0	0	4	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	13.5%						ICU Level of Service A					
Analysis Period (min)	15											






















HCM Unsignalized Intersection Capacity Analysis  
8: Doty Avenue & 132nd Street/School Driveway

AM Peak  
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (Veh/h)	10	4	4	0	0	0	4	0	0	0	2	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	11	4	4	0	0	0	4	0	0	0	2	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11	11	3	17	12	0	4			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11	11	3	17	12	0	4			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	1005	882	1081	989	880	1085	1618			1623		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	0	4	4								
Volume Left	11	0	4	0								
Volume Right	4	0	0	2								
cSH	990	1700	1618	1700								
Volume to Capacity	0.02	0.00	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	8.7	0.0	7.2	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.7	0.0	7.2	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			13.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	882	7	23	508	50	0	0	0	461	8	319
Future Volume (vph)	25	882	7	23	508	50	0	0	0	461	8	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.77	1.00		1.00		0.49				0.98		0.97
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4720	0	1710	3138	765	0	1800	0	3100	1392	1409
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	655	4720	0	1702	3138	373	0	1800	0	3032	1392	1361
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		808			328			758				669
Travel Time (s)		18.4			7.5			17.2				15.2
Confl. Peds. (#/hr)	354		13	13		354	22		22	22		22
Confl. Bikes (#/hr)	4					4			1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	4%	0%	0%	9%	100%	0%	0%	0%	7%	25%	5%
Adj. Flow (vph)	27	948	8	25	546	54	0	0	0	496	9	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	956	0	25	546	54	0	0	0	496	9	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	73.7		7.4	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.57		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.42	0.36		0.26	0.34	0.23				0.53	0.02	0.66
Control Delay	76.8	16.5		57.9	31.2	13.9				40.5	32.4	39.5
Queue Delay	0.0	0.0		0.0	2.7	0.0				0.0	0.0	0.0
Total Delay	76.8	16.5		57.9	34.0	13.9				40.5	32.4	39.5
LOS	E	B		E	C	B				D	C	D
Approach Delay		18.1			33.2						40.0	
Approach LOS		B			C						D	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.7		8.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	69.7		7.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	25	471		25	318	15				375	6	326
Fuel Used(gal)	1	11		0	6	0				8	0	6
CO Emissions (g/hr)	48	782		33	440	25				578	9	421
NOx Emissions (g/hr)	9	152		6	86	5				113	2	82
VOC Emissions (g/hr)	11	181		8	102	6				134	2	98
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	22	165		22	153	1				179	5	220

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

AM Peak  
 Existing Conditions

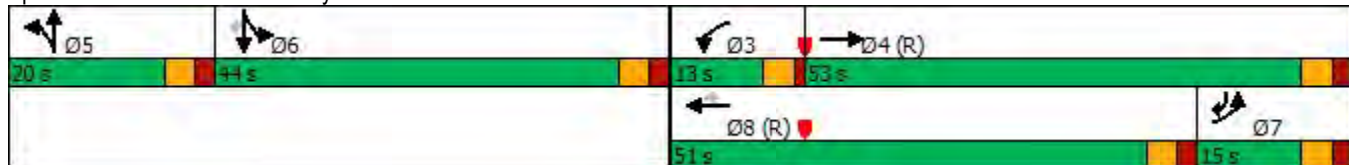


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	56	204		m40	264	m37				236	19	325
Internal Link Dist (ft)		728			248			678			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2675		118	1593	239				930	417	516
Starvation Cap Reductn	0	0		0	904	0				0	0	0
Spillback Cap Reductn	0	45		0	0	0				9	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.42	0.36		0.21	0.79	0.23				0.54	0.02	0.66

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 110 (85%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 29.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 80.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1002: Lafayette Avenue & 95th Street



Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	438	786	119	21	428	253	124	489	59	41	0	29
Future Volume (vph)	438	786	119	21	428	253	124	489	59	41	0	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.70	0.99		0.99		0.65		1.00	0.95	0.99		
Frt		0.980				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	3190	3103	0	1503	2923	1409	0	3190	1600	855	0	765
Flt Permitted	0.950			0.950				0.990		0.950		
Satd. Flow (perm)	2219	3103	0	1492	2923	917	0	3186	1523	842	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				62			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		328			972			10386				681
Travel Time (s)		7.5			18.9			236.0				15.5
Confl. Peds. (#/hr)	425		21	21		425	6		34	34		6
Confl. Bikes (#/hr)	1					1						
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 (%)	4%	8%	3%	10%	17%	5%	1%	3%	2%	100%	0%	100%
Adj. Flow (vph)	466	836	127	22	455	269	132	520	63	44	0	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	466	963	0	22	455	269	0	652	63	44	0	31
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			

Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	54.0		11.0	37.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	32.0	54.0		15.0	37.0	20.0	41.0	41.0	15.0	20.0		20.0
Total Split (%)	24.6%	41.5%		11.5%	28.5%	15.4%	31.5%	31.5%	11.5%	15.4%		15.4%
Maximum Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		21.0			7.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	23.7	53.9		9.2	38.2	51.3		36.0	45.2	13.1		13.1
Actuated g/C Ratio	0.18	0.41		0.07	0.29	0.39		0.28	0.35	0.10		0.10
v/c Ratio	0.80	0.74		0.21	0.53	0.60		0.74	0.11	0.52		0.16
Control Delay	51.2	36.8		61.2	42.4	18.3		49.5	3.1	76.1		1.7
Queue Delay	1.2	1.4		0.0	0.0	0.0		1.0	0.0	0.0		0.1
Total Delay	52.4	38.2		61.2	42.4	18.3		50.6	3.1	76.1		1.8
LOS	D	D		E	D	B		D	A	E		A
Approach Delay		42.9			34.3			46.4				45.4
Approach LOS		D			C			D				D
90th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
90th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	26.5	49.0		10.0	33.5	15.0	36.0	36.0	10.0	15.0		15.0
70th %ile Term Code	Gap	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
50th %ile Green (s)	24.1	50.2		10.0	37.1	13.8	36.0	36.0	10.0	13.8		13.8
50th %ile Term Code	Gap	Coord		Hold	Coord	Gap	MaxR	MaxR	Hold	Gap		Gap
30th %ile Green (s)	21.8	52.3		10.0	41.5	11.7	36.0	36.0	10.0	11.7		11.7
30th %ile Term Code	Gap	Coord		Hold	Coord	Gap	MaxR	MaxR	Hold	Gap		Gap
10th %ile Green (s)	18.3	69.0		0.0	46.7	10.0	36.0	36.0	0.0	10.0		10.0
10th %ile Term Code	Gap	Coord		Skip	Coord	Min	MaxR	MaxR	Skip	Min		Min
Stops (vph)	420	612		21	356	139		568	7	39		0
Fuel Used(gal)	8	12		1	9	4		60	5	1		0
CO Emissions (g/hr)	560	872		40	655	263		4221	349	75		11
NOx Emissions (g/hr)	109	170		8	127	51		821	68	15		2
VOC Emissions (g/hr)	130	202		9	152	61		978	81	17		3
Dilemma Vehicles (#)	0	0		0	17	0		0	0	0		0
Queue Length 50th (ft)	184	196		18	171	68		281	1	36		0
Queue Length 95th (ft)	231	227		47	241	113		350	4	77		0
Internal Link Dist (ft)		248			892			10306				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	687	1295		115	858	468		883	604	98		206
Starvation Cap Reductn	78	164		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
 1003: State Street & 95th Street

AM Peak  
 Existing Conditions

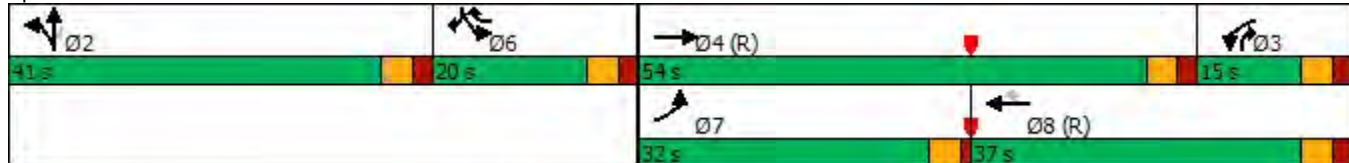


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0	0		77	0	0		15
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	0.77	0.85		0.19	0.53	0.57		0.81	0.10	0.45		0.16

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	125
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	41.6
Intersection LOS:	D
Intersection Capacity Utilization	93.5%
ICU Level of Service	F
Analysis Period (min)	15

Splits and Phases: 1003: State Street & 95th Street





Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	285	95	63	258	106	125	1435	108	65	445	93
Future Volume (vph)	96	285	95	63	258	106	125	1435	108	65	445	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98	0.98		0.99		0.97	1.00		0.96
Frt		0.962			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1613	1872	0	1710	1814	0	1506	3099	1324	1425	2956	1324
Flt Permitted	0.214			0.514			0.391			0.094		
Satd. Flow (perm)	357	1872	0	910	1814	0	612	3099	1283	141	2956	1265
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			19				83			100
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304				1099
Travel Time (s)		15.1			46.3			120.5				25.0
Confl. Peds. (#/hr)	42		39	39		42	20		8	8		20
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	4%	3%	0%	6%	5%	6%	3%	4%	8%	8%	4%
Adj. Flow (vph)	103	306	102	68	277	114	134	1543	116	70	478	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	408	0	68	391	0	134	1543	116	70	478	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		53.2	45.0	45.0	51.1	42.4	42.4
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.51	0.43	0.43	0.49	0.40	0.40
v/c Ratio	0.38	0.54		0.27	0.76		0.35	1.16	0.19	0.43	0.40	0.18
Control Delay	23.4	26.1		33.3	44.1		15.9	111.6	8.2	21.3	23.6	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	26.1		33.3	44.1		15.9	111.6	8.2	21.3	23.6	4.9
LOS	C	C		C	D		B	F	A	C	C	A
Approach Delay		25.5			42.5			97.7			20.5	
Approach LOS		C			D			F			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	43.0	43.0	8.0	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		8.9	44.0	44.0	7.0	42.1	42.1
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		7.1	54.0	54.0	0.0	43.9	43.9
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Skip	Coord	Coord
Stops (vph)	57	270		48	310		63	1123	25	33	306	12
Fuel Used(gal)	1	5		2	11		6	98	5	1	8	1
CO Emissions (g/hr)	89	382		118	752		414	6860	334	71	534	67
NOx Emissions (g/hr)	17	74		23	146		81	1335	65	14	104	13
VOC Emissions (g/hr)	21	88		27	174		96	1590	78	17	124	15
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	42	196		36	230		45	~671	13	23	118	0
Queue Length 95th (ft)	78	291		75	#352		79	#819	50	47	163	32
Internal Link Dist (ft)		583			1956			5224			1019	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	269	760		251	514		386	1328	597	180	1193	570
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

AM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.38	0.54		0.27	0.76		0.35	1.16	0.19	0.39	0.40	0.18

Intersection Summary




















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	86 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	115
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.16
Intersection Signal Delay:	64.8
Intersection LOS:	E
Intersection Capacity Utilization	105.2%
ICU Level of Service	G
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.	

Splits and Phases: 1016: Halsted Street & 103rd Street



Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	366	46	41	323	41	52	48	43	0	0	0
Future Volume (vph)	46	366	46	41	323	41	52	48	43	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.960				
Fl <sub>t</sub> Protected	0.950			0.950				0.982				
Satd. Flow (prot)	1520	1543	1311	1520	1543	1311	0	1778	0	0	0	0
Fl <sub>t</sub> Permitted	0.529			0.494				0.982				
Satd. Flow (perm)	846	1543	1311	790	1543	1311	0	1778	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			49			44		31				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2036			1955			343				764
Travel Time (s)		46.3			44.4			7.8				17.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	49	394	49	44	347	44	56	52	46	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	394	49	44	347	44	0	154	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

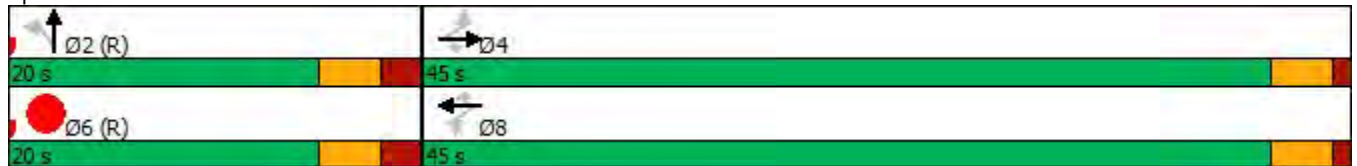
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.09	0.40	0.06	0.09	0.36	0.05		0.35				
Control Delay	5.3	7.5	1.8	5.3	7.0	1.8		19.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	5.3	7.5	1.8	5.3	7.0	1.8		19.4				
LOS	A	A	A	A	A	A		B				
Approach Delay		6.7			6.3			19.4				
Approach LOS		A			A			B				
Stops (vph)	17	167	7	16	141	6		93				
Fuel Used(gal)	1	7	1	1	6	1		1				
CO Emissions (g/hr)	61	510	55	53	431	47		102				
NOx Emissions (g/hr)	12	99	11	10	84	9		20				
VOC Emissions (g/hr)	14	118	13	12	100	11		24				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	7	66	0	6	56	0		40				
Queue Length 95th (ft)	18	114	10	17	98	9		87				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	533	973	845	498	973	843		434				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.09	0.40	0.06	0.09	0.36	0.05		0.35				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.40  
 Intersection Signal Delay: 8.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 43.0%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 1017: Normal Avenue & 103rd Street



Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	383	50	27	338	33	41	133	79	49	192	26
Future Volume (vph)	18	383	50	27	338	33	41	133	79	49	192	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.98	1.00		0.99	1.00			0.99	0.97		0.99	
Frt		0.983			0.987				0.850		0.987	
Flt Protected	0.950			0.950				0.988			0.991	
Satd. Flow (prot)	1596	1607	0	1341	1623	0	0	1685	1515	0	1778	0
Flt Permitted	0.471			0.420				0.895			0.916	
Satd. Flow (perm)	779	1607	0	589	1623	0	0	1506	1473	0	1641	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11				83			8
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1955			4661			5190				1320
Travel Time (s)		44.4			105.9			118.0				30.0
Confl. Peds. (#/hr)	33		15	15		33	68		5	5		68
Confl. Bikes (#/hr)	4					4						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	14%	19%	5%	9%	2%	2%	1%	10%	7%	8%
Adj. Flow (vph)	19	403	53	28	356	35	43	140	83	52	202	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	456	0	28	391	0	0	183	83	0	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2		6	
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	37.3%
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	13.0



Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

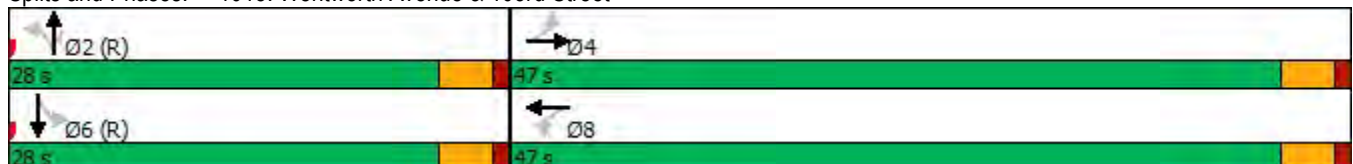
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0			24.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32			0.32
v/c Ratio	0.04	0.49		0.08	0.42			0.38	0.16			0.53
Control Delay	7.4	11.4		8.0	10.4			22.6	5.6			24.7
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	7.4	11.4		8.0	10.4			22.6	5.6			24.7
LOS	A	B		A	B			C	A			C
Approach Delay		11.3			10.2			17.3				24.7
Approach LOS		B			B			B				C
Stops (vph)	9	238		14	192			131	14			207
Fuel Used(gal)	0	9		1	15			9	3			5
CO Emissions (g/hr)	25	624		77	1072			616	243			366
NOx Emissions (g/hr)	5	121		15	208			120	47			71
VOC Emissions (g/hr)	6	145		18	248			143	56			85
Dilemma Vehicles (#)	0	0		0	0			0	0			0
Queue Length 50th (ft)	4	110		5	90			65	0			103
Queue Length 95th (ft)	12	181		16	148			119	28			175
Internal Link Dist (ft)		1875			4581			5110				1240
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	446	927		337	935			481	527			530
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.04	0.49		0.08	0.42			0.38	0.16			0.53

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Pretimed
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	14.7
Intersection LOS:	B
Intersection Capacity Utilization:	85.8%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1018: Wentworth Avenue & 103rd Street



Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	202	54	45	142	88	35	921	50	88	476	42
Future Volume (vph)	126	202	54	45	142	88	35	921	50	88	476	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.98		0.99		0.98	1.00		0.97
Frt		0.979			0.952				0.850			0.850
Flt Protected		0.984			0.992		0.950			0.950		
Satd. Flow (prot)	0	2848	0	0	2772	0	1506	3069	1377	1550	2956	1311
Flt Permitted		0.727			0.841		0.397			0.148		
Satd. Flow (perm)	0	2084	0	0	2347	0	623	3069	1352	241	2956	1270
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			91				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1044			375			2662				5304
Travel Time (s)		23.7			8.5			60.5				120.5
Confl. Peds. (#/hr)	49		20	20		49	26		8	8		26
Confl. Bikes (#/hr)	2					2						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	7%	4%	9%	7%	5%	6%	4%	0%	3%	8%	5%
Adj. Flow (vph)	130	208	56	46	146	91	36	949	52	91	491	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	394	0	0	283	0	36	949	52	91	491	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1		6
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

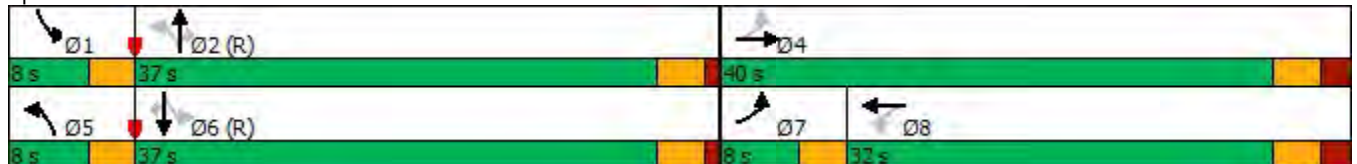
AM Peak  
Existing Conditions

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.42			0.34		0.12	0.78	0.09	0.55	0.42	0.08
Control Delay		17.1			15.6		13.4	20.4	2.0	26.6	20.1	0.3
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		17.1			15.6		13.4	20.4	2.0	26.6	20.1	0.3
LOS		B			B		B	C	A	C	C	A
Approach Delay		17.1			15.6			19.3			19.7	
Approach LOS		B			B			B			B	
Stops (vph)		227			136		18	408	5	51	331	0
Fuel Used(gal)		6			6		1	25	1	4	23	2
CO Emissions (g/hr)		398			408		64	1761	76	307	1640	122
NOx Emissions (g/hr)		77			79		13	343	15	60	319	24
VOC Emissions (g/hr)		92			95		15	408	18	71	380	28
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		66			38		8	112	1	26	97	0
Queue Length 95th (ft)		100			71		m16	184	m2	#56	140	0
Internal Link Dist (ft)		964			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		934			834		312	1209	587	166	1165	556
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.42			0.34		0.12	0.78	0.09	0.55	0.42	0.08

Intersection Summary
















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 58 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 18.6 Intersection LOS: B  
 Intersection Capacity Utilization 97.6% ICU Level of Service F  
 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: 1034: Halsted Street & 111th Street



Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	306	0	0	253	63	22	49	76	0	0	0
Future Volume (vph)	34	306	0	0	253	63	22	49	76	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.973			0.930				
Fl <sub>t</sub> Protected		0.995						0.993				
Satd. Flow (prot)	0	1706	0	0	1668	0	0	1583	0	0	0	0
Fl <sub>t</sub> Permitted		0.948						0.993				
Satd. Flow (perm)	0	1625	0	0	1668	0	0	1583	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					35			82				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	37	329	0	0	272	68	24	53	82	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	366	0	0	340	0	0	159	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.38			0.34			0.32				
Control Delay		8.1			2.7			11.8				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

AM Peak  
Existing Conditions

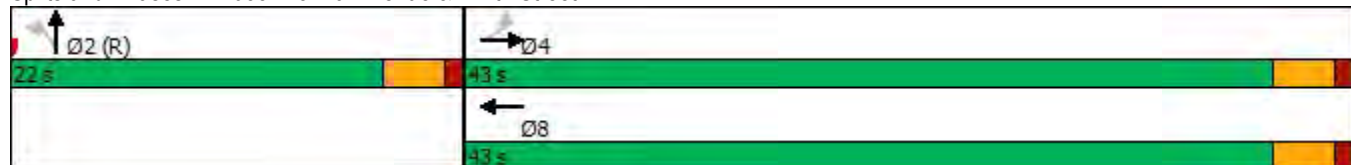


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		8.1			2.7			11.8				
LOS		A			A			B				
Approach Delay		8.1			2.7			11.8				
Approach LOS		A			A			B				
Stops (vph)		163			30			61				
Fuel Used(gal)		7			5			2				
CO Emissions (g/hr)		466			369			113				
NOx Emissions (g/hr)		91			72			22				
VOC Emissions (g/hr)		108			86			26				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		66			13			23				
Queue Length 95th (ft)		113			19			65				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		975			1014			497				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.38			0.34			0.32				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.38
Intersection Signal Delay:	6.7
Intersection LOS:	A
Intersection Capacity Utilization	56.0%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	306	24	16	262	38	13	140	28	48	100	18
Future Volume (vph)	35	306	24	16	262	38	13	140	28	48	100	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.991			0.984			0.977			0.984	
Flt Protected		0.995			0.997			0.996			0.986	
Satd. Flow (prot)	0	1887	0	0	1833	0	0	3084	0	0	3060	0
Flt Permitted		0.949			0.976			0.936			0.846	
Satd. Flow (perm)	0	1798	0	0	1794	0	0	2893	0	0	2616	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			14			30			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			181			180	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	29		16	16		29	28		14	14		28
Confl. Bikes (#/hr)	1					1	1					1
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 (%)	3%	7%	4%	12%	8%	13%	0%	4%	4%	4%	4%	6%
Adj. Flow (vph)	37	326	26	17	279	40	14	149	30	51	106	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	389	0	0	336	0	0	193	0	0	176	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	

Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

AM Peak  
Existing Conditions

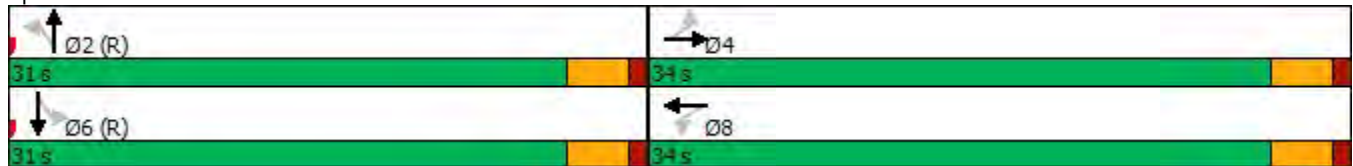


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.47			0.40			0.16			0.16	
Control Delay		13.1			6.2			8.3			11.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.1			6.2			8.3			11.1	
LOS		B			A			A			B	
Approach Delay		13.1			6.2			8.3			11.1	
Approach LOS		B			A			A			B	
Stops (vph)		192			86			104			87	
Fuel Used(gal)		8			4			5			8	
CO Emissions (g/hr)		542			287			324			542	
NOx Emissions (g/hr)		105			56			63			106	
VOC Emissions (g/hr)		126			66			75			126	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		83			27			10			19	
Queue Length 95th (ft)		155			36			18			37	
Internal Link Dist (ft)		1924			812			101			100	
Turn Bay Length (ft)												
Base Capacity (vph)		833			835			1219			1097	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.47			0.40			0.16			0.16	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	9.8
Intersection LOS:	A
Intersection Capacity Utilization	82.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 1036: Wentworth Avenue & 111th Street



Lanes, Volumes, Timings  
1037: State Street & 111th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	204	16	28	280	61	36	246	69	37	74	16
Future Volume (vph)	39	204	16	28	280	61	36	246	69	37	74	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99		0.99	1.00		1.00	1.00	
Frt		0.989			0.973			0.967			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	2932	0	1596	2932	0	1506	3033	0	1596	2937	0
Flt Permitted	0.508			0.606			0.692			0.550		
Satd. Flow (perm)	802	2932	0	1003	2932	0	1090	3033	0	923	2937	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			43			73			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		418			546			2651			298	
Travel Time (s)		9.5			12.4			60.3			6.8	
Confl. Peds. (#/hr)	25		14	14		25	12		4	4		12
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	7%	12%	0%	6%	2%	6%	1%	3%	0%	4%	12%
Adj. Flow (vph)	41	217	17	30	298	65	38	262	73	39	79	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	234	0	30	363	0	38	335	0	39	96	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	



Lanes, Volumes, Timings  
1037: State Street & 111th Street

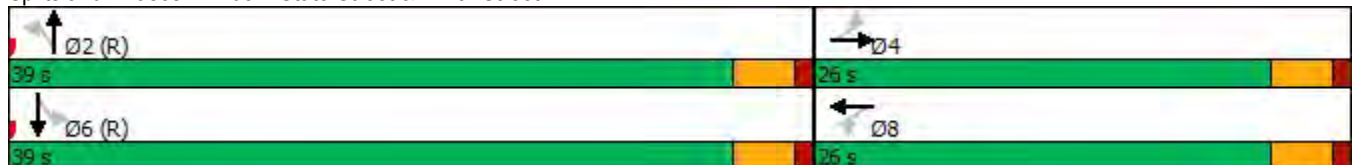
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.15	0.23		0.09	0.36		0.06	0.20		0.08	0.06	
Control Delay	12.2	10.7		12.6	12.5		5.1	4.4		9.2	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.2	10.7		12.6	12.5		5.1	4.4		9.2	7.5	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		10.9			12.5			4.5			8.0	
Approach LOS		B			B			A			A	
Stops (vph)	28	164		23	240		18	155		16	35	
Fuel Used(gal)	1	4		0	4		1	8		3	8	
CO Emissions (g/hr)	45	254		22	255		62	535		226	547	
NOx Emissions (g/hr)	9	49		4	50		12	104		44	106	
VOC Emissions (g/hr)	11	59		5	59		14	124		52	127	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	11	31		9	55		3	3		14	16	
Queue Length 95th (ft)	m23	46		m29	93		m7	11		m25	m27	
Internal Link Dist (ft)		338			466			2571			218	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	271	1000		339	1020		586	1666		497	1589	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.23		0.09	0.36		0.06	0.20		0.08	0.06	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.36  
 Intersection Signal Delay: 9.1 Intersection LOS: A  
 Intersection Capacity Utilization 64.1% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street



Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	293	20	37	313	82	11	302	44	41	118	38
Future Volume (vph)	64	293	20	37	313	82	11	302	44	41	118	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98	1.00		0.98	0.99			0.99			0.99	
Frt		0.991			0.969			0.981			0.971	
Flt Protected	0.950			0.950				0.998			0.990	
Satd. Flow (prot)	1425	3011	0	1350	2919	0	0	2828	0	0	2732	0
Flt Permitted	0.494			0.551				0.946			0.841	
Satd. Flow (perm)	727	3011	0	765	2919	0	0	2677	0	0	2315	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			69			28			40	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			835			277			230	
Travel Time (s)		12.4			19.0			6.3			5.2	
Confl. Peds. (#/hr)	53		34	34		53	67		28	28		67
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 (%)	8%	5%	0%	14%	6%	1%	0%	9%	20%	5%	15%	5%
Adj. Flow (vph)	68	312	21	39	333	87	12	321	47	44	126	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	333	0	39	420	0	0	380	0	0	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
 1038: Michigan Avenue & 111th Street

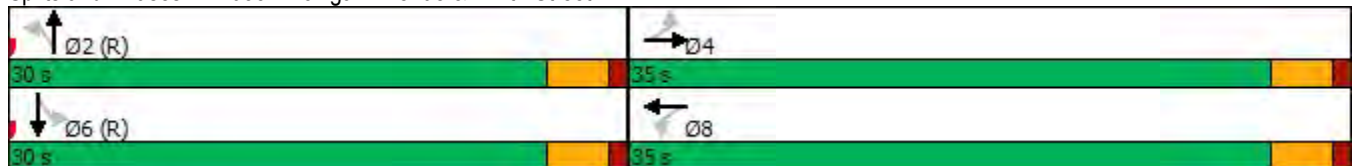
AM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.20	0.23		0.11	0.29			0.35			0.22	
Control Delay	16.7	15.1		10.4	9.2			9.2			11.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	16.7	15.1		10.4	9.2			9.2			11.0	
LOS	B	B		B	A			A			B	
Approach Delay		15.4			9.3			9.2			11.0	
Approach LOS		B			A			A			B	
Stops (vph)	49	232		22	186			203			99	
Fuel Used(gal)	1	4		0	4			9			1	
CO Emissions (g/hr)	53	250		31	303			645			94	
NOx Emissions (g/hr)	10	49		6	59			125			18	
VOC Emissions (g/hr)	12	58		7	70			149			22	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	20	50		8	41			26			22	
Queue Length 95th (ft)	42	70		23	67			35			43	
Internal Link Dist (ft)		466			755			197			150	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	346	1443		364	1428			1087			950	
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	0.23		0.11	0.29			0.35			0.22	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.35
Intersection Signal Delay:	11.2
Intersection LOS:	B
Intersection Capacity Utilization:	77.8%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1038: Michigan Avenue & 111th Street



Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	202	39	50	176	62	59	828	58	66	373	70
Future Volume (vph)	169	202	39	50	176	62	59	828	58	66	373	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99		0.99	1.00		1.00	0.99	
Frt		0.976			0.961			0.990			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3005	0	1596	2892	0	1494	3445	0	1494	3348	0
Flt Permitted	0.585			0.581			0.420			0.158		
Satd. Flow (perm)	944	3005	0	972	2892	0	651	3445	0	248	3348	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			61			10			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	31		7	7		31	37		12	12		37
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	0%	0%	6%	2%	3%	5%	0%	3%	6%	4%
Adj. Flow (vph)	178	213	41	53	185	65	62	872	61	69	393	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	254	0	53	250	0	62	933	0	69	467	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		9.4%	43.5%		9.4%	43.5%	
Maximum Green (s)	5.0	27.0		5.0	27.0		5.0	33.0		5.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			21.0			21.0	

Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

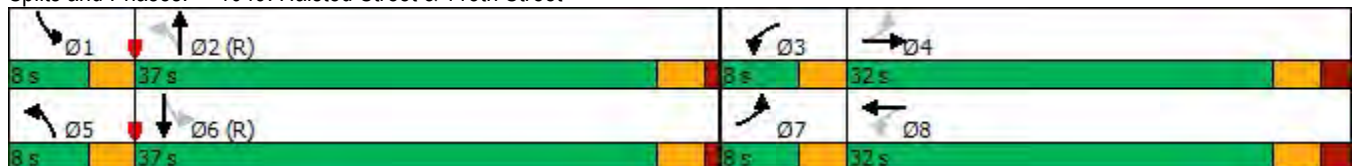
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	33.0		37.0	33.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.39		0.44	0.39	
v/c Ratio	0.46	0.25		0.13	0.25		0.19	0.69		0.42	0.35	
Control Delay	22.4	19.3		15.7	16.3		13.6	24.9		29.0	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.4	19.3		15.7	16.3		13.6	24.9		29.0	13.0	
LOS	C	B		B	B		B	C		C	B	
Approach Delay		20.5			16.2			24.2			15.0	
Approach LOS		C			B			C			B	
Stops (vph)	130	150		30	126		31	707		47	245	
Fuel Used(gal)	3	4		2	9		2	27		2	12	
CO Emissions (g/hr)	227	299		131	619		109	1869		141	821	
NOx Emissions (g/hr)	44	58		25	120		21	364		27	160	
VOC Emissions (g/hr)	53	69		30	143		25	433		33	190	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	60	45		16	37		17	212		17	44	
Queue Length 95th (ft)	106	75		38	66		38	281		59	81	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	384	1008		395	993		323	1343		166	1318	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.25		0.13	0.25		0.19	0.69		0.42	0.35	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	13 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	85
Control Type:	Pretimed
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	20.3
Intersection LOS:	C
Intersection Capacity Utilization:	77.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↖	↗
Traffic Volume (vph)	38	256	18	14	216	8	35	113	25	19	54	39
Future Volume (vph)	38	256	18	14	216	8	35	113	25	19	54	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.994			0.997			0.988			0.987	
Satd. Flow (prot)	0	1647	1395	0	1665	1321	0	1624	1373	0	1588	1360
Flt Permitted		0.942			0.976			0.934			0.929	
Satd. Flow (perm)	0	1560	1336	0	1629	1287	0	1532	1356	0	1494	1318
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			19			17			26			41
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2476	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	5		21	21		5	9		1	1		9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	6%	7%	4%	12%	6%	1%	4%	0%	6%	5%
Adj. Flow (vph)	40	269	19	15	227	8	37	119	26	20	57	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	19	0	242	8	0	156	26	0	77	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

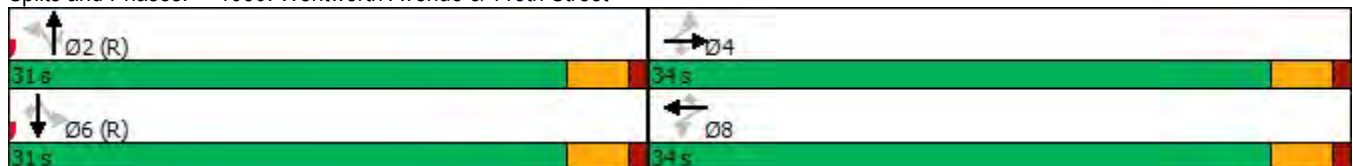
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.43	0.03		0.32	0.01		0.25	0.04		0.12	0.07
Control Delay		14.1	4.9		6.0	0.6		15.0	6.0		10.8	2.7
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		14.1	4.9		6.0	0.6		15.0	6.0		10.8	2.7
LOS		B	A		A	A		B	A		B	A
Approach Delay		13.6			5.9			13.7			8.0	
Approach LOS		B			A			B			A	
Stops (vph)		188	6		56	0		108	12		49	9
Fuel Used(gal)		11	1		3	0		4	1		2	1
CO Emissions (g/hr)		768	43		209	6		289	43		136	61
NOx Emissions (g/hr)		149	8		41	1		56	8		26	12
VOC Emissions (g/hr)		178	10		49	1		67	10		31	14
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		78	0		21	0		49	0		11	0
Queue Length 95th (ft)		136	10		31	1		93	m8		25	3
Internal Link Dist (ft)		3325			1260			2589			2396	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		720	626		751	603		636	578		620	571
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.43	0.03		0.32	0.01		0.25	0.04		0.12	0.07

Intersection Summary

























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 10.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 82.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	235	10	15	200	30	10	190	20	30	70	30
Future Volume (vph)	65	235	10	15	200	30	10	190	20	30	70	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.981			0.985			0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	1600	1360	1520	2982	0	1520	2994	0	1520	2903	0
Flt Permitted	0.950			0.602			0.684			0.611		
Satd. Flow (perm)	1520	1600	1360	963	2982	0	1094	2994	0	978	2903	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1340			559			516			2651	
Travel Time (s)		30.5			12.7			11.7			60.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	70	253	11	16	215	32	11	204	22	32	75	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	253	11	16	247	0	11	226	0	32	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Efect Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	



Lanes, Volumes, Timings  
1051: State Street & 115th Street

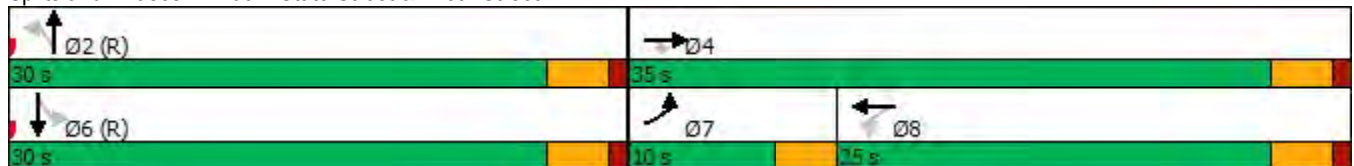
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.48	0.48	0.32	0.32		0.40	0.40		0.40	0.40	
v/c Ratio	0.43	0.33	0.02	0.05	0.26		0.03	0.19		0.08	0.09	
Control Delay	32.2	5.3	3.9	14.3	13.3		7.2	8.8		14.7	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.2	5.3	3.9	14.3	13.3		7.2	8.8		14.7	13.9	
LOS	C	A	A	B	B		A	A		B	B	
Approach Delay		10.9			13.3			8.8			14.1	
Approach LOS		B			B			A			B	
Stops (vph)	42	70	2	7	90		5	124		23	68	
Fuel Used(gal)	1	3	0	0	2		0	5		1	3	
CO Emissions (g/hr)	93	216	9	10	148		18	381		58	190	
NOx Emissions (g/hr)	18	42	2	2	29		3	74		11	37	
VOC Emissions (g/hr)	22	50	2	2	34		4	88		14	44	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	14	15	1	2	19		1	14		8	14	
Queue Length 95th (ft)	37	24	m2	m9	36		m4	24		31	30	
Internal Link Dist (ft)		1260			479			436			2571	
Turn Bay Length (ft)	80			55			45			55		
Base Capacity (vph)	163	763	648	311	963		437	1197		391	1161	
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	
Reduced v/c Ratio	0.43	0.33	0.02	0.05	0.26		0.03	0.19		0.08	0.09	

Intersection Summary























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 11.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 39.3%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1051: State Street & 115th Street



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	235	15	90	200	40	25	275	20	20	115	20
Future Volume (vph)	35	235	15	90	200	40	25	275	20	20	115	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.996			0.993	
Satd. Flow (prot)	1520	1600	1360	1520	1600	1360	0	1594	1360	0	1589	1360
Fl <sub>t</sub> Permitted	0.624			0.950				0.970			0.928	
Satd. Flow (perm)	998	1600	1360	1520	1600	1360	0	1552	1360	0	1485	1360
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			67			101			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	38	253	16	97	215	43	27	296	22	22	124	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	253	16	97	215	43	0	323	22	0	146	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	0.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effect Green (s)	

Lanes, Volumes, Timings  
 1052: Michigan Avenue & 115th Street

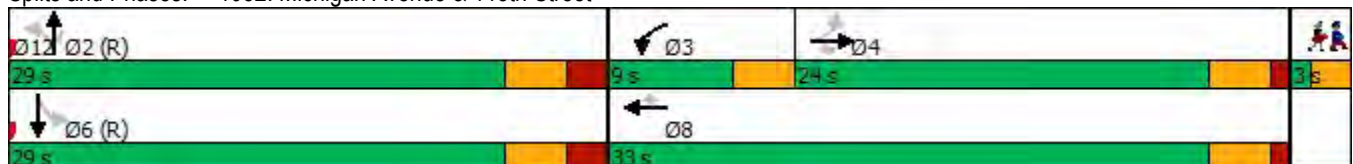
AM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45	0.37	0.37	0.37	0.37	0.37	0.00
v/c Ratio	0.12	0.51	0.03	0.69	0.30	0.07	0.56	0.04	0.27	0.12	0.27	0.12
Control Delay	10.8	14.1	0.1	64.3	10.9	2.4	14.1	0.5	15.1	1.5	15.1	1.5
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	10.8	14.1	0.1	64.3	10.9	2.4	14.1	0.5	15.1	1.5	15.1	1.5
LOS	B	B	A	E	B	A	B	A	B	A	B	A
Approach Delay	13.0			24.4			13.2			13.3		
Approach LOS	B			C			B			B		
Stops (vph)	12	82	0	82	76	4	184	1	93	1	93	1
Fuel Used(gal)	0	2	0	2	2	0	21	1	4	0	4	0
CO Emissions (g/hr)	21	151	5	152	144	20	1444	88	263	30	263	30
NOx Emissions (g/hr)	4	29	1	30	28	4	281	17	51	6	51	6
VOC Emissions (g/hr)	5	35	1	35	33	5	335	20	61	7	61	7
Dilemma Vehicles (#)	0	0	0	0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	6	40	0	43	34	0	76	0	42	0	42	0
Queue Length 95th (ft)	13	56	0	m#113	70	m6	132	m1	70	0	70	0
Internal Link Dist (ft)	479			306			1260			2314		
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	307	492	499	140	713	643	573	565	548	185	548	185
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.51	0.03	0.69	0.30	0.07	0.56	0.04	0.27	0.12	0.27	0.12

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 16.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.5%  
 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.  
 m Volume for 95th percentile queue is metered by upstream signal.


















Splits and Phases: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	247	14	65	306	65	24	88	152	0	0	0
Future Volume (vph)	14	247	14	65	306	65	24	88	152	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.923				
Fl <sub>t</sub> Protected		0.997			0.991			0.995				
Satd. Flow (prot)	0	1595	1360	0	1586	1360	0	1574	0	0	0	0
Fl <sub>t</sub> Permitted		0.976			0.902			0.995				
Satd. Flow (perm)	0	1562	1360	0	1443	1360	0	1574	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			17			70		108				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	15	266	15	70	329	70	26	95	163	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	281	15	0	399	70	0	284	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		39.2	39.2		39.2	39.2		16.8				
Actuated g/C Ratio		0.60	0.60		0.60	0.60		0.26				
v/c Ratio		0.30	0.02		0.46	0.08		0.58				
Control Delay		15.3	9.4		10.1	2.3		17.2				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		15.3	9.4		10.1	2.3		17.2				
LOS		B	A		B	A		B				
Approach Delay		15.0			9.0			17.3				
Approach LOS		B			A			B				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	37.8	37.8	37.8	37.8	37.8	37.8	18.2	18.2				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
30th %ile Green (s)	41.2	41.2	41.2	41.2	41.2	41.2	14.8	14.8				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
10th %ile Green (s)	45.0	45.0	45.0	45.0	45.0	45.0	11.0	11.0				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		161	9		203	9		137				
Fuel Used(gal)		3	0		6	1		3				
CO Emissions (g/hr)		228	11		399	52		232				
NOx Emissions (g/hr)		44	2		78	10		45				
VOC Emissions (g/hr)		53	3		92	12		54				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		77	0		81	0		56				
Queue Length 95th (ft)		120	m5		155	15		119				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

AM Peak  
 Existing Conditions

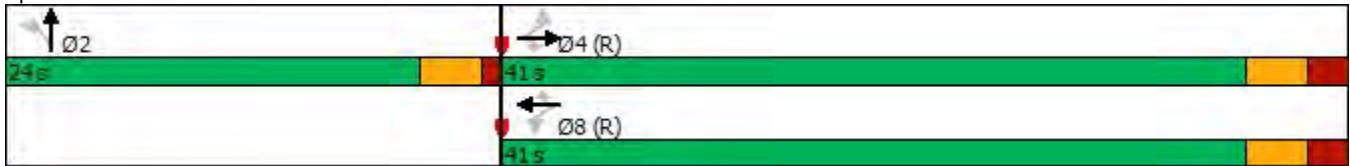


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		942	826		870	848		559				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.30	0.02		0.46	0.08		0.51				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 12.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 74.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

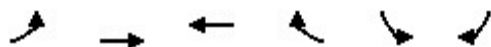
Splits and Phases: 1053: Indiana Avenue & 115th Street





Lanes, Volumes, Timings  
1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
Existing Conditions



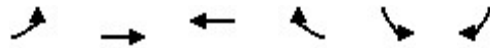
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	76	323	370	42	58	66
Future Volume (vph)	76	323	370	42	58	66
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.986			0.850
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	1817	1925	0	1565	1400
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	1817	1925	0	1565	1400
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	21			21	5	3
Confl. Bikes (#/hr)					2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	12%	3%	5%	0%	2%	2%
Adj. Flow (vph)	86	367	420	48	66	75
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	453	468	0	66	75
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.2%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
 Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	76	323	370	42	58	66
Future Volume (vph)	76	323	370	42	58	66
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	86	367	420	48	66	75

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	453	468	66	75
Volume Left (vph)	86	0	66	0
Volume Right (vph)	0	48	0	75
Hadj (s)	0.12	0.01	0.53	-0.67
Departure Headway (s)	5.1	5.0	7.3	6.0
Degree Utilization, x	0.64	0.65	0.13	0.13
Capacity (veh/h)	686	707	440	530
Control Delay (s)	16.7	16.6	10.2	8.7
Approach Delay (s)	16.7	16.6	9.4	
Approach LOS	C	C	A	

Intersection Summary			
Delay		15.7	
Level of Service		C	
Intersection Capacity Utilization	60.2%		ICU Level of Service B
Analysis Period (min)		15	

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

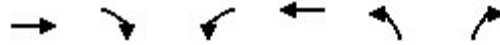
AM Peak  
Existing Conditions



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	426	1	24	582	0	0				
Future Volume (vph)	426	1	24	582	0	0				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt		0.850								
Flt Protected				0.998						
Satd. Flow (prot)	1600	1457	0	1437	1943	0				
Flt Permitted				0.973						
Satd. Flow (perm)	1600	1457	0	1401	1943	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)		1								
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%				
Parking (#/hr)				0						
Adj. Flow (vph)	458	1	26	626	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	458	1	0	652	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm	Perm	NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0	62.0		31.0						
Actuated g/C Ratio	0.73	0.73		0.36						
v/c Ratio	0.39	0.00		1.28						

Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

AM Peak  
 Existing Conditions

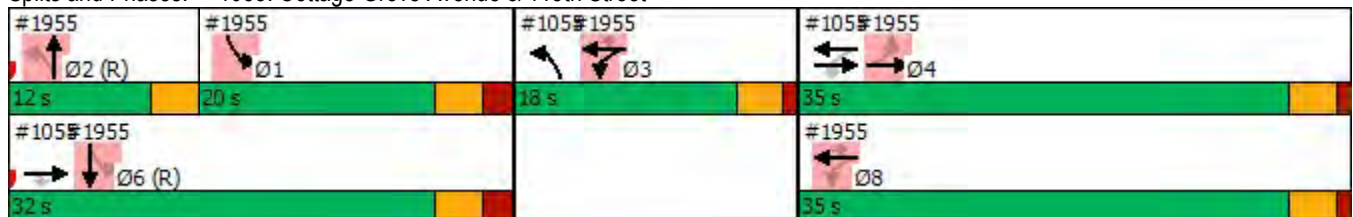


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	2.9	0.0		166.9						
Queue Delay	1.2	0.0		0.3						
Total Delay	4.1	0.0		167.2						
LOS	A	A		F						
Approach Delay	4.1			167.2						
Approach LOS	A			F						
Stops (vph)	85	0		477						
Fuel Used(gal)	1	0		35						
CO Emissions (g/hr)	75	0		2445						
NOx Emissions (g/hr)	15	0		476						
VOC Emissions (g/hr)	17	0		567						
Dilemma Vehicles (#)	0	0		0						
Queue Length 50th (ft)	34	0		~446						
Queue Length 95th (ft)	57	m0		#650						
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1167	1063		510						
Starvation Cap Reductn	478	1015		0						
Spillback Cap Reductn	0	0		20						
Storage Cap Reductn	0	0		0						
Reduced v/c Ratio	0.66	0.02		1.33						

Intersection Summary

















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 95  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.28  
 Intersection Signal Delay: 99.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 56.2%  
 ICU Level of Service B  
 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: 1055: Cottage Grove Avenue & 115th Street



Lanes, Volumes, Timings  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 Existing Conditions



















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	176	182	23	507	0	0	0	0	3	0	196
Future Volume (vph)	0	176	182	23	507	0	0	0	0	3	0	196
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.924										0.850
Flt Protected					0.998						0.950	
Satd. Flow (prot)	0	3038	0	0	3195	0	0	0	0	0	1938	1471
Flt Permitted					0.998						0.950	
Satd. Flow (perm)	0	3038	0	0	3195	0	0	0	0	0	1938	1471
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	3%	5%	70%	4%	0%	0%	0%	0%	0%	0%	4%
Adj. Flow (vph)	0	187	194	24	539	0	0	0	0	3	0	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	381	0	0	563	0	0	0	0	0	3	209
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	176	182	23	507	0	0	0	0	3	0	196
Future Volume (Veh/h)	0	176	182	23	507	0	0	0	0	3	0	196
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	187	194	24	539	0	0	0	0	3	0	209
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	539		187		602		871	190	680	774	270	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	539		187		602		871	190	680	774	270	
tC, single (s)	4.1		5.5		7.5		6.5	6.9	7.5	6.5	7.0	
tC, 2 stage (s)												
tF (s)	2.2		2.9		3.5		4.0	3.3	3.5	4.0	3.3	
p0 queue free %	100		98		100		100	100	99	100	71	
cM capacity (veh/h)	1040		1005		271		285	825	334	324	722	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	125	256	204	359	3	209						
Volume Left	0	0	24	0	3	0						
Volume Right	0	194	0	0	0	209						
cSH	1700	1700	1005	1700	334	722						
Volume to Capacity	0.07	0.15	0.02	0.21	0.01	0.29						
Queue Length 95th (ft)	0	0	2	0	1	30						
Control Delay (s)	0.0	0.0	1.2	0.0	15.9	12.0						
Lane LOS			A		C		B					
Approach Delay (s)	0.0		0.4		12.1							
Approach LOS					B							
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			40.1%		ICU Level of Service		A					
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

AM Peak  
 Existing Conditions



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Traffic Volume (vph)	179	0	530	0	0	0
Future Volume (vph)	179	0	530	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3159	0	1629	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3159	0	1629	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	192	0	570	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	192	0	570	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

AM Peak  
 Existing Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰		↰			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	179	0	530	0	0	0
Future Volume (vph)	179	0	530	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	192	0	570	0	0	0























Direction, Lane #	EB 1	EB 2	NB 1
Volume Total (vph)	96	96	570
Volume Left (vph)	96	96	570
Volume Right (vph)	0	0	0
Hadj (s)	0.58	0.58	0.29
Departure Headway (s)	6.6	6.6	4.8
Degree Utilization, x	0.18	0.18	0.76
Capacity (veh/h)	513	513	737
Control Delay (s)	9.8	9.8	21.1
Approach Delay (s)	9.8		21.1
Approach LOS	A		C

Intersection Summary		
Delay		18.2
Level of Service		C
Intersection Capacity Utilization	43.1%	ICU Level of Service A
Analysis Period (min)		15



Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	238	66	34	136	44	78	730	55	46	348	81
Future Volume (vph)	192	238	66	34	136	44	78	730	55	46	348	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.99	1.00	0.99		0.97	1.00		1.00	0.99	
Frt			0.850		0.963			0.990			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1556	1347	1596	1717	0	1535	3098	0	1509	2870	0
Flt Permitted	0.538			0.558			0.417			0.231		
Satd. Flow (perm)	856	1556	1327	936	1717	0	655	3098	0	366	2870	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85		18			10			36	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		946			3955			5338			2655	
Travel Time (s)		21.5			89.9			121.3			60.3	
Confl. Peds. (#/hr)	33		3	3		33	42		8	8		42
Confl. Bikes (#/hr)							1					1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	8%	6%	0%	7%	5%	4%	5%	11%	2%	6%	9%
Adj. Flow (vph)	196	243	67	35	139	45	80	745	56	47	355	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	243	67	35	184	0	80	801	0	47	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

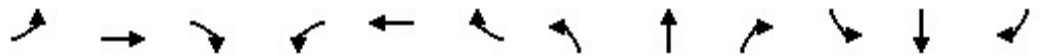
AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.6	32.0	31.0	34.0	27.0		41.6	38.0		40.8	36.0	
Actuated g/C Ratio	0.40	0.36	0.34	0.38	0.30		0.46	0.42		0.45	0.40	
v/c Ratio	0.51	0.44	0.13	0.09	0.35		0.22	0.61		0.20	0.37	
Control Delay	24.1	26.7	4.4	16.1	24.4		14.2	23.4		14.3	19.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.1	26.7	4.4	16.1	24.4		14.2	23.4		14.3	19.2	
LOS	C	C	A	B	C		B	C		B	B	
Approach Delay		22.8			23.1			22.6			18.7	
Approach LOS		C			C			C			B	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	44.0		0.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Skip	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		0.0	44.0		0.0	44.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Skip	Coord		Skip	Coord	
Stops (vph)	141	183	8	21	123		42	594		24	271	
Fuel Used(gal)	3	4	1	1	7		4	40		1	12	
CO Emissions (g/hr)	219	284	41	89	498		259	2775		85	843	
NOx Emissions (g/hr)	43	55	8	17	97		50	540		17	164	
VOC Emissions (g/hr)	51	66	10	21	115		60	643		20	195	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	72	112	0	11	73		23	194		14	85	
Queue Length 95th (ft)	123	186	21	29	130		48	261		32	126	
Internal Link Dist (ft)		866			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	384	553	512	397	527		361	1313		241	1169	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

AM Peak  
 Existing Conditions

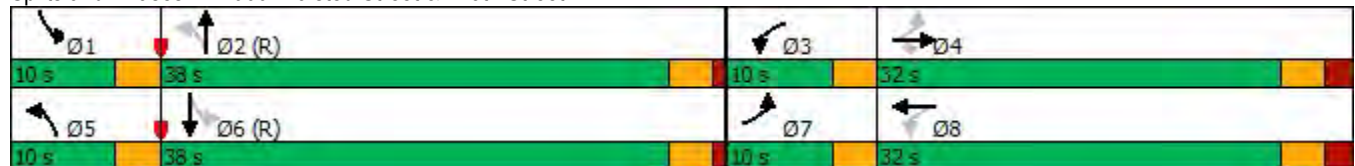


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.51	0.44	0.13	0.09	0.35		0.22	0.61		0.20	0.37	

Intersection Summary




















Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay:	21.8
Intersection LOS:	C
Intersection Capacity Utilization	82.1%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 1060: Halsted Street & 119th Street



Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	243	15	5	182	19	33	75	15	10	37	33
Future Volume (vph)	40	243	15	5	182	19	33	75	15	10	37	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.97		1.00	0.97		1.00			0.99	
Frt			0.850			0.850		0.984			0.945	
Flt Protected		0.993			0.999			0.987			0.994	
Satd. Flow (prot)	0	1630	1428	0	1600	1231	0	1916	0	0	1851	0
Flt Permitted		0.944			0.994			0.929			0.974	
Satd. Flow (perm)	0	1548	1383	0	1592	1198	0	1801	0	0	1812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16			21		13			36	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	6		11	11		6	4		8	8		4
Confl. Bikes (#/hr)	1		1	1		1			1	1		
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%	7%	0%	0%	5%	16%	0%	0%	0%	10%	0%	3%
Adj. Flow (vph)	44	267	16	5	200	21	36	82	16	11	41	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	311	16	0	205	21	0	134	0	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

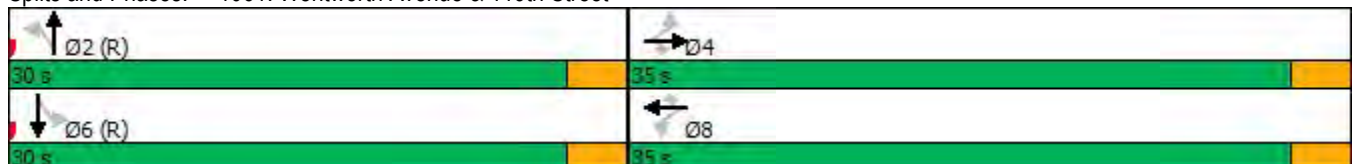
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.41	0.02		0.26	0.04		0.18			0.11	
Control Delay		12.5	4.6		8.5	2.9		11.6			5.5	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		12.5	4.6		8.5	2.9		11.6			5.5	
LOS		B	A		A	A		B			A	
Approach Delay		12.2			8.0			11.6			5.5	
Approach LOS		B			A			B			A	
Stops (vph)		172	5		57	3		66			47	
Fuel Used(gal)		10	1		3	0		3			2	
CO Emissions (g/hr)		727	35		180	16		224			141	
NOx Emissions (g/hr)		141	7		35	3		44			27	
VOC Emissions (g/hr)		168	8		42	4		52			33	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		73	0		28	1		29			1	
Queue Length 95th (ft)		128	8		45	5		60			9	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		762	688		783	600		755			773	
Starvation Cap Reductn		0	0		0	0		0			0	
Spillback Cap Reductn		0	0		0	0		0			0	
Storage Cap Reductn		0	0		0	0		0			0	
Reduced v/c Ratio		0.41	0.02		0.26	0.04		0.18			0.11	

Intersection Summary

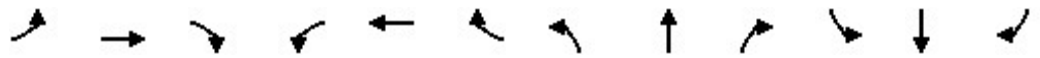
Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.41
Intersection Signal Delay:	10.1
Intersection LOS:	B
Intersection Capacity Utilization:	85.8%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	58	160	19	6	133	6	32	176	17	8	45	26
Future Volume (vph)	58	160	19	6	133	6	32	176	17	8	45	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.96		1.00	0.96		0.99	
Frt			0.850			0.850			0.850		0.956	
Flt Protected		0.987			0.998			0.992			0.995	
Satd. Flow (prot)	0	1555	1360	0	1498	1428	0	1638	1347	0	1875	0
Flt Permitted		0.888			0.988			0.956			0.975	
Satd. Flow (perm)	0	1394	1299	0	1482	1376	0	1577	1297	0	1835	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34			34			34			27
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	11		17	17		11	4		17	17		4
Confl. Bikes (#/hr)	1		1	1		1	1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	9%	5%	33%	11%	0%	6%	1%	6%	0%	0%	8%
Adj. Flow (vph)	60	167	20	6	139	6	33	183	18	8	47	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	227	20	0	145	6	0	216	18	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0

Lanes, Volumes, Timings  
 1062: State Street & 119th Street

AM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.46	0.04		0.28	0.01		0.28	0.03		0.09	
Control Delay		12.0	2.3		16.9	0.0		4.5	1.4		5.2	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		12.0	2.3		16.9	0.0		4.5	1.4		5.2	
LOS		B	A		B	A		A	A		A	
Approach Delay		11.2			16.2			4.2			5.2	
Approach LOS		B			B			A			A	
Stops (vph)		168	7		97	0		100	3		28	
Fuel Used(gal)		4	0		2	0		9	1		2	
CO Emissions (g/hr)		260	17		107	2		656	51		132	
NOx Emissions (g/hr)		51	3		21	0		128	10		26	
VOC Emissions (g/hr)		60	4		25	0		152	12		31	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		72	1		40	0		32	1		0	
Queue Length 95th (ft)		133	m3		80	0		53	m2		7	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		493	481		524	508		776	655		917	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.46	0.04		0.28	0.01		0.28	0.03		0.09	

Intersection Summary













Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.46  
 Intersection Signal Delay: 9.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 85.0%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1062: State Street & 119th Street



Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

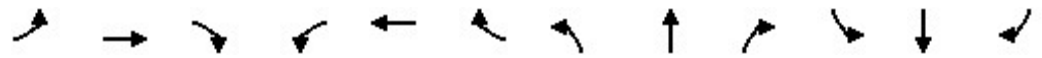
AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑					↵	↑↑	↵
Traffic Volume (vph)	0	765	212	236	1004	0	0	0	0	270	196	366
Future Volume (vph)	0	765	212	236	1004	0	0	0	0	270	196	366
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		1.00		1.00							0.99	0.99
Frt		0.968									0.939	0.850
Flt Protected				0.950						0.950	0.994	
Satd. Flow (prot)	0	4305	0	1644	3226	0	0	0	0	1468	2713	1375
Flt Permitted				0.222						0.950	0.994	
Satd. Flow (perm)	0	4305	0	384	3226	0	0	0	0	1468	2713	1356
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77									111	115
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			474			954	
Travel Time (s)		30.9			7.3			10.8			21.7	
Confl. Peds. (#/hr)	6		4	4		6	2					2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	11%	7%	4%	6%	0%	0%	0%	0%	6%	4%	8%
Adj. Flow (vph)	0	781	216	241	1024	0	0	0	0	276	200	373
Shared Lane Traffic (%)										20%		47%
Lane Group Flow (vph)	0	997	0	241	1024	0	0	0	0	221	430	198
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4



Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (%)		43.8%		22.9%	66.7%					33.3%	33.3%	33.3%
Maximum Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										2.0	2.0	2.0
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		54.3		72.6	71.1					21.9	21.9	21.9
Actuated g/C Ratio		0.52		0.69	0.68					0.21	0.21	0.21
v/c Ratio		0.44		0.58	0.47					0.72	0.66	0.53
Control Delay		16.9		18.0	13.4					51.7	32.2	20.1
Queue Delay		0.0		1.2	4.3					0.0	0.0	0.0
Total Delay		16.9		19.2	17.6					51.7	32.2	20.1
LOS		B		B	B					D	C	C
Approach Delay		16.9			17.9						34.5	
Approach LOS		B			B						C	
90th %ile Green (s)		40.9		18.6	64.0					29.0	29.0	29.0
90th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
70th %ile Green (s)		49.0		13.7	67.2					25.8	25.8	25.8
70th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
50th %ile Green (s)		54.1		11.7	70.3					22.7	22.7	22.7
50th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
30th %ile Green (s)		60.0		9.8	74.3					18.7	18.7	18.7
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		67.5		7.9	79.9					13.1	13.1	13.1
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		560		151	622					195	279	73
Fuel Used(gal)		17		2	9					5	7	3
CO Emissions (g/hr)		1174		160	608					348	520	185
NOx Emissions (g/hr)		228		31	118					68	101	36
VOC Emissions (g/hr)		272		37	141					81	120	43
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		135		72	211					151	113	51
Queue Length 95th (ft)		220		m159	m340					225	159	120
Internal Link Dist (ft)		1279			242			394			874	
Turn Bay Length (ft)				216						360		360

Lanes, Volumes, Timings  
 1064: S Paulina ST & 127th Street

AM Peak  
 Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		2263		499	2185					405	829	457
Starvation Cap Reductn		0		110	1062					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		0.44		0.62	0.91					0.55	0.52	0.43

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	89 (85%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	22.1
Intersection LOS:	C
Intersection Capacity Utilization	71.1%
ICU Level of Service	C
Analysis Period (min)	15
























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

Splits and Phases: 1064: S Paulina ST & 127th Street



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 				
Traffic Volume (vph)	301	734	0	0	815	234	425	281	297	0	0	0
Future Volume (vph)	301	734	0	0	815	234	425	281	297	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Fr <sub>t</sub>					0.967			0.923				
Fl <sub>t</sub> Protected	0.950						0.950					
Satd. Flow (prot)	3016	3138	0	0	4486	0	1644	3034	0	0	0	0
Fl <sub>t</sub> Permitted	0.950						0.950					
Satd. Flow (perm)	3012	3138	0	0	4486	0	1644	3034	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					76							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		322			336			554			548	
Travel Time (s)		7.3			7.6			12.6			12.5	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	9%	0%	0%	6%	4%	4%	3%	5%	0%	0%	0%
Adj. Flow (vph)	317	773	0	0	858	246	447	296	313	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	773	0	0	1104	0	447	609	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (%)	26.2%	67.1%			41.0%		32.9%	32.9%				
Maximum Green (s)	21.5	64.5			37.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	16.7	64.5			41.8		28.5	28.5				
Actuated g/C Ratio	0.16	0.61			0.40		0.27	0.27				
v/c Ratio	0.66	0.40			0.60		1.00	0.74				
Control Delay	44.6	8.2			20.5		82.6	41.3				
Queue Delay	0.0	0.3			0.3		34.3	0.0				
Total Delay	44.6	8.5			20.8		116.9	41.3				
LOS	D	A			C		F	D				
Approach Delay		19.0			20.8			73.3				
Approach LOS		B			C			E				
90th %ile Green (s)	21.1	64.5			37.4		28.5	28.5				
90th %ile Term Code	Gap	Coord			Coord		Max	Max				
70th %ile Green (s)	18.5	64.5			40.0		28.5	28.5				
70th %ile Term Code	Gap	Coord			Coord		Max	Max				
50th %ile Green (s)	16.7	64.5			41.8		28.5	28.5				
50th %ile Term Code	Gap	Coord			Coord		Max	Max				
30th %ile Green (s)	14.8	64.5			43.7		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	12.2	64.5			46.3		28.5	28.5				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	237	283			447		366	517				
Fuel Used(gal)	5	5			10		11	10				
CO Emissions (g/hr)	335	323			671		769	715				
NOx Emissions (g/hr)	65	63			131		150	139				
VOC Emissions (g/hr)	78	75			156		178	166				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	77	81			115		~301	196				
Queue Length 95th (ft)	123	73			m175		#509	262				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											
Base Capacity (vph)	617	1927			1833		446	823				

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

AM Peak  
 Existing Conditions

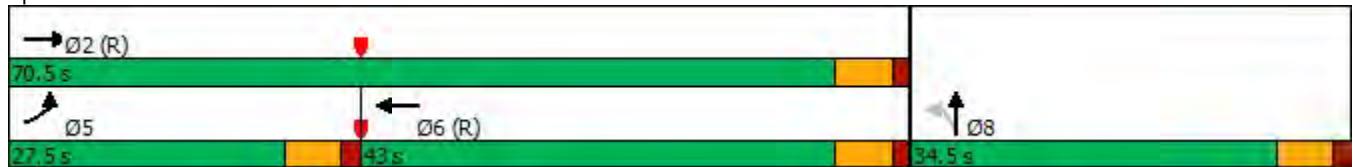


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	551			212		0	0				
Spillback Cap Reductn	0	0			4		98	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.51	0.56			0.68		1.28	0.74				

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	7 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	37.2
Intersection LOS:	D
Intersection Capacity Utilization	71.1%
ICU Level of Service	C
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: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	405	204	71	683	38	226	178	40	37	111	91
Future Volume (vph)	95	405	204	71	683	38	226	178	40	37	111	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	0.99	1.00		0.99	1.00		1.00	0.99	
Frt			0.850		0.992			0.972			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3167	1311	1605	3232	0	1451	3222	0	1550	2789	0
Flt Permitted	0.176			0.501			0.523			0.607		
Satd. Flow (perm)	290	3167	1282	842	3232	0	793	3222	0	986	2789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			217		6			27			97	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		336			5379			1555			925	
Travel Time (s)		7.6			122.3			35.3			21.0	
Confl. Peds. (#/hr)	3		12	12		3	9		6	6		9
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 (%)	2%	8%	5%	3%	5%	3%	10%	3%	2%	3%	7%	4%
Parking (#/hr)			0									
Adj. Flow (vph)	101	431	217	76	727	40	240	189	43	39	118	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	431	217	76	767	0	240	232	0	39	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (%)	12.9%	40.0%	11.9%	11.9%	39.0%		11.9%	36.2%		11.9%	36.2%	
Maximum Green (s)	9.0	36.0	8.0	8.0	35.0		8.0	32.0		8.0	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	65.5	54.0	63.5	44.0	35.0		28.0	21.7		25.1	16.5	
Actuated g/C Ratio	0.62	0.51	0.60	0.42	0.33		0.27	0.21		0.24	0.16	
v/c Ratio	0.21	0.26	0.25	0.19	0.71		0.92	0.34		0.14	0.41	
Control Delay	8.4	16.0	3.4	11.6	34.7		70.2	28.8		27.7	23.6	
Queue Delay	0.0	0.0	0.2	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.4	16.0	3.6	11.6	34.7		70.2	28.8		27.7	23.6	
LOS	A	B	A	B	C		E	C		C	C	
Approach Delay		11.4			32.6			49.8			24.3	
Approach LOS		B			C			D			C	
90th %ile Green (s)	20.7	46.1	8.0	9.6	35.0		8.0	20.3		8.0	20.3	
90th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
70th %ile Green (s)	23.7	50.5	8.0	8.2	35.0		8.0	17.3		8.0	17.3	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
50th %ile Green (s)	25.9	53.6	8.0	7.3	35.0		8.0	15.7		7.4	15.1	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Gap	Hold	
30th %ile Green (s)	26.0	54.4	8.0	6.6	35.0		8.0	27.5		0.0	15.0	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Skip	Min	
10th %ile Green (s)	26.0	65.5	8.0	0.0	35.0		8.0	27.5		0.0	15.0	
10th %ile Term Code	MaxR	Coord	Max	Skip	Coord		Max	Hold		Skip	Min	
Stops (vph)	34	286	63	38	607		238	201		28	97	
Fuel Used(gal)	1	4	1	3	39		7	5		1	3	
CO Emissions (g/hr)	42	277	72	234	2704		509	352		44	207	
NOx Emissions (g/hr)	8	54	14	46	526		99	68		9	40	
VOC Emissions (g/hr)	10	64	17	54	627		118	81		10	48	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	21	113	18	18	233		~151	70		19	37	
Queue Length 95th (ft)	m38	148	m19	41	303		#290	111		42	70	
Internal Link Dist (ft)		256			5299			1475			845	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

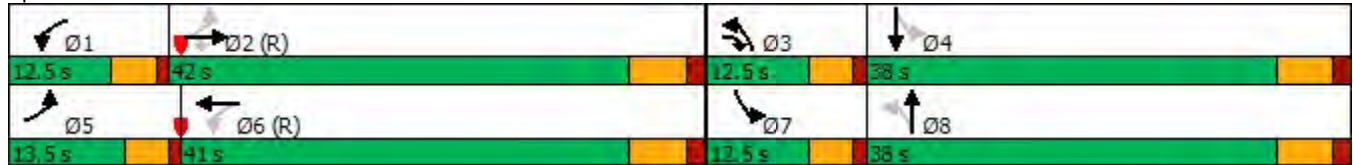
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	477	1629	863	420	1081		261	1000		287	917	
Starvation Cap Reductn	0	0	201	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	
Reduced v/c Ratio	0.21	0.26	0.33	0.18	0.71		0.92	0.23		0.14	0.23	

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 16 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 28.3      Intersection LOS: C  
 Intersection Capacity Utilization 81.4%      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: 1066: S Ashland & 127th Street





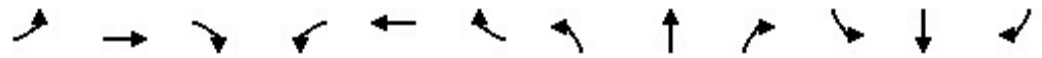
Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	106	229	47	139	85	323	375	62	91	258	54
Future Volume (vph)	50	106	229	47	139	85	323	375	62	91	258	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99		1.00	1.00		1.00	1.00	
Frt		0.897			0.943			0.979			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	2903	0	1513	3012	0	1589	3157	0	1660	3243	0
Flt Permitted	0.599			0.475			0.448			0.478		
Satd. Flow (perm)	1019	2903	0	757	3012	0	749	3157	0	834	3243	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					93			21				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	20					20	1		2	2		1
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 (%)	4%	5%	6%	13%	6%	5%	4%	6%	5%	3%	3%	0%
Adj. Flow (vph)	55	116	252	52	153	93	355	412	68	100	284	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	368	0	52	246	0	355	480	0	100	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (%)	12.9%	30.0%		12.9%	30.0%		22.9%	44.3%		12.9%	34.3%	
Maximum Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					2.0							2.0
Flash Dont Walk (s)					23.5							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	37.8	29.0		37.8	29.0		56.0	43.6		42.4	31.8	
Actuated g/C Ratio	0.36	0.28		0.36	0.28		0.53	0.42		0.40	0.30	
v/c Ratio	0.13	0.46		0.16	0.27		0.65	0.36		0.25	0.35	
Control Delay	21.3	34.9		21.6	20.2		21.1	22.0		14.3	25.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.3	34.9		21.6	20.2		21.1	22.0		14.3	25.7	
LOS	C	C		C	C		C	C		B	C	
Approach Delay		33.1			20.5			21.6			23.1	
Approach LOS		C			C			C			C	
90th %ile Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
90th %ile Term Code	Max	MaxR		Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	9.1	25.8		9.2	25.9		20.0	40.5		9.5	30.0	
70th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.2	26.8		8.2	26.8		20.0	40.9		9.1	30.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Gap	Coord	
30th %ile Green (s)	7.2	27.8		7.2	27.8		17.2	41.9		8.1	32.8	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Gap	Coord		Gap	Coord	
10th %ile Green (s)	0.0	39.0		0.0	39.0		13.6	54.0		0.0	36.4	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Gap	Coord		Skip	Coord	
Stops (vph)	32	275		30	108		188	283		51	211	
Fuel Used(gal)	1	6		2	11		5	7		2	7	
CO Emissions (g/hr)	46	403		163	756		346	488		117	470	
NOx Emissions (g/hr)	9	78		32	147		67	95		23	91	
VOC Emissions (g/hr)	11	93		38	175		80	113		27	109	
Dilemma Vehicles (#)	0	16		0	11		0	21		0	17	
Queue Length 50th (ft)	23	111		22	42		136	114		22	84	
Queue Length 95th (ft)	49	161		47	78		207	159		47	133	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

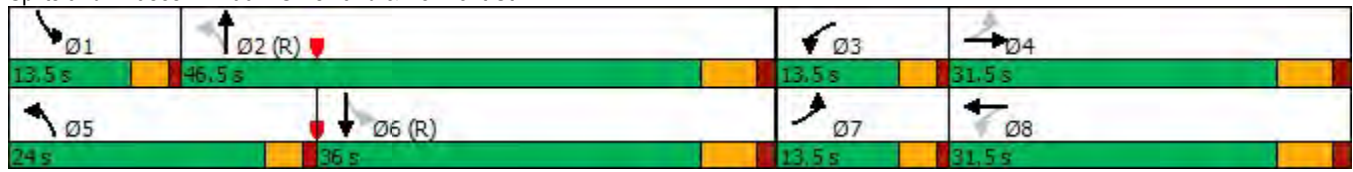
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	430	801		346	899		559	1321		419	983	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.46		0.15	0.27		0.64	0.36		0.24	0.35	

Intersection Summary



















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	9 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	24.2
Intersection LOS:	C
Intersection Capacity Utilization	85.1%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 1067: S Ashland & Vermont St



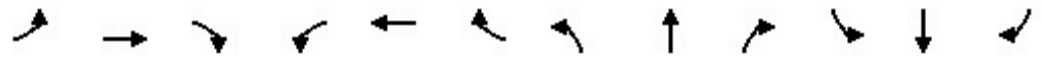
Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	359	73	6	372	100	56	490	6	65	251	81
Future Volume (vph)	151	359	73	6	372	100	56	490	6	65	251	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		0.99	1.00		0.99	0.99	
Frt		0.981			0.968			0.998			0.963	
Flt Protected		0.987			0.999		0.950			0.950		
Satd. Flow (prot)	0	2992	0	0	2988	0	1545	3296	0	1559	2992	0
Flt Permitted		0.685			0.947		0.538			0.371		
Satd. Flow (perm)	0	2075	0	0	2832	0	869	3296	0	605	2992	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			39			1			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	9		11	11		9	11		14	14		11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	6%	18%	50%	6%	6%	7%	3%	50%	6%	7%	2%
Adj. Flow (vph)	162	386	78	6	400	108	60	527	6	70	270	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	626	0	0	514	0	60	533	0	70	357	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	37.0		21.0	21.0		6.5	31.0		6.5	21.0	
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0	
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%	
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		11						14				
Act Effct Green (s)		28.8			28.8		30.9	22.7		31.7	24.8	
Actuated g/C Ratio		0.40			0.40		0.43	0.31		0.44	0.34	
v/c Ratio		0.75			0.45		0.14	0.52		0.19	0.34	
Control Delay		25.8			17.1		12.4	23.9		13.0	18.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		25.8			17.1		12.4	23.9		13.0	18.1	
LOS		C			B		B	C		B	B	
Approach Delay		25.8			17.1			22.8			17.3	
Approach LOS		C			B			C			B	
90th %ile Green (s)	0.0	34.0		34.0	34.0		9.3	27.0		8.5	26.2	
90th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Max	Hold	
70th %ile Green (s)	0.0	34.0		34.0	34.0		8.0	27.0		8.4	27.4	
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Gap	Hold	
50th %ile Green (s)	0.0	33.0		33.0	33.0		7.2	23.9		7.5	24.2	
50th %ile Term Code	Skip	Gap		Hold	Hold		Gap	Gap		Gap	Hold	
30th %ile Green (s)	0.0	25.7		25.7	25.7		0.0	20.0		6.5	30.0	
30th %ile Term Code	Skip	Gap		Hold	Hold		Skip	Gap		Gap	Hold	
10th %ile Green (s)	0.0	17.5		17.5	17.5		0.0	15.0		0.0	15.0	
10th %ile Term Code	Skip	Gap		Hold	Hold		Skip	Min		Skip	Min	
Stops (vph)		454			298		29	377		33	195	
Fuel Used(gal)		30			8		0	6		3	16	
CO Emissions (g/hr)		2095			576		35	436		214	1127	
NOx Emissions (g/hr)		408			112		7	85		42	219	
VOC Emissions (g/hr)		486			134		8	101		50	261	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		128			85		16	115		19	62	
Queue Length 95th (ft)		209			137		37	169		41	103	
Internal Link Dist (ft)		5299			1243			370			5258	
Turn Bay Length (ft)							135			130		

Lanes, Volumes, Timings  
 1068: Halsted Street & 127th Street

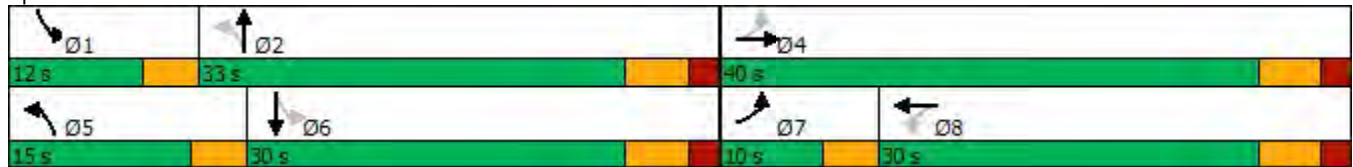
AM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1045			1230		515	1305		385	1178	
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		0.60			0.42		0.12	0.41		0.18	0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	72.4
Natural Cycle:	75
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	21.2
Intersection LOS:	C
Intersection Capacity Utilization:	73.8%
ICU Level of Service:	D
Analysis Period (min):	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	84.9
50th %ile Actuated Cycle:	79.9
30th %ile Actuated Cycle:	67.7
10th %ile Actuated Cycle:	44.5

Splits and Phases: 1068: Halsted Street & 127th Street



Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	90	37	59	111	11	31	529	65	8	291	35
Future Volume (vph)	40	90	37	59	111	11	31	529	65	8	291	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.957			0.986			0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1857	0	1629	1937	0	1660	3213	0	1140	3193	0
Flt Permitted	0.672			0.669			0.540			0.368		
Satd. Flow (perm)	1178	1857	0	1135	1937	0	941	3213	0	441	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			9			28			27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	10		16	16		10	4		6	6		4
Confl. Bikes (#/hr)			4	4								
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 (%)	2%	4%	5%	5%	4%	0%	3%	4%	8%	50%	5%	6%
Adj. Flow (vph)	43	98	40	64	121	12	34	575	71	9	316	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	138	0	64	133	0	34	646	0	9	354	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

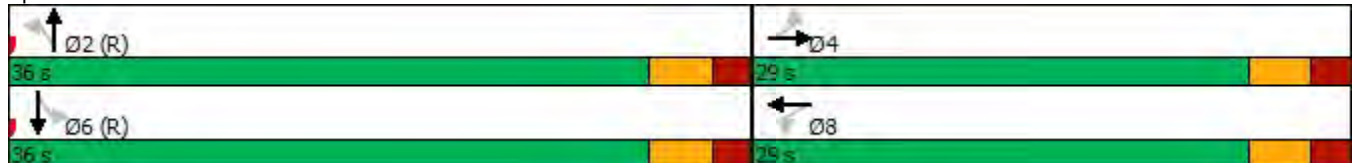
AM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.10	0.19		0.15	0.18		0.08	0.42		0.04	0.23	
Control Delay	14.3	11.3		25.8	24.9		9.9	11.6		9.9	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.3	11.3		25.8	24.9		9.9	11.6		9.9	9.7	
LOS	B	B		C	C		A	B		A	A	
Approach Delay		12.0			25.2			11.5			9.7	
Approach LOS		B			C			B			A	
Stops (vph)	28	63		58	110		18	347		6	164	
Fuel Used(gal)	2	6		1	3		1	12		0	3	
CO Emissions (g/hr)	139	426		89	178		43	833		5	188	
NOx Emissions (g/hr)	27	83		17	35		8	162		1	37	
VOC Emissions (g/hr)	32	99		21	41		10	193		1	44	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	11	26		27	54		7	78		2	37	
Queue Length 95th (ft)	30	60		m37	m72		21	115		9	60	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	434	708		419	720		448	1547		210	1536	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.19		0.15	0.18		0.08	0.42		0.04	0.23	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.42  
 Intersection Signal Delay: 13.0 Intersection LOS: B  
 Intersection Capacity Utilization 63.1% ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1069: Halsted Street & Vermont St





Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

AM Peak  
Existing Conditions



Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations	←↑		←↑				↑			↑		
Traffic Volume (vph)	403	146	505	13	3	12	3	41	9	0	2	4
Future Volume (vph)	403	146	505	13	3	12	3	41	9	0	2	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	12	12	16	12	12	16	12	12
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00				1.00			0.99		
Frt			0.997				0.904			0.949		
Flt Protected			0.989				0.988			0.970		
Satd. Flow (prot)	2956	0	2959	0	0	0	1733	0	0	1859	0	0
Flt Permitted			0.669				0.945			0.877		
Satd. Flow (perm)	2956	0	1999	0	0	0	1656	0	0	1681	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)	30		30				30			30		
Link Distance (ft)	1323		3930				1256			658		
Travel Time (s)	30.1		89.3				28.5			15.0		
Confl. Peds. (#/hr)		7		6		3					3	
Confl. Bikes (#/hr)		1										
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 (%)	8%	8%	6%	0%	0%	8%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	448	162	561	14	3	13	3	46	10	0	2	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	448	0	737	0	0	0	65	0	0	16	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	0		0				0			0		
Link Offset(ft)	0		0				0			0		
Crosswalk Width(ft)	16		16				16			16		
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07	1.07
Turning Speed (mph)		15		9	15	15		9	15		9	9
Turn Type	NA	custom	NA		Perm	Perm	NA		Perm	NA		
Protected Phases	8	7	4				2			6		
Permitted Phases		4	7		2	2			6			
Minimum Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (%)	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%		
Maximum Green (s)	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0		0.0				0.0			0.0		
Total Lost Time (s)	5.0		5.0				4.0			4.0		
Lead/Lag	Lag	Lead										
Lead-Lag Optimize?												
Walk Time (s)	9.0		18.0		5.0	5.0	5.0					
Flash Dont Walk (s)	9.0		9.0		9.0	9.0	9.0					
Pedestrian Calls (#/hr)	0		0		0	0	0					
Act Effect Green (s)	18.0		27.0				14.0			14.0		

Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

AM Peak  
Existing Conditions



Lane Group	NEL	NER
Lane Configurations		
Traffic Volume (vph)	1	173
Future Volume (vph)	1	173
Ideal Flow (vphpl)	1800	1800
Lane Width (ft)	12	12
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.866	
Flt Protected		
Satd. Flow (prot)	1431	0
Flt Permitted		
Satd. Flow (perm)	1431	0
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)	30	
Link Distance (ft)	1385	
Travel Time (s)	31.5	
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	9%
Adj. Flow (vph)	1	192
Shared Lane Traffic (%)		
Lane Group Flow (vph)	193	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)	15	9
Turn Type	Prot	
Protected Phases	3	
Permitted Phases		
Minimum Split (s)	15.0	
Total Split (s)	15.0	
Total Split (%)	23.1%	
Maximum Green (s)	10.0	
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	10.0	

Lanes, Volumes, Timings  
1070: S Wallance St & 127th Street

AM Peak  
Existing Conditions

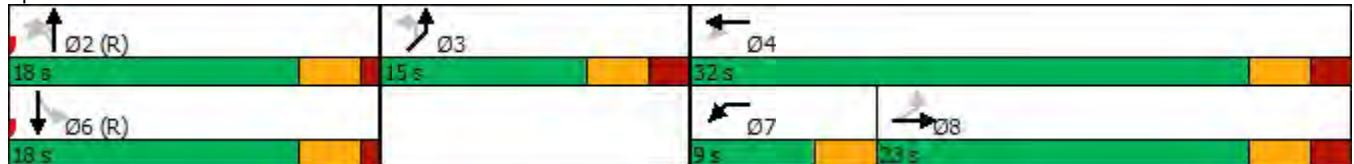


Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Actuated g/C Ratio	0.28		0.42				0.22			0.22		
v/c Ratio	0.55		0.83				0.18			0.04		
Control Delay	23.0		24.0				22.4			20.7		
Queue Delay	0.0		0.0				0.0			0.0		
Total Delay	23.0		24.0				22.4			20.7		
LOS	C		C				C			C		
Approach Delay	23.0		24.0				22.4			20.7		
Approach LOS	C		C				C			C		
Stops (vph)	330		492				47			13		
Fuel Used(gal)	8		26				1			0		
CO Emissions (g/hr)	550		1836				76			14		
NOx Emissions (g/hr)	107		357				15			3		
VOC Emissions (g/hr)	128		426				18			3		
Dilemma Vehicles (#)	0		0				0			0		
Queue Length 50th (ft)	78		100				21			5		
Queue Length 95th (ft)	121		#209				51			19		
Internal Link Dist (ft)	1243		3850				1176			578		
Turn Bay Length (ft)												
Base Capacity (vph)	818		889				356			362		
Starvation Cap Reductn	0		0				0			0		
Spillback Cap Reductn	0		0				0			0		
Storage Cap Reductn	0		0				0			0		
Reduced v/c Ratio	0.55		0.83				0.18			0.04		

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 29.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 76.4%  
 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: 1070: S Wallance St & 127th Street



Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

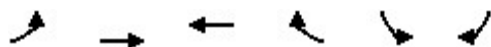
AM Peak  
 Existing Conditions



Lane Group	NEL	NER
Actuated g/C Ratio	0.15	
v/c Ratio	0.88	
Control Delay	69.1	
Queue Delay	0.0	
Total Delay	69.1	
LOS	E	
Approach Delay	69.1	
Approach LOS	E	
Stops (vph)	151	
Fuel Used(gal)	5	
CO Emissions (g/hr)	361	
NOx Emissions (g/hr)	70	
VOC Emissions (g/hr)	84	
Dilemma Vehicles (#)	0	
Queue Length 50th (ft)	82	
Queue Length 95th (ft)	#192	
Internal Link Dist (ft)	1305	
Turn Bay Length (ft)		
Base Capacity (vph)	220	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.88	
Intersection Summary		

Lanes, Volumes, Timings  
1071: 127th Street & State Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	157	469	508	57	41	156
Future Volume (vph)	157	469	508	57	41	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3004	2994	0	1520	1360
Flt Permitted		0.692			0.950	
Satd. Flow (perm)	0	2104	2994	0	1520	1360
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			34			168
Link Speed (mph)		30	30		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	14.5		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	169	504	546	61	44	168
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	673	607	0	44	168
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effect Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		0.52	0.33		0.11	0.35
Control Delay		10.4	8.0		17.4	4.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		10.4	8.0		17.4	4.1
LOS		B	A		B	A
Approach Delay		10.4	8.0		6.9	
Approach LOS		B	A		A	
Stops (vph)		527	198		27	16
Fuel Used(gal)		23	5		2	7
CO Emissions (g/hr)		1637	337		140	471
NOx Emissions (g/hr)		318	66		27	92
VOC Emissions (g/hr)		379	78		33	109
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		133	48		12	0
Queue Length 95th (ft)		m182	73		28	26
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1294	1855		397	479
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.52	0.33		0.11	0.35

Intersection Summary

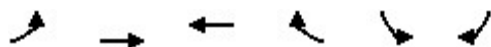
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.52  
 Intersection Signal Delay: 8.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 90.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1071: 127th Street & State Street



Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

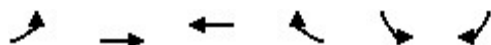
AM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	46	464	516	169	118	49
Future Volume (vph)	46	464	516	169	118	49
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	0.99			
Frt			0.963			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	2929	2805	0	1464	1373
Flt Permitted		0.850			0.950	
Satd. Flow (perm)	0	2499	2805	0	1464	1373
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			118			53
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)	1			1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	9%	8%	12%	9%	4%
Adj. Flow (vph)	50	504	561	184	128	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	554	745	0	128	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (%)	64.6%	64.6%	64.6%		35.4%	35.4%
Maximum Green (s)	38.0	38.0	38.0		19.0	19.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			25.0			

Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

AM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		38.0	38.0		19.0	19.0
Actuated g/C Ratio		0.58	0.58		0.29	0.29
v/c Ratio		0.38	0.44		0.30	0.12
Control Delay		3.2	4.1		19.5	6.8
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		3.2	4.1		19.5	6.8
LOS		A	A		B	A
Approach Delay		3.2	4.1		15.8	
Approach LOS		A	A		B	
Stops (vph)		71	269		75	12
Fuel Used(gal)		3	16		8	3
CO Emissions (g/hr)		228	1116		578	224
NOx Emissions (g/hr)		44	217		112	44
VOC Emissions (g/hr)		53	259		134	52
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		17	13		35	0
Queue Length 95th (ft)		34	18		m54	m0
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1460	1688		427	438
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.38	0.44		0.30	0.12

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 42 (65%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.44  
 Intersection Signal Delay: 5.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 73.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 1072: 127th Street & Michigan Avenue





Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Existing Conditions

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	420	127	92	472	326	64
Future Volume (vph)	420	127	92	472	326	64
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00			0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1568	1382	1660	3196	1565	1400
Flt Permitted			0.389		0.950	
Satd. Flow (perm)	1568	1347	678	3196	1565	1374
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						70
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5340	2671	
Travel Time (s)	3.7			104.0	60.7	
Confl. Peds. (#/hr)		4	4			8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	3%	7%	2%	2%
Adj. Flow (vph)	462	140	101	519	358	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	462	140	101	519	358	70
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Existing Conditions

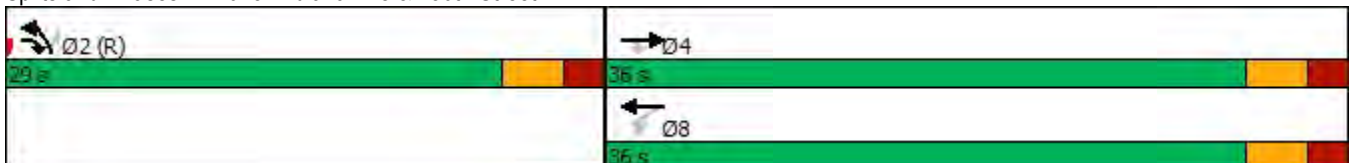


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	55.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	0.85	0.48	0.48	0.37	0.37
v/c Ratio	0.62	0.12	0.31	0.34	0.62	0.13
Control Delay	20.9	0.9	13.9	11.4	22.5	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	0.9	13.9	11.4	22.5	4.8
LOS	C	A	B	B	C	A
Approach Delay	16.3			11.8	19.6	
Approach LOS	B			B	B	
Stops (vph)	374	16	56	274	260	13
Fuel Used(gal)	12	3	4	21	10	1
CO Emissions (g/hr)	865	188	296	1493	679	103
NOx Emissions (g/hr)	168	37	57	290	132	20
VOC Emissions (g/hr)	201	44	68	346	157	24
Dilemma Vehicles (#)	0	0	0	36	0	0
Queue Length 50th (ft)	181	0	23	63	113	0
Queue Length 95th (ft)	263	0	56	94	195	22
Internal Link Dist (ft)	83			5260	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	747	1152	323	1524	577	551
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	0.62	0.12	0.31	0.34	0.62	0.13

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 2:NBL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	15.5
Intersection LOS:	B
Intersection Capacity Utilization:	84.2%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
Existing Conditions

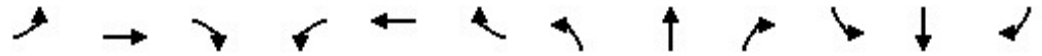


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	69	388	1	24	487	71	0	0	1	38	3	65
Future Volume (vph)	69	388	1	24	487	71	0	0	1	38	3	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00	0.88		0.95			0.96	
Frt						0.850		0.865			0.917	
Flt Protected		0.992			0.998						0.982	
Satd. Flow (prot)	0	3070	0	0	1615	1377	0	1482	0	0	1577	0
Flt Permitted		0.796			0.977						0.945	
Satd. Flow (perm)	0	2446	0	0	1580	1213	0	1482	0	0	1511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						79		594			72	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	33		13	13		33	29		13	13		29
Confl. Bikes (#/hr)	1		1	1		1						
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 (%)	4%	3%	0%	0%	4%	0%	0%	0%	0%	5%	0%	11%
Adj. Flow (vph)	77	431	1	27	541	79	0	0	1	42	3	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	509	0	0	568	79	0	1	0	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA	Perm		NA		pm+pt	NA	
Protected Phases		4		3	3			2		1	6	
Permitted Phases	4			3	3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0							14.0	

Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
Existing Conditions

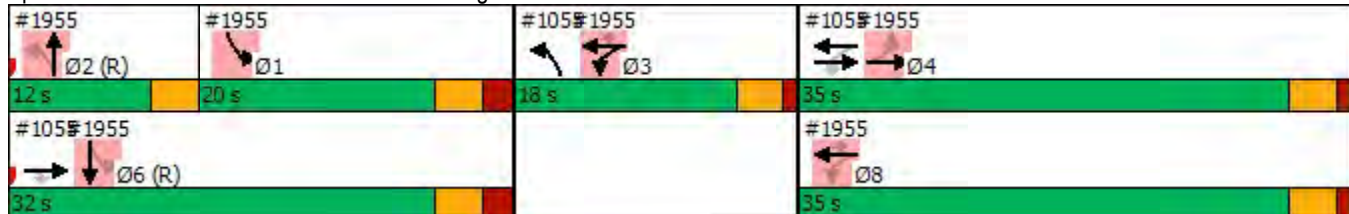


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			45.0	49.0		9.0				27.0
Actuated g/C Ratio		0.36			0.53	0.58		0.11				0.32
v/c Ratio		0.57			0.67	0.11		0.00				0.22
Control Delay		24.8			7.6	0.3		0.0				10.7
Queue Delay		0.2			53.5	10.6		0.0				0.0
Total Delay		25.0			61.1	10.9		0.0				10.7
LOS		C			E	B		A				B
Approach Delay		25.0			55.0							10.7
Approach LOS		C			D							B
Stops (vph)		355			83	1		0				34
Fuel Used(gal)		6			2	0		0				2
CO Emissions (g/hr)		421			116	5		0				108
NOx Emissions (g/hr)		82			23	1		0				21
VOC Emissions (g/hr)		98			27	1		0				25
Dilemma Vehicles (#)		0			0	0		0				0
Queue Length 50th (ft)		112			29	0		0				17
Queue Length 95th (ft)		164			m23	m0		0				55
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		892			842	732		688				540
Starvation Cap Reductn		0			348	620		0				0
Spillback Cap Reductn		57			0	0		0				1
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.61			1.15	0.71		0.00				0.22

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 95  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.28  
 Intersection Signal Delay: 38.9      Intersection LOS: D  
 Intersection Capacity Utilization 75.3%      ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.






















Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	823	32	96	599	1	48	0	121	0	0	0
Future Volume (vph)	1	823	32	96	599	1	48	0	121	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1710	3320	1530	1644	3320	1530	0	1710	1500	0	2040	0
Flt Permitted	0.415			0.278				0.757				
Satd. Flow (perm)	747	3320	1530	481	3320	1530	0	1363	1500	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		5343			1170			134			331	
Travel Time (s)		104.1			22.8			3.0			7.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	0%	0%	2%	0%	0%	0%
Adj. Flow (vph)	1	857	33	100	624	1	50	0	126	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	857	33	100	624	1	0	50	126	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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	0.0
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	57.0	57.0	57.0	65.7	65.5	65.5		15.2	15.2			
Actuated g/C Ratio	0.67	0.67	0.67	0.77	0.77	0.77		0.18	0.18			
v/c Ratio	0.00	0.39	0.03	0.21	0.24	0.00		0.21	0.47			
Control Delay	9.0	9.5	8.5	4.8	4.3	4.0		30.4	36.5			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay	9.0	9.5	8.5	4.8	4.3	4.0		30.4	36.5			
LOS	A	A	A	A	A	A		C	D			
Approach Delay		9.5			4.3			34.8				
Approach LOS		A			A			C				
90th %ile Green (s)	44.9	44.9	44.9	8.9	56.8	56.8	20.2	20.2	20.2	20.2	20.2	20.2
90th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	49.2	49.2	49.2	7.6	59.8	59.8	17.2	17.2	17.2	17.2	17.2	17.2
70th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	51.8	51.8	51.8	7.0	61.8	61.8	15.2	15.2	15.2	15.2	15.2	15.2
50th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	53.9	53.9	53.9	7.0	63.9	63.9	13.1	13.1	13.1	13.1	13.1	13.1
30th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	81.0	81.0	81.0	0.0	81.0	81.0	0.0	0.0	0.0	0.0	0.0	0.0
10th %ile Term Code	Coord	Coord	Coord	Skip	Coord	Coord	Skip	Skip	Skip	Skip	Skip	Skip
Stops (vph)	1	379	14	26	170	1		39	105			
Fuel Used(gal)	0	36	1	1	8	0		1	2			
CO Emissions (g/hr)	3	2530	97	88	550	1		39	112			
NOx Emissions (g/hr)	1	492	19	17	107	0		8	22			
VOC Emissions (g/hr)	1	586	23	20	128	0		9	26			
Dilemma Vehicles (#)	0	41	0	0	31	0		0	0			
Queue Length 50th (ft)	0	114	6	12	48	0		23	61			
Queue Length 95th (ft)	3	192	21	31	85	2		51	106			
Internal Link Dist (ft)		5263			1090			54				251
Turn Bay Length (ft)	165		165	165		165						
Base Capacity (vph)	500	2224	1025	474	2556	1178		384	423			
Starvation Cap Reductn	0	0	0	0	0	0		0	0			
Spillback Cap Reductn	0	0	0	0	0	0		0	0			
Storage Cap Reductn	0	0	0	0	0	0		0	0			
Reduced v/c Ratio	0.00	0.39	0.03	0.21	0.24	0.00		0.13	0.30			

Intersection Summary

Area Type: Other



Lanes, Volumes, Timings  
 1: Ellis Avenue & 130th Street

PM Peak  
 Existing Conditions












Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 9.9	Intersection LOS: A
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Ellis Avenue & 130th Street














Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

PM Peak  
Existing Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	27	144	2	0	126
Future Volume (vph)	0	27	144	2	0	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1557	3413	0	0	3420
Flt Permitted						
Satd. Flow (perm)	0	1557	3413	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	602		184			134
Travel Time (s)	13.7		4.2			3.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	30	160	2	0	140
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	162	0	0	140
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.3%			ICU Level of Service A		
Analysis Period (min)	15					

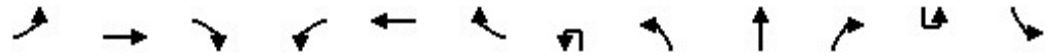
HCM Unsignalized Intersection Capacity Analysis  
2: Ellis Avenue & Old 130th Street

PM Peak  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	0	27	144	2	0	126
Future Volume (Veh/h)	0	27	144	2	0	126
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	30	160	2	0	140
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						134
pX, platoon unblocked						
vC, conflicting volume	231	81			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	231	81			162	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	742	969			1429	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	30	107	55	70	70	
Volume Left	0	0	0	0	0	
Volume Right	30	0	2	0	0	
cSH	969	1700	1700	1700	1700	
Volume to Capacity	0.03	0.06	0.03	0.04	0.04	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	8.8	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			14.3%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕				↕			
Traffic Volume (vph)	9	1	4	2	1	17	1	2	154	2	6	23
Future Volume (vph)	9	1	4	2	1	17	1	2	154	2	6	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.964			0.883				0.998			
Flt Protected		0.968			0.995				0.999			
Satd. Flow (prot)	0	1680	0	0	1581	0	0	0	1744	0	0	0
Flt Permitted		0.968			0.995				0.999			
Satd. Flow (perm)	0	1680	0	0	1581	0	0	0	1744	0	0	0
Link Speed (mph)		30			30				30			
Link Distance (ft)		472			392				265			
Travel Time (s)		10.7			8.9				6.0			
Confl. Peds. (#/hr)						43				43		43
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%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%
Adj. Flow (vph)	10	1	4	2	1	19	1	2	171	2	7	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	22	0	0	0	176	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				0			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Sign Control		Stop			Stop				Free			

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

PM Peak  
 Existing Conditions


















Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	90	8
Future Volume (vph)	90	8
Ideal Flow (vphpl)	1800	1800
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.850
Flt Protected	0.988	
Satd. Flow (prot)	1752	1530
Flt Permitted	0.988	
Satd. Flow (perm)	1752	1530
Link Speed (mph)	30	
Link Distance (ft)	184	
Travel Time (s)	4.2	
Confl. Peds. (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	1%	0%
Adj. Flow (vph)	100	9
Shared Lane Traffic (%)		
Lane Group Flow (vph)	133	9
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)		9
Sign Control	Free	
<b>Intersection Summary</b>		

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

PM Peak  
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	9	1	4	2	1	17	1	2	154	2	6	23
Future Volume (Veh/h)	9	1	4	2	1	17	1	2	154	2	6	23
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
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
Hourly flow rate (vph)	10	1	4	2	1	19	0	2	171	2	0	26
Pedestrians					43							
Lane Width (ft)					12.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					4							
Right turn flare (veh)												
Median type									None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00				0.00	
vC, conflicting volume	390	372	100	376	380	258	0	109			0	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	372	100	376	380	258	0	109			0	216
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	98	100	100	100	100	97	0	100			0	98
cM capacity (veh/h)	513	530	961	537	524	730	0	1494			0	1294
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	15	22	175	126	9							
Volume Left	10	2	2	26	0							
Volume Right	4	19	2	0	9							
cSH	588	695	1494	1294	1700							
Volume to Capacity	0.03	0.03	0.00	0.02	0.01							
Queue Length 95th (ft)	2	2	0	2	0							
Control Delay (s)	11.3	10.3	0.1	1.8	0.0							
Lane LOS	B	B	A	A								
Approach Delay (s)	11.3	10.3	0.1	1.6								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay			1.8									
Intersection Capacity Utilization			40.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue










PM Peak  
 Existing Conditions



Movement	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (veh/h)	90	8
Future Volume (Veh/h)	90	8
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.90	0.90
Hourly flow rate (vph)	100	9
Pedestrians	43	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	4	
Right turn flare (veh)		
Median type	None	
Median storage (veh)		
Upstream signal (ft)	318	
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

PM Peak  
Existing Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	18	0	1	29
Future Volume (vph)	0	0	18	0	1	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.998
Satd. Flow (prot)	1765	0	1765	0	0	1761
Flt Permitted						0.998
Satd. Flow (perm)	1765	0	1765	0	0	1761
Link Speed (mph)	30		30			30
Link Distance (ft)	280		286			308
Travel Time (s)	6.4		6.5			7.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	20	0	1	32
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	20	0	0	33
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					



HCM Unsignalized Intersection Capacity Analysis  
4: Greenwood Avenue & 130th Place

PM Peak  
Existing Conditions



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	18	0	1	29
Future Volume (Veh/h)	0	0	18	0	1	29
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	20	0	1	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	54	20			20	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	20			20	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	953	1058			1596	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	20	33			
Volume Left	0	0	1			
Volume Right	0	0	0			
cSH	1700	1700	1596			
Volume to Capacity	0.00	0.01	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.2			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.2			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			6.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street

PM Peak  
Existing Conditions



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	0	0	12	0	1	0	20
Future Volume (vph)	0	0	12	0	1	0	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>							
Flt Protected							0.998
Satd. Flow (prot)	1800	0	1800	0	0	0	1730
Flt Permitted							0.998
Satd. Flow (perm)	1800	0	1800	0	0	0	1730
Link Speed (mph)	30		30				30
Link Distance (ft)	396		262				692
Travel Time (s)	9.0		6.0				15.7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%
Adj. Flow (vph)	0	0	13	0	1	0	21
<b>Shared Lane Traffic (%)</b>							
Lane Group Flow (vph)	0	0	13	0	0	0	22
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	R NA	Left	Left
Median Width(ft)	12		0				0
Link Offset(ft)	0		0				0
Crosswalk Width(ft)	16		16				16
<b>Two way Left Turn Lane</b>							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	9	15	
Sign Control	Stop		Free				Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
5: Greenwood Avenue & 131st Street

PM Peak  
Existing Conditions



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations	W		T				T
Traffic Volume (veh/h)	0	0	12	0	1	0	20
Future Volume (Veh/h)	0	0	12	0	1	0	20
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	13	0	0	0	21
<b>Pedestrians</b>							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	34	13			0	13	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	34	13			0	13	
tC, single (s)	6.4	6.2			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	984	1073			0	1619	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	0	13	21				
Volume Left	0	0	0				
Volume Right	0	0	0				
cSH	1700	1700	1619				
Volume to Capacity	0.00	0.01	0.00				
Queue Length 95th (ft)	0	0	0				
Control Delay (s)	0.0	0.0	0.0				
Lane LOS	A						
Approach Delay (s)	0.0	0.0	0.0				
Approach LOS	A						
<b>Intersection Summary</b>							
Average Delay			0.0				
Intersection Capacity Utilization			6.7%	ICU Level of Service			A
Analysis Period (min)			15				

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899										0.992
Fl <sub>t</sub> Protected		0.988						0.994				0.997
Satd. Flow (prot)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Fl <sub>t</sub> Permitted		0.988						0.994				0.997
Satd. Flow (perm)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Link Speed (mph)		30			30			30				30
Link Distance (ft)		274			1039			274				262
Travel Time (s)		6.2			23.6			6.2				6.0
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	8	0	1	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	9	0	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

















Lanes, Volumes, Timings  
 6: Greenwood Avenue & 132nd Street

PM Peak  
 Existing Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
6: Greenwood Avenue & 132nd Street

PM Peak  
Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (Veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	2	0	6	0	0	0	1	8	0	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked										0.00		
vC, conflicting volume	26	26	16	32	27	8	17			0	8	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26	26	16	32	27	8	17			0	8	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			0.0	4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			0.0	2.2	
p0 queue free %	100	100	99	100	100	100	100			0	100	
cM capacity (veh/h)	988	870	1068	974	870	1080	1613			0	1625	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	0	9	17								
Volume Left	2	0	1	0								
Volume Right	6	0	0	1								
cSH	1047	1700	1613	1625								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	8.5	0.0	0.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	0.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 6: Greenwood Avenue & 132nd Street

















PM Peak  
 Existing Conditions



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	1
Future Volume (Veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899							0.992			
Fl <sub>t</sub> Protected		0.988							0.997			
Satd. Flow (prot)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Fl <sub>t</sub> Permitted		0.988							0.997			
Satd. Flow (perm)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Link Speed (mph)		30			30				15			15
Link Distance (ft)		1039			253				374			412
Travel Time (s)		23.6			5.8				17.0			18.7
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	0	16	1	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	0	18	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	Left	Left
Median Width(ft)		0			0				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Sign Control		Free			Free				Stop			Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A





















Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
Existing Conditions

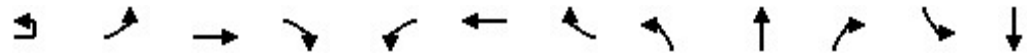
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (Veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	6	0	0	0	0	0	16	1	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00					
vC, conflicting volume	0			6			0	7	10	0	16	7
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			6			0	7	10	0	16	7
tC, single (s)	4.1			4.1			0.0	7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			0.0	3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			0	100	98	100	100	100
cM capacity (veh/h)	1636			1628			0	1017	888	1091	989	891
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	8	0	17	0								
Volume Left	2	0	0	0								
Volume Right	6	0	1	0								
cSH	1636	1700	898	1700								
Volume to Capacity	0.00	0.00	0.02	0.00								
Queue Length 95th (ft)	0	0	1	0								
Control Delay (s)	1.8	0.0	9.1	0.0								
Lane LOS	A		A	A								
Approach Delay (s)	1.8	0.0	9.1	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Movement	NWR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	3
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	3
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	1087
Direction, Lane #	

Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
Existing Conditions



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations			↔			↔			↑			↓
Traffic Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Frt			0.966									
Flt Protected			0.964						0.988			
Satd. Flow (prot)	0	0	1643	0	0	1765	0	0	1744	0	0	1765
Flt Permitted			0.964						0.988			
Satd. Flow (perm)	0	0	1643	0	0	1765	0	0	1744	0	0	1765
Link Speed (mph)			30			30			30			30
Link Distance (ft)			288			303			294			228
Travel Time (s)			6.5			6.9			6.7			5.2
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)	1	2	0	1	0	0	0	1	3	0	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	0	0	0	0	0	4	0	0	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			0			0			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Sign Control			Stop			Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

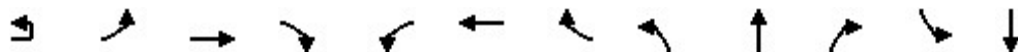
Lanes, Volumes, Timings  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 Existing Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
Existing Conditions



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations			↔			↔			↑			↓
Traffic Volume (veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (Veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Sign Control			Stop			Stop			Free			Free
Grade			0%			0%			0%			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
Hourly flow rate (vph)	0	2	0	1	0	0	0	1	3	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	7	7	2	8	7	3	2			3	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	7	7	2	8	7	3	2			3	
tC, single (s)	0.0	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1	
tC, 2 stage (s)												
tF (s)	0.0	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2	
p0 queue free %	0	100	100	100	100	100	100	100			100	
cM capacity (veh/h)	0	1012	888	1082	1010	888	1081	1620			1619	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	0	4	2								
Volume Left	2	0	1	0								
Volume Right	1	0	0	0								
cSH	1035	1700	1620	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	8.5	0.0	1.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	1.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 Existing Conditions

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	778	5	28	555	35	0	0	0	551	85	361
Future Volume (vph)	25	778	5	28	555	35	0	0	0	551	85	361
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.78	1.00		1.00		0.49				0.99		0.98
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4854	0	1710	3226	765	0	1800	0	3285	1673	1464
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	670	4854	0	1707	3226	376	0	1800	0	3265	1673	1435
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		809			325			759				669
Travel Time (s)		18.4			7.4			17.3				15.2
Confl. Peds. (#/hr)	350		4	4		350	8		6	6		8
Confl. Bikes (#/hr)	4		1			7				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	1%	20%	0%	6%	100%	0%	0%	0%	1%	4%	1%
Adj. Flow (vph)	27	837	5	30	597	38	0	0	0	592	91	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	842	0	30	597	38	0	0	0	592	91	388
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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



Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	73.5		7.6	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.57		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.42	0.31		0.30	0.36	0.16				0.60	0.18	0.71
Control Delay	76.8	15.9		76.2	15.5	2.3				41.9	34.9	41.8
Queue Delay	0.0	0.0		0.0	0.5	0.0				1.2	0.0	0.0
Total Delay	76.8	15.9		76.2	16.0	2.3				43.2	34.9	41.8
LOS	E	B		E	B	A				D	C	D
Approach Delay		17.8			17.9						42.0	
Approach LOS		B			B						D	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.2		8.8	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	69.3		7.7	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	25	400		29	174	2				462	62	385
Fuel Used(gal)	1	10		1	4	0				10	1	7
CO Emissions (g/hr)	48	677		47	288	8				708	97	495
NOx Emissions (g/hr)	9	132		9	56	2				138	19	96
VOC Emissions (g/hr)	11	157		11	67	2				164	23	115
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	22	141		26	77	0				220	57	257

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

PM Peak  
 Existing Conditions

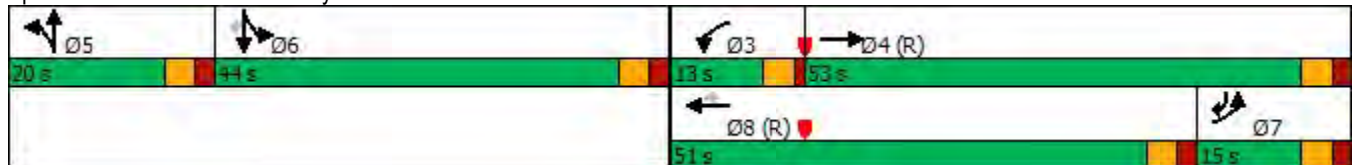


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	56	175		m56	145	m2				281	102	373
Internal Link Dist (ft)		729			245			679			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2744		118	1637	240				985	501	543
Starvation Cap Reductn	0	0		0	583	0				0	0	0
Spillback Cap Reductn	0	51		0	0	0				200	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.42	0.31		0.25	0.57	0.16				0.75	0.18	0.71

Intersection Summary


























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 124 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 27.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 80.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1002: Lafayette Avenue & 95th Street



Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (vph)	329	787	213	49	499	257	91	233	51	37	0	28
Future Volume (vph)	329	787	213	49	499	257	91	233	51	37	0	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.75	0.99		1.00		0.68		1.00	0.92	0.96		
Frt		0.968				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	3285	3259	0	1653	3138	1464	0	3191	1600	855	0	765
Flt Permitted	0.950			0.950				0.986		0.950		
Satd. Flow (perm)	2471	3259	0	1647	3138	998	0	3185	1479	821	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				150			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		325			954			10393				681
Travel Time (s)		7.4			18.6			236.2				15.5
Confl. Peds. (#/hr)	327		13	13		327	6		60	60		6
Confl. Bikes (#/hr)	1					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 (%)	1%	1%	0%	0%	9%	1%	0%	3%	2%	100%	0%	100%
Adj. Flow (vph)	350	837	227	52	531	273	97	248	54	39	0	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	1064	0	52	531	273	0	345	54	39	0	30
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			

Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	56.0		11.0	41.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	28.0	56.0		13.0	41.0	20.0	41.0	41.0	13.0	20.0		20.0
Total Split (%)	21.5%	43.1%		10.0%	31.5%	15.4%	31.5%	31.5%	10.0%	15.4%		15.4%
Maximum Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		23.0			11.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	19.1	56.6		7.6	43.9	55.9		36.0	43.6	12.0		12.0
Actuated g/C Ratio	0.15	0.44		0.06	0.34	0.43		0.28	0.34	0.09		0.09
v/c Ratio	0.73	0.74		0.54	0.50	0.49		0.39	0.10	0.50		0.16
Control Delay	53.1	33.8		80.1	37.5	9.3		40.6	2.8	77.0		1.8
Queue Delay	0.2	2.4		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	53.3	36.2		80.1	37.5	9.3		40.6	2.8	77.0		1.8
LOS	D	D		F	D	A		D	A	E		A
Approach Delay		40.5			31.1			35.5				44.3
Approach LOS		D			C			D				D
90th %ile Green (s)	23.9	51.0		8.0	36.1	15.0	36.0	36.0	8.0	15.0		15.0
90th %ile Term Code	Gap	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	21.1	52.2		8.0	40.1	13.8	36.0	36.0	8.0	13.8		13.8
70th %ile Term Code	Gap	Coord		Max	Coord	Gap	MaxR	MaxR	Max	Gap		Gap
50th %ile Green (s)	19.1	54.7		8.0	44.6	11.3	36.0	36.0	8.0	11.3		11.3
50th %ile Term Code	Gap	Coord		Max	Coord	Gap	MaxR	MaxR	Max	Gap		Gap
30th %ile Green (s)	17.0	56.0		8.0	48.0	10.0	36.0	36.0	8.0	10.0		10.0
30th %ile Term Code	Gap	Coord		Hold	Coord	Min	MaxR	MaxR	Hold	Min		Min
10th %ile Green (s)	14.2	69.0		0.0	50.8	10.0	36.0	36.0	0.0	10.0		10.0
10th %ile Term Code	Gap	Coord		Skip	Coord	Min	MaxR	MaxR	Skip	Min		Min
Stops (vph)	276	955		48	394	75		267	7	34		0
Fuel Used(gal)	6	15		1	10	3		31	4	1		0
CO Emissions (g/hr)	414	1028		105	713	197		2176	302	67		11
NOx Emissions (g/hr)	80	200		20	139	38		423	59	13		2
VOC Emissions (g/hr)	96	238		24	165	46		504	70	16		3
Dilemma Vehicles (#)	0	0		0	19	0		0	0	0		0
Queue Length 50th (ft)	131	431		43	185	37		121	0	32		0
Queue Length 95th (ft)	148	508		#90	266	75		174	5	71		0
Internal Link Dist (ft)		245			874			10313				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	606	1436		101	1060	588		883	568	98		206
Starvation Cap Reductn	26	241		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
 1003: State Street & 95th Street

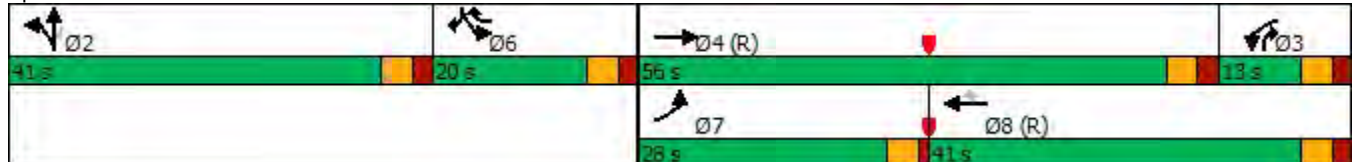
PM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	0.60	0.89		0.51	0.50	0.46		0.39	0.10	0.40		0.15

Intersection Summary























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 36.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 91.6%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1003: State Street & 95th Street



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	294	137	103	270	110	95	576	76	131	723	90
Future Volume (vph)	64	294	137	103	270	110	95	576	76	131	723	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		0.98	0.99		0.99		0.95	0.99		0.94
Frt		0.952			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1877	0	1676	1880	0	1550	3040	1363	1509	3069	1337
Flt Permitted	0.191			0.431			0.240			0.318		
Satd. Flow (perm)	334	1877	0	748	1880	0	387	3040	1296	499	3069	1251
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			19				83			84
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304				668
Travel Time (s)		15.1			46.3			120.5				15.2
Confl. Peds. (#/hr)	24		45	45		24	36		24	24		36
Confl. Bikes (#/hr)						1				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	5%	1%	2%	4%	3%
Adj. Flow (vph)	69	316	147	111	290	118	102	619	82	141	777	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	463	0	111	408	0	102	619	82	141	777	97
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

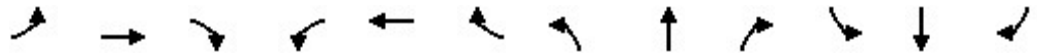
PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		51.6	42.4	42.4	52.4	42.8	42.8
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.49	0.40	0.40	0.50	0.41	0.41
v/c Ratio	0.26	0.60		0.54	0.77		0.36	0.50	0.14	0.43	0.62	0.17
Control Delay	21.1	27.4		43.6	44.2		16.7	25.4	5.1	17.4	27.6	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	27.4		43.6	44.2		16.7	25.4	5.1	17.4	27.6	6.6
LOS	C	C		D	D		B	C	A	B	C	A
Approach Delay		26.6			44.1			22.2			24.2	
Approach LOS		C			D			C			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		7.9	42.0	42.0	9.0	43.1	43.1
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Max	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		6.3	43.8	43.8	7.2	44.7	44.7
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Gap	Coord	Coord
Stops (vph)	38	317		88	324		47	419	10	67	557	17
Fuel Used(gal)	1	6		3	11		5	29	3	2	11	1
CO Emissions (g/hr)	57	446		212	784		315	2035	229	106	762	48
NOx Emissions (g/hr)	11	87		41	153		61	396	45	21	148	9
VOC Emissions (g/hr)	13	103		49	182		73	472	53	25	177	11
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	27	228		63	241		33	162	0	48	216	5
Queue Length 95th (ft)	56	334		125	#368		62	215	29	83	283	38
Internal Link Dist (ft)		583			1956			5224			588	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	267	767		206	532		292	1226	572	337	1249	559
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

PM Peak  
 Existing Conditions

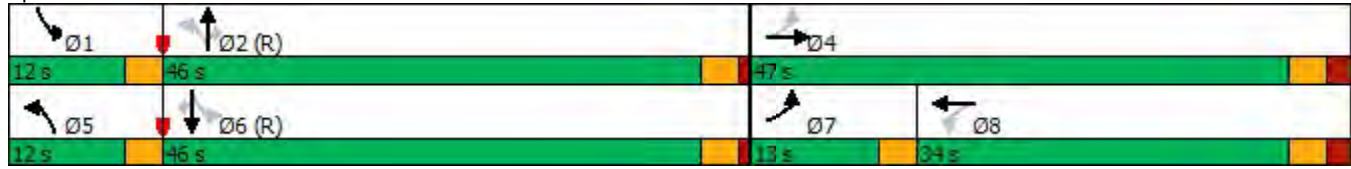


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.60		0.54	0.77		0.35	0.50	0.14	0.42	0.62	0.17

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	47 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	27.7
Intersection LOS:	C
Intersection Capacity Utilization	101.8%
ICU Level of Service	G
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	





















Splits and Phases: 1016: Halsted Street & 103rd Street





Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	347	74	78	367	78	44	52	59	0	0	0
Future Volume (vph)	74	347	74	78	367	78	44	52	59	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.949				
Fl <sub>t</sub> Protected	0.950			0.950				0.986				
Satd. Flow (prot)	1550	1573	1337	1550	1573	1337	0	1799	0	0	0	0
Fl <sub>t</sub> Permitted	0.493			0.510				0.986				
Satd. Flow (perm)	804	1573	1337	832	1573	1337	0	1799	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80			84		44				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2036			1955			343				764
Travel Time (s)		46.3			44.4			7.8				17.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	80	373	80	84	395	84	47	56	63	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	373	80	84	395	84	0	166	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

PM Peak  
Existing Conditions

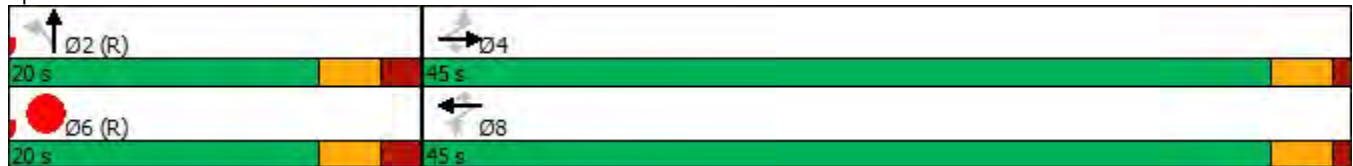


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.16	0.38	0.09	0.16	0.40	0.10		0.37				
Control Delay	5.9	7.2	1.6	5.9	7.4	1.6		18.1				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	5.9	7.2	1.6	5.9	7.4	1.6		18.1				
LOS	A	A	A	A	A	A		B				
Approach Delay		6.1			6.3			18.1				
Approach LOS		A			A			B				
Stops (vph)	29	155	7	30	166	7		93				
Fuel Used(gal)	1	7	1	1	7	1		1				
CO Emissions (g/hr)	100	480	86	101	494	88		104				
NOx Emissions (g/hr)	19	93	17	20	96	17		20				
VOC Emissions (g/hr)	23	111	20	23	114	20		24				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	11	61	0	12	66	0		40				
Queue Length 95th (ft)	27	105	12	28	113	12		88				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	507	992	872	524	992	874		449				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.16	0.38	0.09	0.16	0.40	0.10		0.37				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.40
Intersection Signal Delay:	7.8
Intersection LOS:	A
Intersection Capacity Utilization:	44.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1017: Normal Avenue & 103rd Street



Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	382	64	66	441	32	37	76	72	51	225	45
Future Volume (vph)	19	382	64	66	441	32	37	76	72	51	225	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.99	0.99		0.99	1.00			0.99	0.93		0.98	
Frt		0.979			0.990				0.850		0.981	
Flt Protected	0.950			0.950				0.984			0.992	
Satd. Flow (prot)	1596	1645	0	1596	1702	0	0	1701	1515	0	1893	0
Flt Permitted	0.389			0.410				0.846			0.937	
Satd. Flow (perm)	647	1645	0	683	1702	0	0	1449	1415	0	1776	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8				76		11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1955			674			5189			1320	
Travel Time (s)		44.4			15.3			117.9			30.0	
Confl. Peds. (#/hr)	25		19	19		25	36		30	30		36
Confl. Bikes (#/hr)	4		2			1						3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	0%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	20	402	67	69	464	34	39	80	76	54	237	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	469	0	69	498	0	0	119	76	0	338	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0			24.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32			0.32
v/c Ratio	0.05	0.49		0.18	0.51			0.26	0.15			0.59
Control Delay	7.6	11.3		9.1	11.7			20.8	5.8			25.6
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	7.6	11.3		9.1	11.7			20.8	5.8			25.6
LOS	A	B		A	B			C	A			C
Approach Delay		11.1			11.4			15.0				25.6
Approach LOS		B			B			B				C
Stops (vph)	10	243		31	267			83	14			254
Fuel Used(gal)	0	9		1	5			6	3			6
CO Emissions (g/hr)	26	641		45	356			396	222			446
NOx Emissions (g/hr)	5	125		9	69			77	43			87
VOC Emissions (g/hr)	6	148		10	82			92	51			103
Dilemma Vehicles (#)	0	0		0	0			0	0			0
Queue Length 50th (ft)	4	113		14	125			41	0			126
Queue Length 95th (ft)	13	184		34	200			81	27			208
Internal Link Dist (ft)		1875			594			5109				1240
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	370	951		391	979			463	504			575
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.05	0.49		0.18	0.51			0.26	0.15			0.59

Intersection Summary





















Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 14.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 85.8%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 1018: Wentworth Avenue & 103rd Street



Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	205	100	90	198	91	65	538	59	96	842	62
Future Volume (vph)	76	205	100	90	198	91	65	538	59	96	842	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99		0.99		0.98	1.00		0.96
Frt		0.961			0.964				0.850			0.850
Flt Protected		0.990			0.988		0.950			0.950		
Satd. Flow (prot)	0	2941	0	0	2933	0	1565	3069	1350	1565	3099	1350
Flt Permitted		0.804			0.768		0.184			0.354		
Satd. Flow (perm)	0	2380	0	0	2273	0	301	3069	1326	582	3099	1298
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			53				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		667			375			2662			5304	
Travel Time (s)		15.2			8.5			60.5			120.5	
Confl. Peds. (#/hr)	35		30	30		35	34		8	8		34
Confl. Bikes (#/hr)	2					1						1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	4%	0%	1%	3%	3%	2%	4%	2%	2%	3%	2%
Adj. Flow (vph)	78	211	103	93	204	94	67	555	61	99	868	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	392	0	0	391	0	67	555	61	99	868	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

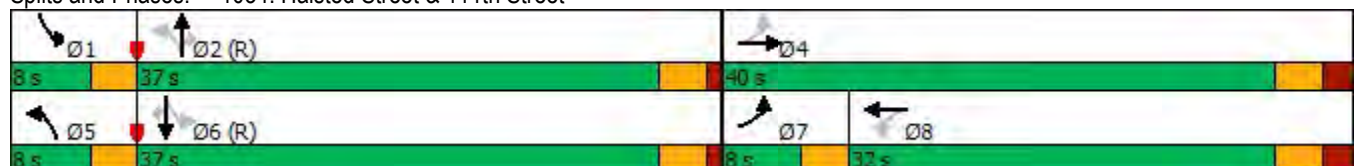
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.36			0.50		0.35	0.46	0.11	0.33	0.71	0.11
Control Delay		14.2			22.2		17.4	14.9	0.7	16.0	25.6	1.8
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		14.2			22.2		17.4	14.9	0.7	16.0	25.6	1.8
LOS		B			C		B	B	A	B	C	A
Approach Delay		14.2			22.2			13.9			23.2	
Approach LOS		B			C			B			C	
Stops (vph)		194			256		34	241	1	56	685	3
Fuel Used(gal)		4			9		2	14	1	5	43	3
CO Emissions (g/hr)		290			625		124	988	87	321	3006	182
NOx Emissions (g/hr)		56			122		24	192	17	62	585	35
VOC Emissions (g/hr)		67			145		29	229	20	74	697	42
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		56			74		15	75	0	28	200	0
Queue Length 95th (ft)		88			118		44	100	3	55	270	11
Internal Link Dist (ft)		587			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		1076			784		190	1209	577	299	1221	566
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.36			0.50		0.35	0.46	0.11	0.33	0.71	0.11

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	48 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	85
Control Type:	Pretimed
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	19.1
Intersection LOS:	B
Intersection Capacity Utilization:	98.1%
ICU Level of Service:	F
Analysis Period (min):	15
















Splits and Phases: 1034: Halsted Street & 111th Street





Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	305	0	0	278	69	47	39	30	0	0	0
Future Volume (vph)	76	305	0	0	278	69	47	39	30	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.973			0.965				
Fl <sub>t</sub> Protected		0.990						0.980				
Satd. Flow (prot)	0	1730	0	0	1700	0	0	1653	0	0	0	0
Fl <sub>t</sub> Permitted		0.869						0.980				
Satd. Flow (perm)	0	1519	0	0	1700	0	0	1653	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34			26				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	82	328	0	0	299	74	51	42	32	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	410	0	0	373	0	0	125	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.45			0.36			0.26				
Control Delay		9.1			3.8			16.4				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
Existing Conditions

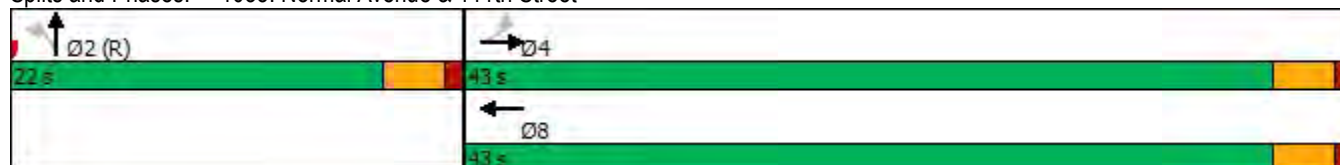


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		9.1			3.8			16.4				
LOS		A			A			B				
Approach Delay		9.1			3.8			16.4				
Approach LOS		A			A			B				
Stops (vph)		195			47			70				
Fuel Used(gal)		8			6			1				
CO Emissions (g/hr)		533			416			104				
NOx Emissions (g/hr)		104			81			20				
VOC Emissions (g/hr)		124			96			24				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		78			21			30				
Queue Length 95th (ft)		135			31			69				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		911			1033			476				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.45			0.36			0.26				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	7.9
Intersection LOS:	A
Intersection Capacity Utilization	58.1%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	19	289	27	32	285	41	22	91	30	50	142	40
Future Volume (vph)	19	289	27	32	285	41	22	91	30	50	142	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.989			0.984			0.968			0.974	
Flt Protected		0.997			0.996			0.992			0.989	
Satd. Flow (prot)	0	1956	0	0	1940	0	0	3096	0	0	3106	0
Flt Permitted		0.972			0.951			0.902			0.874	
Satd. Flow (perm)	0	1906	0	0	1851	0	0	2793	0	0	2731	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			13			32			43	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			179			181	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	32		25	25		32	59		24	24		59
Confl. Bikes (#/hr)	1		2			3	1		2			4
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%	3%	0%	3%	3%	0%	0%	0%	7%	4%	0%	0%
Adj. Flow (vph)	20	307	29	34	303	44	23	97	32	53	151	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	356	0	0	381	0	0	152	0	0	247	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	

Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
Existing Conditions

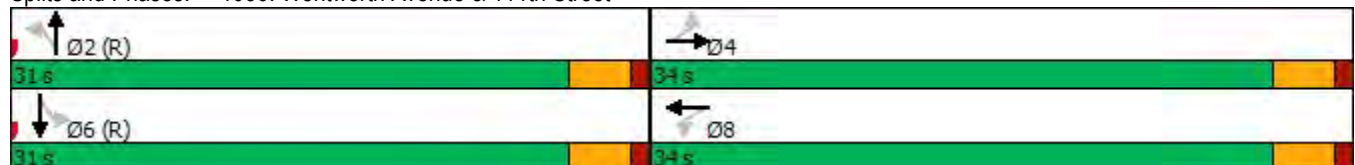


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.40			0.44			0.13			0.21	
Control Delay		14.0			6.3			10.8			10.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.0			6.3			10.8			10.6	
LOS		B			A			B			B	
Approach Delay		14.0			6.3			10.8			10.6	
Approach LOS		B			A			B			B	
Stops (vph)		202			86			120			115	
Fuel Used(gal)		7			5			4			11	
CO Emissions (g/hr)		510			321			275			758	
NOx Emissions (g/hr)		99			62			54			148	
VOC Emissions (g/hr)		118			74			64			176	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		64			39			10			25	
Queue Length 95th (ft)		138			55			19			47	
Internal Link Dist (ft)		1924			812			99			101	
Turn Bay Length (ft)												
Base Capacity (vph)		884			861			1178			1159	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			0.44			0.13			0.21	

Intersection Summary






















Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.44
Intersection Signal Delay:	10.2
Intersection LOS:	B
Intersection Capacity Utilization:	82.8%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1036: Wentworth Avenue & 111th Street



Lanes, Volumes, Timings  
1037: State Street & 111th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	255	39	66	362	70	42	211	95	64	175	48
Future Volume (vph)	41	255	39	66	362	70	42	211	95	64	175	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.97	1.00		0.99	0.99		0.99	1.00	
Frt		0.980			0.976			0.953				0.968
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	3023	0	1596	3075	0	1596	2961	0	1596	3076	0
Flt Permitted	0.429			0.554			0.604			0.555		
Satd. Flow (perm)	680	3023	0	903	3075	0	1008	2961	0	926	3076	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			37			101			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		418			546			2651			289	
Travel Time (s)		9.5			12.4			60.3			6.6	
Confl. Peds. (#/hr)	20		31	31		20	16		20	20		16
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	3%	0%	0%	1%	0%	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	44	271	41	70	385	74	45	224	101	68	186	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	312	0	70	459	0	45	325	0	68	237	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	

Lanes, Volumes, Timings  
1037: State Street & 111th Street

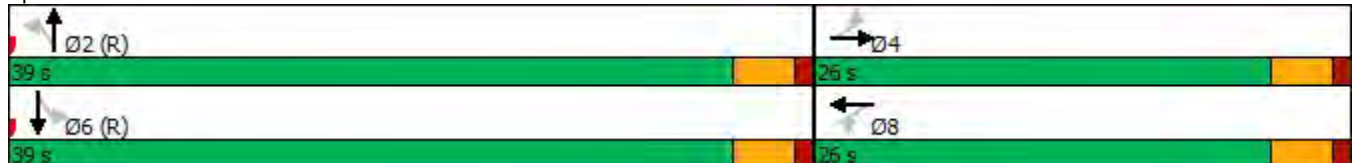
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.19	0.30		0.23	0.43		0.08	0.20		0.14	0.14	
Control Delay	13.9	11.2		17.6	16.5		6.4	4.3		9.3	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.9	11.2		17.6	16.5		6.4	4.3		9.3	7.2	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		11.5			16.6			4.6			7.7	
Approach LOS		B			B			A			A	
Stops (vph)	27	215		54	331		21	89		31	83	
Fuel Used(gal)	1	5		1	5		1	7		6	19	
CO Emissions (g/hr)	48	339		57	357		73	495		393	1353	
NOx Emissions (g/hr)	9	66		11	69		14	96		76	263	
VOC Emissions (g/hr)	11	79		13	83		17	115		91	314	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	12	38		23	77		5	9		24	38	
Queue Length 95th (ft)	m36	77		56	120		m15	27		m42	m63	
Internal Link Dist (ft)		338			466			2571			209	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	230	1041		305	1065		542	1641		498	1679	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.30		0.23	0.43		0.08	0.20		0.14	0.14	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 10.8      Intersection LOS: B  
 Intersection Capacity Utilization 68.4%      ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street



Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	287	68	69	316	40	40	207	52	46	279	64
Future Volume (vph)	55	287	68	69	316	40	40	207	52	46	279	64
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	1.00			0.98			0.98	
Frt		0.971			0.983			0.974			0.975	
Flt Protected	0.950			0.950				0.993			0.994	
Satd. Flow (prot)	1539	3013	0	1438	3071	0	0	2890	0	0	2906	0
Flt Permitted	0.523			0.524				0.867			0.884	
Satd. Flow (perm)	835	3013	0	788	3071	0	0	2506	0	0	2576	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			29			45			42	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			221			277			684	
Travel Time (s)		12.4			5.0			6.3			15.5	
Confl. Peds. (#/hr)	38		17	17		38	125		53	53		125
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%	3%	0%	7%	2%	0%	0%	6%	10%	2%	5%	5%
Adj. Flow (vph)	59	305	72	73	336	43	43	220	55	49	297	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	377	0	73	379	0	0	318	0	0	414	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

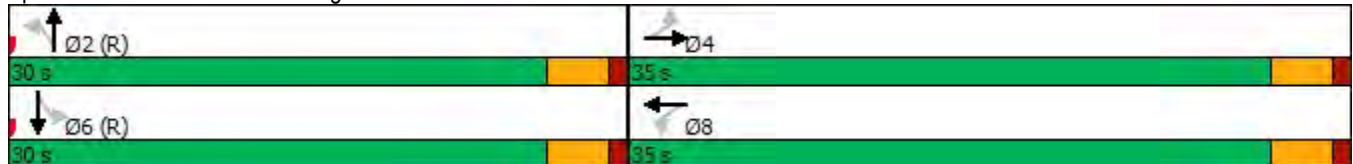
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.15	0.26		0.19	0.26			0.31			0.39	
Control Delay	15.5	14.0		11.6	9.9			8.1			13.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	15.5	14.0		11.6	9.9			8.1			13.7	
LOS	B	B		B	A			A			B	
Approach Delay		14.2			10.1			8.1			13.7	
Approach LOS		B			B			A			B	
Stops (vph)	40	419		40	182			165			235	
Fuel Used(gal)	1	5		1	3			8			4	
CO Emissions (g/hr)	44	338		50	242			533			312	
NOx Emissions (g/hr)	9	66		10	47			104			61	
VOC Emissions (g/hr)	10	78		12	56			124			72	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	17	37		16	40			19			52	
Queue Length 95th (ft)	34	73		39	65			37			85	
Internal Link Dist (ft)		466			141			197			604	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	398	1468		375	1479			1029			1055	
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	0.26		0.19	0.26			0.31			0.39	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.39  
 Intersection Signal Delay: 11.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 86.5%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 1038: Michigan Avenue & 111th Street





Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	201	88	159	311	65	96	415	52	76	752	117
Future Volume (vph)	106	201	88	159	311	65	96	415	52	76	752	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	0.99		1.00	1.00		0.99	1.00	
Frt		0.954			0.974			0.983			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	2979	0	1580	3033	0	1509	3451	0	1524	3471	0
Flt Permitted	0.450			0.532			0.148			0.392		
Satd. Flow (perm)	734	2979	0	876	3033	0	234	3451	0	623	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			31			18			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	19		16	16		19	22		25	25		22
Confl. Bikes (#/hr)										1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	1%	2%	2%	2%	4%	0%	1%	3%	0%
Adj. Flow (vph)	112	212	93	167	327	68	101	437	55	80	792	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	305	0	167	395	0	101	492	0	80	915	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		11.8%	41.2%		11.8%	41.2%	
Maximum Green (s)	5.0	27.0		5.0	27.0		7.0	31.0		7.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			19.0			19.0	

Lanes, Volumes, Timings  
 1049: Halsted Street & 115th Street

PM Peak  
 Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	31.0		37.0	31.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.36		0.44	0.36	
v/c Ratio	0.36	0.29		0.46	0.39		0.53	0.39		0.24	0.71	
Control Delay	19.7	15.8		22.3	21.4		23.0	20.3		19.2	26.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.7	15.8		22.3	21.4		23.0	20.3		19.2	26.7	
LOS	B	B		C	C		C	C		B	C	
Approach Delay		16.9			21.7			20.8			26.1	
Approach LOS		B			C			C			C	
Stops (vph)	72	148		120	255		54	318		43	475	
Fuel Used(gal)	2	5		6	15		3	13		2	25	
CO Emissions (g/hr)	134	333		441	1024		191	934		148	1774	
NOx Emissions (g/hr)	26	65		86	199		37	182		29	345	
VOC Emissions (g/hr)	31	77		102	237		44	216		34	411	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	36	44		56	77		29	96		24	155	
Queue Length 95th (ft)	70	76		100	116		57	137		m43	224	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	315	1038		362	1019		191	1270		334	1280	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.36	0.29		0.46	0.39		0.53	0.39		0.24	0.71	

Intersection Summary





















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 22.4      Intersection LOS: C  
 Intersection Capacity Utilization 76.9%      ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	295	30	32	375	23	26	77	32	34	117	61
Future Volume (vph)	48	295	30	32	375	23	26	77	32	34	117	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.993			0.996			0.988			0.989	
Satd. Flow (prot)	0	1675	1479	0	1702	1479	0	1660	1428	0	1649	1428
Flt Permitted		0.904			0.956			0.923			0.931	
Satd. Flow (perm)	0	1524	1417	0	1632	1431	0	1550	1406	0	1551	1398
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			32			24			34			64
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2478	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	11		20	20		11	1		4	4		1
Confl. Bikes (#/hr)			1			1			1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	51	311	32	34	395	24	27	81	34	36	123	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	32	0	429	24	0	108	34	0	159	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0

Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

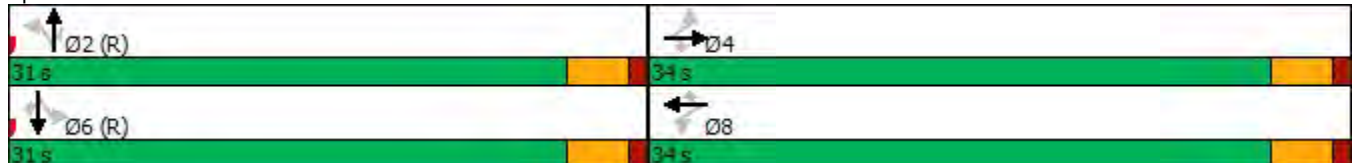
PM Peak  
Existing Conditions

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.51	0.05		0.57	0.04		0.17	0.06		0.25	0.10
Control Delay		15.6	4.2		10.9	1.7		15.4	6.7		12.9	2.6
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		15.6	4.2		10.9	1.7		15.4	6.7		12.9	2.6
LOS		B	A		B	A		B	A		B	A
Approach Delay		14.7			10.4			13.3			9.9	
Approach LOS		B			B			B			A	
Stops (vph)		235	8		170	1		75	16		107	14
Fuel Used(gal)		13	1		6	0		3	1		4	1
CO Emissions (g/hr)		911	70		427	18		201	56		288	96
NOx Emissions (g/hr)		177	14		83	3		39	11		56	19
VOC Emissions (g/hr)		211	16		99	4		47	13		67	22
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		96	0		63	1		28	0		51	1
Queue Length 95th (ft)		167	12		85	3		70	m11		83	5
Internal Link Dist (ft)		3325			1260			2589			2398	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		703	671		753	673		643	603		644	618
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.51	0.05		0.57	0.04		0.17	0.06		0.25	0.10

Intersection Summary

























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 12.1      Intersection LOS: B  
 Intersection Capacity Utilization 82.5%      ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	305	20	40	240	30	10	100	20	85	165	50
Future Volume (vph)	75	305	20	40	240	30	10	100	20	85	165	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.983			0.975				0.965
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1631	1386	1550	3046	0	1550	3022	0	1550	2991	0
Flt Permitted	0.950			0.562			0.608			0.670		
Satd. Flow (perm)	1550	1631	1386	917	3046	0	992	3022	0	1093	2991	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1340			559			516				2651
Travel Time (s)		30.5			12.7			11.7				60.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	81	328	22	43	258	32	11	108	22	91	177	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	328	22	43	290	0	11	130	0	91	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2				6
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Effct Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	

Lanes, Volumes, Timings  
1051: State Street & 115th Street

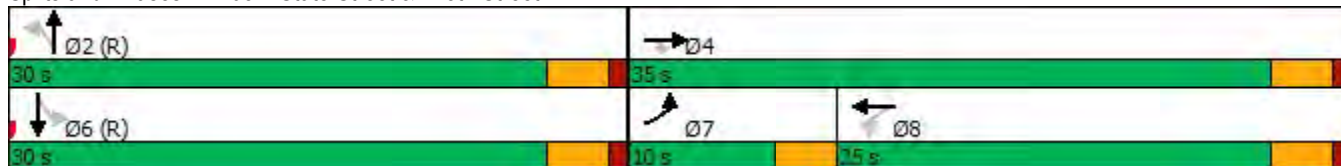
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.48	0.48	0.32	0.32		0.40	0.40		0.40	0.40	
v/c Ratio	0.49	0.42	0.03	0.15	0.29		0.03	0.11		0.21	0.19	
Control Delay	36.6	7.4	5.0	14.2	13.6		10.8	11.2		15.5	14.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.6	7.4	5.0	14.2	13.6		10.8	11.2		15.5	14.2	
LOS	D	A	A	B	B		B	B		B	B	
Approach Delay		12.8			13.7			11.2			14.6	
Approach LOS		B			B			B			B	
Stops (vph)	56	127	4	17	106		8	73		60	146	
Fuel Used(gal)	2	4	0	0	3		0	3		2	6	
CO Emissions (g/hr)	116	304	18	27	176		19	224		165	411	
NOx Emissions (g/hr)	22	59	3	5	34		4	44		32	80	
VOC Emissions (g/hr)	27	70	4	6	41		4	52		38	95	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	21	27	2	8	29		2	12		39	51	
Queue Length 95th (ft)	46	40	m4	m16	35		m7	23		77	64	
Internal Link Dist (ft)		1260			479			436			2571	
Turn Bay Length (ft)	80			55			45			55		
Base Capacity (vph)	166	777	661	296	984		396	1208		437	1196	
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	
Reduced v/c Ratio	0.49	0.42	0.03	0.15	0.29		0.03	0.11		0.21	0.19	

Intersection Summary























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.49  
 Intersection Signal Delay: 13.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 41.9%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1051: State Street & 115th Street



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	250	65	175	285	55	25	245	20	55	270	50
Future Volume (vph)	60	250	65	175	285	55	25	245	20	55	270	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.995			0.992	
Satd. Flow (prot)	1550	1631	1386	1550	1631	1386	0	1623	1386	0	1618	1386
Fl <sub>t</sub> Permitted	0.574			0.950				0.947			0.898	
Satd. Flow (perm)	936	1631	1386	1550	1631	1386	0	1545	1386	0	1465	1386
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			67			101			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	65	269	70	188	306	59	27	263	22	59	290	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	269	70	188	306	59	0	290	22	0	349	54
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	0.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effect Green (s)	



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

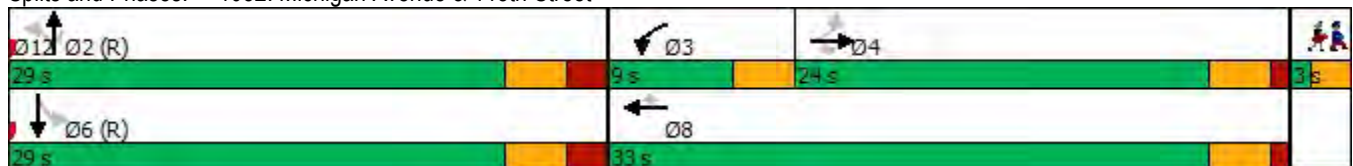
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.00
v/c Ratio	0.23	0.54	0.14	1.31	0.42	0.09		0.51	0.04		0.65	0.29
Control Delay	13.1	15.7	1.2	206.1	14.9	5.9		13.6	0.8		22.1	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	13.1	15.7	1.2	206.1	14.9	5.9		13.6	0.8		22.1	4.9
LOS	B	B	A	F	B	A		B	A		C	A
Approach Delay		12.8			79.0			12.7			19.8	
Approach LOS		B			E			B			B	
Stops (vph)	24	108	4	137	142	13		170	1		275	7
Fuel Used(gal)	1	2	0	9	3	0		19	1		10	1
CO Emissions (g/hr)	39	174	22	640	235	33		1299	88		681	79
NOx Emissions (g/hr)	8	34	4	124	46	6		253	17		133	15
VOC Emissions (g/hr)	9	40	5	148	54	8		301	20		158	18
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	13	54	0	~105	63	0		69	0		116	0
Queue Length 95th (ft)	27	83	4	m#176	m114	m8		132	m1		155	10
Internal Link Dist (ft)		479			306			1260			2314	
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	288	501	507	143	727	655		570	575		540	185
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
Reduced v/c Ratio	0.23	0.54	0.14	1.31	0.42	0.09		0.51	0.04		0.65	0.29

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.31  
 Intersection Signal Delay: 36.3      Intersection LOS: D  
 Intersection Capacity Utilization 72.4%      ICU Level of Service C  
 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: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	293	16	65	522	65	49	101	152	0	0	0
Future Volume (vph)	16	293	16	65	522	65	49	101	152	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.932				
Fl <sub>t</sub> Protected		0.997			0.994			0.992				
Satd. Flow (prot)	0	1626	1386	0	1621	1386	0	1616	0	0	0	0
Fl <sub>t</sub> Permitted		0.964			0.928			0.992				
Satd. Flow (perm)	0	1572	1386	0	1514	1386	0	1616	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			17			58		80				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	17	315	17	70	561	70	53	109	163	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	332	17	0	631	70	0	325	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		37.8	37.8		37.8	37.8		18.2				
Actuated g/C Ratio		0.58	0.58		0.58	0.58		0.28				
v/c Ratio		0.36	0.02		0.72	0.08		0.64				
Control Delay		14.8	8.0		16.7	3.0		21.1				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		14.8	8.0		16.7	3.0		21.1				
LOS		B	A		B	A		C				
Approach Delay		14.4			15.3			21.1				
Approach LOS		B			B			C				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
30th %ile Green (s)	38.1	38.1	38.1	38.1	38.1	38.1	17.9	17.9				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
10th %ile Green (s)	42.8	42.8	42.8	42.8	42.8	42.8	13.2	13.2				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		195	9		414	12		194				
Fuel Used(gal)		4	0		10	1		4				
CO Emissions (g/hr)		270	12		721	54		296				
NOx Emissions (g/hr)		53	2		140	11		58				
VOC Emissions (g/hr)		63	3		167	13		69				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		85	1		173	2		79				
Queue Length 95th (ft)		145	m5		#312	17		155				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

PM Peak  
 Existing Conditions

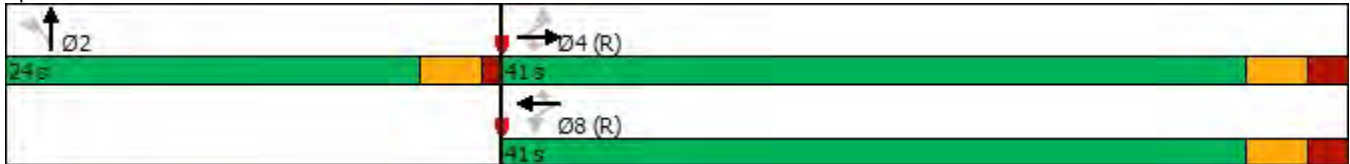


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		913	812		879	829		552				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.36	0.02		0.72	0.08		0.59				

Intersection Summary

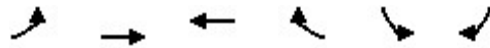
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 16.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 86.1%  
 ICU Level of Service E  
 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: 1053: Indiana Avenue & 115th Street



Lanes, Volumes, Timings  
 1054: 115th Street & Martin Luther King Jr Drive

PM Peak  
 Existing Conditions



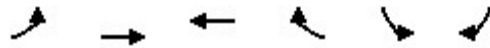
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	372	503	34	112	149
Future Volume (vph)	73	372	503	34	112	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.991			0.850
Flt Protected		0.992			0.950	
Satd. Flow (prot)	0	1858	1984	0	1596	1428
Flt Permitted		0.992			0.950	
Satd. Flow (perm)	0	1858	1984	0	1596	1428
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	17			17	6	5
Confl. Bikes (#/hr)				3	2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	2%	2%	0%	0%	0%
Adj. Flow (vph)	83	423	572	39	127	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	506	611	0	127	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	72.7%
Analysis Period (min)	15
	ICU Level of Service C

HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

PM Peak  
 Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	73	372	503	34	112	149
Future Volume (vph)	73	372	503	34	112	149
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	83	423	572	39	127	169
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total (vph)	506	611	127	169		
Volume Left (vph)	83	0	127	0		
Volume Right (vph)	0	39	0	169		
Hadj (s)	0.08	-0.01	0.50	-0.70		
Departure Headway (s)	6.0	5.7	8.0	6.7		
Degree Utilization, x	0.84	0.97	0.28	0.32		
Capacity (veh/h)	506	622	442	520		
Control Delay (s)	32.5	53.6	12.9	11.6		
Approach Delay (s)	32.5	53.6	12.2			
Approach LOS	D	F	B			
Intersection Summary						
Delay			37.3			
Level of Service			E			
Intersection Capacity Utilization			72.7%	ICU Level of Service	C	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

PM Peak  
Existing Conditions

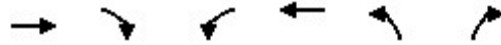


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	645	0	1	533	3	27				
Future Volume (vph)	645	0	1	533	3	27				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.878					
Flt Protected					0.995					
Satd. Flow (prot)	1631	1748	0	1468	1730	0				
Flt Permitted				0.999	0.995					
Satd. Flow (perm)	1631	1748	0	1466	1730	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					29					
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Parking (#/hr)				0						
Adj. Flow (vph)	694	0	1	573	3	29				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	694	0	0	574	32	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm	Perm	NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0	14.0					
Actuated g/C Ratio	0.73			0.36	0.16					
v/c Ratio	0.58			1.07	0.10					



Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

PM Peak  
 Existing Conditions

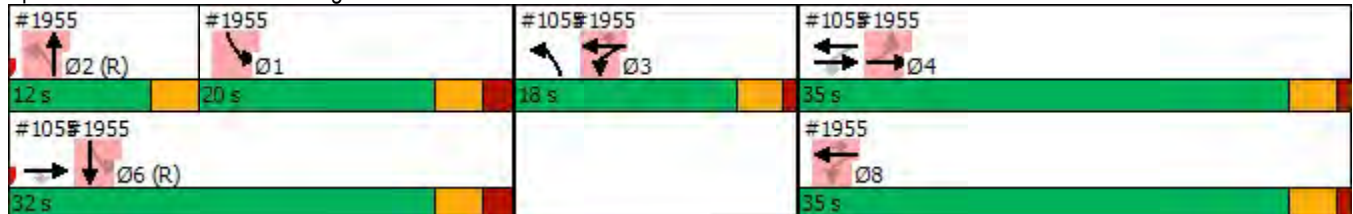


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	5.1			89.3	13.7					
Queue Delay	0.9			9.8	0.0					
Total Delay	6.0			99.1	13.7					
LOS	A			F	B					
Approach Delay	6.0			99.1	13.7					
Approach LOS	A			F	B					
Stops (vph)	201			438	11					
Fuel Used(gal)	2			22	0					
CO Emissions (g/hr)	162			1572	18					
NOx Emissions (g/hr)	31			306	4					
VOC Emissions (g/hr)	37			364	4					
Dilemma Vehicles (#)	0			0	0					
Queue Length 50th (ft)	97			~345	1					
Queue Length 95th (ft)	129			#540	26					
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1189			534	309					
Starvation Cap Reductn	243			0	0					
Spillback Cap Reductn	0			16	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.73			1.11	0.10					

Intersection Summary

















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 47.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 46.7%  
 ICU Level of Service A  
 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.

Splits and Phases: 1055: Cottage Grove Avenue & 115th Street



Lanes, Volumes, Timings  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
 Existing Conditions



















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	203	542	25	311	0	0	0	0	15	6	220
Future Volume (vph)	0	203	542	25	311	0	0	0	0	15	6	220
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.891										0.850
Flt Protected					0.996						0.965	
Satd. Flow (prot)	0	3025	0	0	3365	0	0	0	0	0	1969	1500
Flt Permitted					0.996						0.965	
Satd. Flow (perm)	0	3025	0	0	3365	0	0	0	0	0	1969	1500
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	4%	1%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	216	577	27	331	0	0	0	0	16	6	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	793	0	0	358	0	0	0	0	0	22	234
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
 Existing Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	203	542	25	311	0	0	0	0	15	6	220
Future Volume (Veh/h)	0	203	542	25	311	0	0	0	0	15	6	220
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	216	577	27	331	0	0	0	0	16	6	234
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	331			216			727	890	396	493	601	166
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	331			216			727	890	396	493	601	166
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	96	99	72
cM capacity (veh/h)	1240			1337			223	279	609	456	408	850
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	144	649	137	221	22	234						
Volume Left	0	0	27	0	16	0						
Volume Right	0	577	0	0	0	234						
cSH	1700	1700	1337	1700	442	850						
Volume to Capacity	0.08	0.38	0.02	0.13	0.05	0.28						
Queue Length 95th (ft)	0	0	2	0	4	28						
Control Delay (s)	0.0	0.0	1.7	0.0	13.6	10.8						
Lane LOS			A		B	B						
Approach Delay (s)	0.0		0.6		11.1							
Approach LOS					B							
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			39.2%	ICU Level of Service	A							
Analysis Period (min)	15											

Lanes, Volumes, Timings  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

PM Peak  
 Existing Conditions



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Traffic Volume (vph)	218	0	336	0	0	0
Future Volume (vph)	218	0	336	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3221	0	1660	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3221	0	1660	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	234	0	361	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	234	0	361	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

PM Peak  
 Existing Conditions


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↗		↖			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	218	0	336	0	0	0
Future Volume (vph)	218	0	336	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	234	0	361	0	0	0

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total (vph)	117	117	361
Volume Left (vph)	117	117	361
Volume Right (vph)	0	0	0
Hadj (s)	0.55	0.55	0.25
Departure Headway (s)	6.0	6.0	4.8
Degree Utilization, x	0.19	0.19	0.48
Capacity (veh/h)	570	572	729
Control Delay (s)	9.2	9.2	12.2
Approach Delay (s)	9.2		12.2
Approach LOS	A		B

Intersection Summary			
Delay		11.0	
Level of Service		B	
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	239	126	81	190	61	92	443	60	96	803	120
Future Volume (vph)	130	239	126	81	190	61	92	443	60	96	803	120
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.98	0.99	0.99		0.98	1.00		0.99	0.99	
Frt			0.850		0.964			0.982			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1580	1600	1400	1596	1778	0	1580	3122	0	1539	3002	0
Flt Permitted	0.456			0.516			0.151			0.384		
Satd. Flow (perm)	745	1600	1372	862	1778	0	247	3122	0	618	3002	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		18			19			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			3955			5338			2655	
Travel Time (s)		17.1			89.9			121.3			60.3	
Confl. Peds. (#/hr)	28		8	8		28	59		11	11		59
Confl. Bikes (#/hr)						3	1		2			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	5%	2%	0%	4%	0%	1%	4%	0%	0%	3%	3%
Adj. Flow (vph)	133	244	129	83	194	62	94	452	61	98	819	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	133	244	129	83	256	0	94	513	0	98	941	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	34.8	30.0	29.0	34.0	27.0		40.8	36.0		40.8	36.0	
Actuated g/C Ratio	0.39	0.33	0.32	0.38	0.30		0.45	0.40		0.45	0.40	
v/c Ratio	0.39	0.46	0.24	0.22	0.47		0.47	0.41		0.29	0.78	
Control Delay	20.7	28.0	5.8	17.6	27.2		20.7	20.4		15.1	29.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.7	28.0	5.8	17.6	27.2		20.7	20.4		15.1	29.1	
LOS	C	C	A	B	C		C	C		B	C	
Approach Delay		20.4			24.8			20.5			27.8	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		0.0	44.0		0.0	44.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Skip	Coord		Skip	Coord	
Stops (vph)	85	188	19	50	186		49	339		52	761	
Fuel Used(gal)	2	4	1	3	10		4	25		3	29	
CO Emissions (g/hr)	124	266	69	214	710		314	1741		180	2010	
NOx Emissions (g/hr)	24	52	14	42	138		61	339		35	391	
VOC Emissions (g/hr)	29	62	16	50	165		73	403		42	466	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	46	112	0	28	109		28	107		29	244	
Queue Length 95th (ft)	85	185	40	57	182		55	152		57	326	
Internal Link Dist (ft)		672			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	344	533	529	374	546		200	1260		341	1213	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

PM Peak  
 Existing Conditions

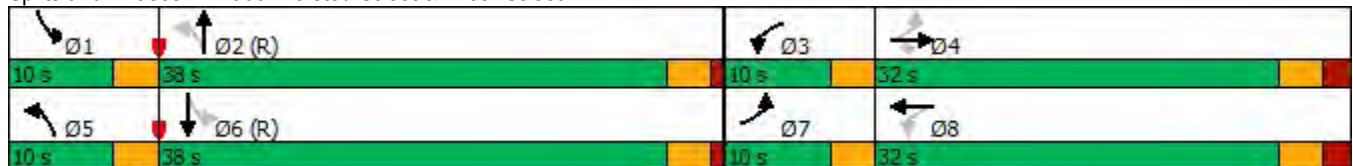


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.39	0.46	0.24	0.22	0.47		0.47	0.41		0.29	0.78	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	24.1
Intersection LOS:	C
Intersection Capacity Utilization	78.4%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 1060: Halsted Street & 119th Street





Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↕			↕	
Traffic Volume (vph)	35	275	54	11	251	19	32	51	17	18	76	58
Future Volume (vph)	35	275	54	11	251	19	32	51	17	18	76	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		0.99			0.99	
Frt			0.850			0.850		0.977			0.949	
Flt Protected		0.994			0.998			0.984			0.994	
Satd. Flow (prot)	0	1679	1428	0	1630	1428	0	1896	0	0	1872	0
Flt Permitted		0.949			0.986			0.900			0.971	
Satd. Flow (perm)	0	1602	1369	0	1609	1381	0	1730	0	0	1828	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59			21		19			58	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	12		20	20		12	8		2	2		8
Confl. Bikes (#/hr)	1		2	1		1			1	1		
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 (%)	3%	3%	0%	0%	3%	0%	0%	0%	0%	0%	1%	3%
Adj. Flow (vph)	38	302	59	12	276	21	35	56	19	20	84	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	340	59	0	288	21	0	110	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

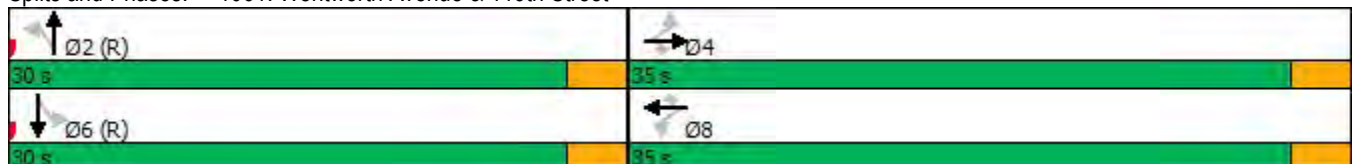
PM Peak  
Existing Conditions

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.43	0.08		0.36	0.03		0.15			0.21	
Control Delay		12.8	3.2		9.3	2.8		10.6			6.1	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		12.8	3.2		9.3	2.8		10.6			6.1	
LOS		B	A		A	A		B			A	
Approach Delay		11.4			8.8			10.6			6.1	
Approach LOS		B			A			B			A	
Stops (vph)		189	9		86	3		49			89	
Fuel Used(gal)		11	2		4	0		3			4	
CO Emissions (g/hr)		795	122		258	16		180			270	
NOx Emissions (g/hr)		155	24		50	3		35			53	
VOC Emissions (g/hr)		184	28		60	4		42			63	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		81	0		45	1		21			3	
Queue Length 95th (ft)		140	16		66	3		49			22	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		788	703		792	690		729			793	
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		0.43	0.08		0.36	0.03		0.15			0.21	

Intersection Summary





















Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.43
Intersection Signal Delay:	9.6
Intersection LOS:	A
Intersection Capacity Utilization:	85.8%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	172	37	10	180	9	28	88	15	12	142	54
Future Volume (vph)	53	172	37	10	180	9	28	88	15	12	142	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.94		1.00	0.95		1.00	0.97		0.99	
Frt			0.850			0.850			0.850		0.965	
Flt Protected		0.988			0.997			0.988			0.997	
Satd. Flow (prot)	0	1635	1428	0	1614	1428	0	1599	1428	0	1941	0
Flt Permitted		0.889			0.983			0.912			0.985	
Satd. Flow (perm)	0	1464	1347	0	1589	1360	0	1475	1390	0	1917	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			34			34			38
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	19		25	25		19	3		6	6		3
Confl. Bikes (#/hr)	1		2	1		1	1		1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	0%	4%	0%	0%	5%	0%	0%	0%	2%
Adj. Flow (vph)	55	179	39	10	188	9	29	92	16	13	148	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	39	0	198	9	0	121	16	0	217	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0

Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.45	0.08		0.35	0.02		0.17	0.02		0.23	
Control Delay		12.1	2.7		17.8	0.9		2.4	0.9		7.2	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		12.1	2.7		17.8	0.9		2.4	0.9		7.2	
LOS		B	A		B	A		A	A		A	
Approach Delay		10.8			17.0			2.2			7.2	
Approach LOS		B			B			A			A	
Stops (vph)		173	13		134	0		34	3		166	
Fuel Used(gal)		4	0		2	0		5	1		6	
CO Emissions (g/hr)		269	33		149	2		356	45		389	
NOx Emissions (g/hr)		52	6		29	0		69	9		76	
VOC Emissions (g/hr)		62	8		35	1		82	10		90	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		74	3		57	0		10	0		15	
Queue Length 95th (ft)		136	m7		105	2		m11	m0		24	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		518	501		562	503		726	701		963	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.45	0.08		0.35	0.02		0.17	0.02		0.23	

Intersection Summary




















Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.45  
 Intersection Signal Delay: 10.0 Intersection LOS: A  
 Intersection Capacity Utilization 85.0% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1062: State Street & 119th Street



Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	866	289	292	842	0	0	0	0	513	284	334
Future Volume (vph)	0	866	289	292	842	0	0	0	0	513	284	334
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		0.99		1.00								
Frt		0.962									0.980	0.850
Flt Protected				0.950						0.950	0.981	
Satd. Flow (prot)	0	4564	0	1676	3320	0	0	0	0	1541	2911	1442
Flt Permitted				0.153						0.950	0.981	
Satd. Flow (perm)	0	4564	0	270	3320	0	0	0	0	1541	2911	1442
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76									12	180
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			590			708	
Travel Time (s)		30.9			7.3			13.4			16.1	
Confl. Peds. (#/hr)	15		11	11		15						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	3%	3%	2%	3%	0%	0%	0%	0%	1%	3%	3%
Adj. Flow (vph)	0	884	295	298	859	0	0	0	0	523	290	341
Shared Lane Traffic (%)										43%		23%
Lane Group Flow (vph)	0	1179	0	298	859	0	0	0	0	298	593	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (%)		36.1%		33.9%	70.0%					30.0%	30.0%	30.0%
Maximum Green (s)		35.5		34.5	74.5					28.5	28.5	28.5
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										1.5	1.5	1.5
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		51.9		77.5	76.0					27.0	27.0	27.0
Actuated g/C Ratio		0.45		0.67	0.66					0.23	0.23	0.23
v/c Ratio		0.56		0.71	0.39					0.82	0.86	0.55
Control Delay		24.3		25.1	17.2					61.0	54.2	17.1
Queue Delay		0.0		0.7	11.9					0.0	0.0	0.0
Total Delay		24.3		25.8	29.2					61.0	54.2	17.1
LOS		C		C	C					E	D	B
Approach Delay		24.3			28.3						47.5	
Approach LOS		C			C						D	
90th %ile Green (s)		41.0		29.0	74.5					28.5	28.5	28.5
90th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
70th %ile Green (s)		46.4		23.6	74.5					28.5	28.5	28.5
70th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
50th %ile Green (s)		50.3		19.7	74.5					28.5	28.5	28.5
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		55.6		15.7	75.8					27.2	27.2	27.2
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		66.2		9.8	80.5					22.5	22.5	22.5
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		791		219	574					265	525	78
Fuel Used(gal)		22		3	8					7	13	3
CO Emissions (g/hr)		1561		240	576					468	875	193
NOx Emissions (g/hr)		304		47	112					91	170	37
VOC Emissions (g/hr)		362		56	133					109	203	45
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		220		157	244					227	236	53
Queue Length 95th (ft)		310		m220	317					#372	#316	147
Internal Link Dist (ft)		1279			242			510			628	

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

PM Peak  
Existing Conditions

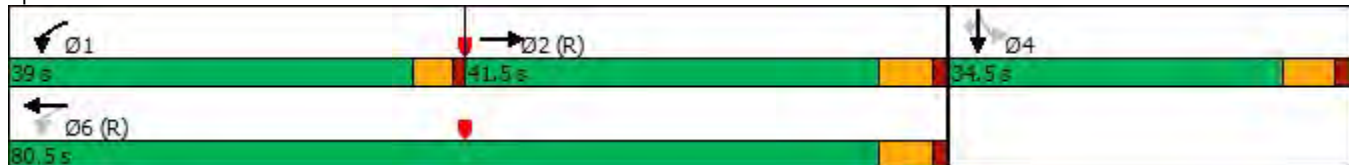


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)				216						360		360
Base Capacity (vph)		2101		603	2192					381	730	492
Starvation Cap Reductn		0		106	1313					0	0	0
Spillback Cap Reductn		0		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.56		0.60	0.98					0.78	0.81	0.53

Intersection Summary























Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	115
Offset:	85 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	115
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	33.3
Intersection LOS:	C
Intersection Capacity Utilization:	92.9%
ICU Level of Service:	F
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: 1064: S Paulina ST & 127th Street



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  			 				
Traffic Volume (vph)	341	1038	0	0	811	261	323	270	237	0	0	0
Future Volume (vph)	341	1038	0	0	811	261	323	270	237	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Flt					0.963			0.930				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3252	3353	0	0	4631	0	1676	3120	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3244	3353	0	0	4631	0	1676	3120	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					87							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		322			336			554			548	
Travel Time (s)		7.3			7.6			12.6			12.5	
Confl. Peds. (#/hr)	7		5	5		7						
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	2%	1%	3%	0%	0%	0%
Adj. Flow (vph)	359	1093	0	0	854	275	340	284	249	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	359	1093	0	0	1129	0	340	533	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (%)	23.0%	70.0%			47.0%		30.0%	30.0%				
Maximum Green (s)	20.5	74.5			48.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	17.8	75.4			51.6		27.6	27.6				
Actuated g/C Ratio	0.15	0.66			0.45		0.24	0.24				
v/c Ratio	0.71	0.50			0.53		0.85	0.71				
Control Delay	48.1	4.9			17.6		61.5	45.9				
Queue Delay	0.0	0.6			0.2		5.5	0.0				
Total Delay	48.1	5.5			17.8		67.1	45.9				
LOS	D	A			B		E	D				
Approach Delay		16.0			17.8			54.2				
Approach LOS		B			B			D				
90th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	20.2	74.5			48.3		28.5	28.5				
70th %ile Term Code	Gap	Coord			Coord		Max	Max				
50th %ile Green (s)	18.3	74.5			50.2		28.5	28.5				
50th %ile Term Code	Gap	Coord			Coord		Max	Max				
30th %ile Green (s)	16.4	74.5			52.1		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	13.6	79.1			59.5		23.9	23.9				
10th %ile Term Code	Gap	Coord			Coord		Gap	Gap				
Stops (vph)	303	373			440		291	452				
Fuel Used(gal)	6	6			9		7	9				
CO Emissions (g/hr)	410	399			635		493	658				
NOx Emissions (g/hr)	80	78			124		96	128				
VOC Emissions (g/hr)	95	93			147		114	153				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	124	213			132		239	189				
Queue Length 95th (ft)	m147	10			165		#388	251				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

PM Peak  
 Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	579	2199			2126		415	773				
Starvation Cap Reductn	0	653			353		0	0				
Spillback Cap Reductn	0	0			179		40	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.62	0.71			0.64		0.91	0.69				

Intersection Summary























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 26.3  
 Intersection LOS: C  
 Intersection Capacity Utilization 92.9%  
 ICU Level of Service F  
 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: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	571	368	94	564	48	227	179	66	74	162	121
Future Volume (vph)	122	571	368	94	564	48	227	179	66	74	162	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	1.00		0.99	0.99		0.99	0.99	
Frt			0.850		0.988			0.960				0.936
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3386	1337	1605	3282	0	1580	3220	0	1550	2949	0
Flt Permitted	0.224			0.422			0.375			0.591		
Satd. Flow (perm)	368	3386	1292	707	3282	0	620	3220	0	955	2949	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			391		8			49			129	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		336			5379			1555			925	
Travel Time (s)		7.6			122.3			35.3			21.0	
Confl. Peds. (#/hr)	11		23	23		11	8		12	12		8
Confl. Bikes (#/hr)									1			
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 (%)	2%	1%	3%	3%	3%	0%	1%	1%	2%	3%	0%	1%
Parking (#/hr)			0									
Adj. Flow (vph)	130	607	391	100	600	51	241	190	70	79	172	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	607	391	100	651	0	241	260	0	79	301	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (%)	13.0%	38.3%	17.8%	10.9%	36.1%		17.8%	37.8%		13.0%	33.0%	
Maximum Green (s)	10.5	38.0	16.0	8.0	35.5		16.0	37.5		10.5	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	67.1	52.2	69.1	45.8	35.5		38.9	26.1		28.1	17.6	
Actuated g/C Ratio	0.58	0.45	0.60	0.40	0.31		0.34	0.23		0.24	0.15	
v/c Ratio	0.27	0.39	0.42	0.29	0.64		0.71	0.34		0.28	0.54	
Control Delay	8.6	18.3	5.0	15.7	37.2		36.1	27.4		28.6	28.5	
Queue Delay	0.0	0.4	0.1	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.6	18.7	5.1	15.7	37.2		36.1	27.4		28.6	28.5	
LOS	A	B	A	B	D		D	C		C	C	
Approach Delay		12.8			34.4			31.6			28.5	
Approach LOS		B			C			C			C	
90th %ile Green (s)	19.8	43.4	16.0	11.9	35.5		16.0	28.2		10.5	22.7	
90th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
70th %ile Green (s)	23.5	49.2	16.0	9.8	35.5		16.0	24.5		10.5	19.0	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
50th %ile Green (s)	26.4	53.3	16.0	8.6	35.5		16.0	22.5		9.6	16.1	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Gap	
30th %ile Green (s)	27.5	55.4	16.0	7.6	35.5		16.0	22.8		8.2	15.0	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Min	
10th %ile Green (s)	30.6	59.9	12.9	6.2	35.5		12.9	32.4		0.0	15.0	
10th %ile Term Code	MaxR	Coord	Gap	Gap	Coord		Gap	Hold		Skip	Min	
Stops (vph)	44	380	106	55	509		182	184		53	145	
Fuel Used(gal)	1	6	2	5	33		5	5		1	4	
CO Emissions (g/hr)	54	400	134	318	2315		379	373		88	314	
NOx Emissions (g/hr)	11	78	26	62	450		74	73		17	61	
VOC Emissions (g/hr)	13	93	31	74	537		88	86		20	73	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	20	161	85	30	215		150	76		41	62	
Queue Length 95th (ft)	m64	232	128	64	280		216	110		72	101	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

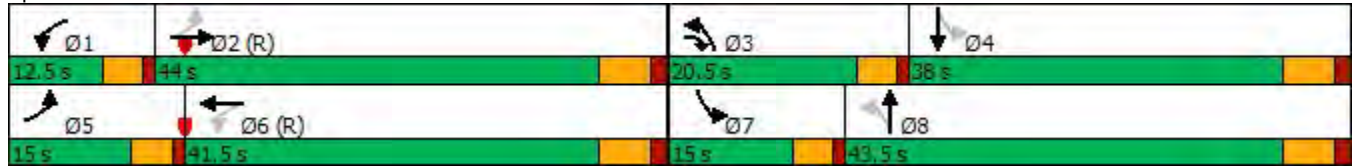
PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		256			5299			1475			845	
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	480	1538	943	356	1018		343	1083		299	913	
Starvation Cap Reductn	0	460	82	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	
Reduced v/c Ratio	0.27	0.56	0.45	0.28	0.64		0.70	0.24		0.26	0.33	

Intersection Summary





















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 15 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 24.3 Intersection LOS: C  
 Intersection Capacity Utilization 82.7% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1066: S Ashland & 127th Street



Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	193	367	56	164	87	362	340	78	206	408	56
Future Volume (vph)	46	193	367	56	164	87	362	340	78	206	408	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00	0.99		1.00				1.00	
Frt		0.902			0.948			0.972			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	2993	0	1710	3182	0	1621	3297	0	1693	3294	0
Flt Permitted	0.575			0.280			0.300			0.487		
Satd. Flow (perm)	1026	2993	0	503	3182	0	511	3297	0	868	3294	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					84			28				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	12		3	3		12	5					5
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%	2%	2%	0%	1%	1%	2%	1%	0%	1%	2%	0%
Adj. Flow (vph)	51	212	403	62	180	96	398	374	86	226	448	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	615	0	62	276	0	398	460	0	226	510	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (%)	13.0%	28.3%		17.0%	32.2%		21.7%	43.9%		10.9%	33.0%	
Maximum Green (s)	11.0	26.5		15.5	31.0		21.0	44.5		8.5	32.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					6.0							4.0
Flash Dont Walk (s)					25.0							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	44.4	35.5		45.2	36.0		59.0	44.5		43.0	32.5	
Actuated g/C Ratio	0.39	0.31		0.39	0.31		0.51	0.39		0.37	0.28	
v/c Ratio	0.12	0.88dr		0.22	0.26		0.87	0.36		0.59	0.55	
Control Delay	21.0	39.9		22.3	22.0		39.3	24.4		25.7	35.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.0	39.9		22.3	22.0		39.3	24.4		25.7	35.9	
LOS	C	D		C	C		D	C		C	D	
Approach Delay		38.4			22.1			31.3			32.8	
Approach LOS		D			C			C			C	
90th %ile Green (s)	10.2	31.1		10.9	31.8		21.0	44.5		8.5	32.0	
90th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	8.9	32.5		9.5	33.1		21.0	44.5		8.5	32.0	
70th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.0	33.5		8.5	34.0		21.0	44.5		8.5	32.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.1	34.5		7.5	34.9		21.0	44.5		8.5	32.0	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	0.0	46.0		0.0	46.0		18.3	44.5		8.5	34.7	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Gap	Coord		Max	Coord	
Stops (vph)	28	484		33	129		217	271		147	353	
Fuel Used(gal)	1	10		3	12		7	7		4	11	
CO Emissions (g/hr)	41	726		194	857		484	482		314	787	
NOx Emissions (g/hr)	8	141		38	167		94	94		61	153	
VOC Emissions (g/hr)	10	168		45	199		112	112		73	182	
Dilemma Vehicles (#)	0	24		0	11		0	18		0	22	
Queue Length 50th (ft)	22	213		27	55		183	117		68	143	
Queue Length 95th (ft)	47	290		55	94		#317	161		134	225	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	478	924		372	1052		464	1292		385	931	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.11	0.67		0.17	0.26		0.86	0.36		0.59	0.55	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 32.3 Intersection LOS: C  
 Intersection Capacity Utilization 93.7% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.




















Splits and Phases: 1067: S Ashland & Vermont St





Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Existing Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	491	115	10	376	66	94	259	9	153	469	141
Future Volume (vph)	86	491	115	10	376	66	94	259	9	153	469	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		1.00	1.00		1.00	0.99	
Frt		0.975			0.978			0.995			0.965	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3138	0	0	3143	0	1559	3337	0	1637	3082	0
Flt Permitted		0.795			0.933		0.313			0.552		
Satd. Flow (perm)	0	2509	0	0	2935	0	512	3337	0	948	3082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			23			4			46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	4		2	2		4	8		4	4		8
Confl. Bikes (#/hr)												2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	0%	2%	6%	6%	2%	0%	1%	3%	3%
Adj. Flow (vph)	92	528	124	11	404	71	101	278	10	165	504	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	744	0	0	486	0	101	288	0	165	656	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

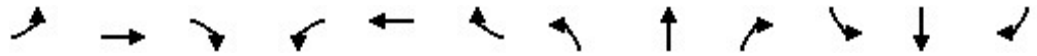
PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	8.0	37.0		21.0	21.0		8.0	31.0		8.0	21.0	
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0	
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%	
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		2						4				
Act Effct Green (s)		29.1			29.1		34.1	22.8		33.7	24.8	
Actuated g/C Ratio		0.38			0.38		0.45	0.30		0.44	0.33	
v/c Ratio		0.76			0.43		0.29	0.29		0.33	0.63	
Control Delay		25.6			18.0		14.0	21.6		14.2	25.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		25.6			18.0		14.0	21.6		14.2	25.6	
LOS		C			B		B	C		B	C	
Approach Delay		25.6			18.0			19.6			23.3	
Approach LOS		C			B			B			C	
90th %ile Green (s)	0.0	34.0		34.0	34.0		11.5	27.0		8.5	24.0	
90th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
70th %ile Green (s)	0.0	34.0		34.0	34.0		10.3	25.8		8.5	24.0	
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
50th %ile Green (s)	0.0	31.9		31.9	31.9		9.0	24.5		8.5	24.0	
50th %ile Term Code	Skip	Gap		Hold	Hold		Gap	Hold		Max	Max	
30th %ile Green (s)	0.0	27.2		27.2	27.2		7.5	22.7		8.5	23.7	
30th %ile Term Code	Skip	Gap		Hold	Hold		Gap	Hold		Max	Gap	
10th %ile Green (s)	0.0	19.4		19.4	19.4		0.0	15.0		6.6	25.1	
10th %ile Term Code	Skip	Gap		Hold	Hold		Skip	Min		Gap	Hold	
Stops (vph)		544			293		48	187		85	469	
Fuel Used(gal)		36			8		1	3		7	31	
CO Emissions (g/hr)		2491			555		60	220		509	2178	
NOx Emissions (g/hr)		485			108		12	43		99	424	
VOC Emissions (g/hr)		577			129		14	51		118	505	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		156			85		27	56		45	141	
Queue Length 95th (ft)		234			131		56	91		85	216	
Internal Link Dist (ft)		5299			1243			370			5258	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Existing Conditions

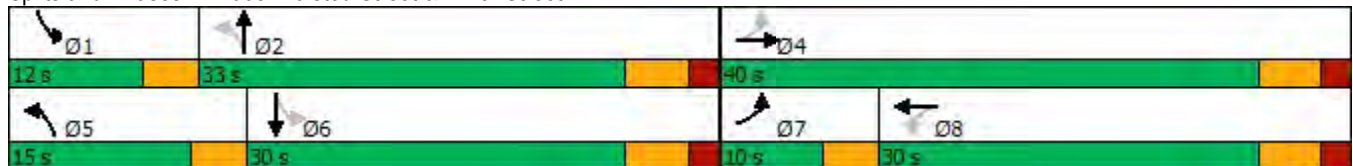


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)							135			130		
Base Capacity (vph)		1167			1184		410	1216		500	1039	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.64			0.41		0.25	0.24		0.33	0.63	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	75.9
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	22.4
Intersection LOS:	C
Intersection Capacity Utilization	77.2%
ICU Level of Service	D
Analysis Period (min)	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	83.8
50th %ile Actuated Cycle:	80.4
30th %ile Actuated Cycle:	73.9
10th %ile Actuated Cycle:	56.5

Splits and Phases: 1068: Halsted Street & 127th Street



Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	198	136	84	129	22	64	409	71	27	537	54
Future Volume (vph)	67	198	136	84	129	22	64	409	71	27	537	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.939			0.978			0.978			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	1886	0	1613	1991	0	1676	3222	0	1437	3270	0
Flt Permitted	0.653			0.423			0.370			0.442		
Satd. Flow (perm)	1173	1886	0	712	1991	0	652	3222	0	668	3270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			15			41			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	3		20	20		3	2		3	3		2
Confl. Bikes (#/hr)			1	4					2			2
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%	1%	6%	0%	0%	2%	3%	6%	19%	3%	2%
Adj. Flow (vph)	73	215	148	91	140	24	70	445	77	29	584	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	363	0	91	164	0	70	522	0	29	643	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.17	0.49		0.35	0.22		0.23	0.34		0.09	0.41	
Control Delay	15.1	15.8		23.4	18.2		12.4	10.4		10.3	11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.1	15.8		23.4	18.2		12.4	10.4		10.3	11.6	
LOS	B	B		C	B		B	B		B	B	
Approach Delay		15.7			20.1			10.7			11.6	
Approach LOS		B			C			B			B	
Stops (vph)	45	208		81	135		38	255		17	347	
Fuel Used(gal)	3	17		2	3		1	9		0	5	
CO Emissions (g/hr)	233	1158		123	205		91	655		17	377	
NOx Emissions (g/hr)	45	225		24	40		18	127		3	73	
VOC Emissions (g/hr)	54	268		28	48		21	152		4	87	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	19	88		38	65		15	57		6	78	
Queue Length 95th (ft)	45	158		m45	m74		40	88		19	115	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	433	734		262	744		310	1558		318	1571	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.49		0.35	0.22		0.23	0.34		0.09	0.41	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 57 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 71.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 1069: Halsted Street & Vermont St



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔			↔	
Traffic Volume (vph)	2	628	198	479	16	3	9	8	41	8	0	3
Future Volume (vph)	2	628	198	479	16	3	9	8	41	8	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	10	10	12	12	16	12	12	16	12
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00				0.99			0.98	
Frt				0.996				0.909			0.932	
Flt Protected				0.986				0.991			0.976	
Satd. Flow (prot)	0	3160	0	3089	0	0	0	1817	0	0	1819	0
Flt Permitted		0.953		0.552				0.959			0.898	
Satd. Flow (perm)	0	3012	0	1729	0	0	0	1755	0	0	1672	0
Right Turn on Red					No				No			
Satd. Flow (RTOR)												
Link Speed (mph)		30		30				30			30	
Link Distance (ft)		1323		3930				1256			658	
Travel Time (s)		30.1		89.3				28.5			15.0	
Confl. Peds. (#/hr)	7		4		7		7		2	2		7
Confl. Bikes (#/hr)			1						2			2
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%	1%	2%	1%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	698	220	532	18	3	10	9	46	9	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	700	0	770	0	0	0	68	0	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		0		0				0			0	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		16		16				16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		15		9	15	15		9	15		9
Turn Type	Perm	NA	custom	NA		Perm	Perm	NA		Perm	NA	
Protected Phases		8	7	4				2			6	
Permitted Phases	8		4	7		2	2			6		
Minimum Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (%)	35.4%	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	18.0	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0	
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0				0.0			0.0	
Total Lost Time (s)		5.0		5.0				4.0			4.0	
Lead/Lag	Lag	Lag	Lead									
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		18.0		5.0	5.0	5.0				
Flash Dont Walk (s)	9.0	9.0		9.0		9.0	9.0	9.0				
Pedestrian Calls (#/hr)	0	0		0		0	0	0				
Act Effect Green (s)		18.0		27.0				14.0			14.0	

Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
Existing Conditions



Lane Group	SBR2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	5	3	242
Future Volume (vph)	5	3	242
Ideal Flow (vphpl)	1800	1800	1800
Lane Width (ft)	12	12	12
Lane Util. Factor	1.00	1.00	1.00
Ped Bike Factor			
Frt		0.866	
Flt Protected		0.999	
Satd. Flow (prot)	0	1557	0
Flt Permitted		0.999	
Satd. Flow (perm)	0	1557	0
Right Turn on Red	No		
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		1385	
Travel Time (s)		31.5	
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%
Adj. Flow (vph)	6	3	269
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	272	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Right
Median Width(ft)		24	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	9	15	9
Turn Type		Prot	
Protected Phases		3	
Permitted Phases			
Minimum Split (s)		15.0	
Total Split (s)		15.0	
Total Split (%)		23.1%	
Maximum Green (s)		10.0	
Yellow Time (s)		3.0	
All-Red Time (s)		2.0	
Lost Time Adjust (s)		0.0	
Total Lost Time (s)		5.0	
Lead/Lag			
Lead-Lag Optimize?			
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)		10.0	

Lanes, Volumes, Timings  
1070: S Wallance St & 127th Street

PM Peak  
Existing Conditions

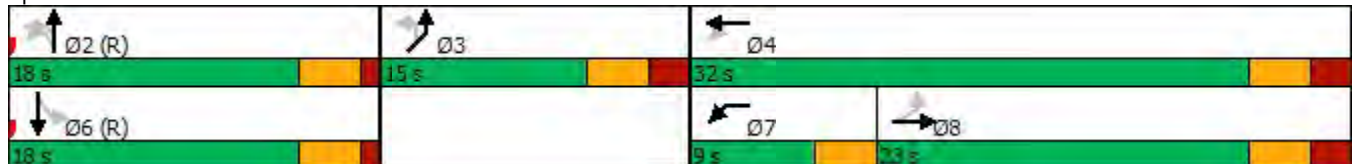


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28		0.42				0.22			0.22	
v/c Ratio		0.84		1.04dl				0.18			0.05	
Control Delay		33.4		39.0				22.3			20.8	
Queue Delay		0.0		0.0				0.0			0.0	
Total Delay		33.4		39.0				22.3			20.8	
LOS		C		D				C			C	
Approach Delay		33.4		39.0				22.3			20.8	
Approach LOS		C		D				C			C	
Stops (vph)		545		529				49			15	
Fuel Used(gal)		14		30				1			0	
CO Emissions (g/hr)		965		2074				80			16	
NOx Emissions (g/hr)		188		403				16			3	
VOC Emissions (g/hr)		224		481				19			4	
Dilemma Vehicles (#)		0		0				0			0	
Queue Length 50th (ft)		136		113				22			6	
Queue Length 95th (ft)		#225		#224				52			20	
Internal Link Dist (ft)		1243		3850				1176			578	
Turn Bay Length (ft)												
Base Capacity (vph)		834		801				378			360	
Starvation Cap Reductn		0		0				0			0	
Spillback Cap Reductn		0		0				0			0	
Storage Cap Reductn		0		0				0			0	
Reduced v/c Ratio		0.84		0.96				0.18			0.05	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 49.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 84.4%  
 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.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1070: S Wallance St & 127th Street





Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

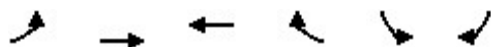
PM Peak  
 Existing Conditions



Lane Group	SBR2	NEL	NER
Actuated g/C Ratio		0.15	
v/c Ratio		1.14	
Control Delay		126.0	
Queue Delay		0.0	
Total Delay		126.0	
LOS		F	
Approach Delay		126.0	
Approach LOS		F	
Stops (vph)		183	
Fuel Used(gal)		10	
CO Emissions (g/hr)		695	
NOx Emissions (g/hr)		135	
VOC Emissions (g/hr)		161	
Dilemma Vehicles (#)		0	
Queue Length 50th (ft)		~122	
Queue Length 95th (ft)		#256	
Internal Link Dist (ft)		1305	
Turn Bay Length (ft)			
Base Capacity (vph)		239	
Starvation Cap Reductn		0	
Spillback Cap Reductn		0	
Storage Cap Reductn		0	
Reduced v/c Ratio		1.14	
Intersection Summary			

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↗	↗
Traffic Volume (vph)	230	689	513	57	74	180
Future Volume (vph)	230	689	513	57	74	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3062	3053	0	1550	1386
Flt Permitted		0.665			0.950	
Satd. Flow (perm)	0	2061	3053	0	1550	1386
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			34			194
Link Speed (mph)		30	20		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	21.7		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	247	741	552	61	80	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	988	613	0	80	194
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effect Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		0.78	0.32		0.20	0.38
Control Delay		15.1	9.2		21.6	7.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		15.1	9.2		21.6	7.4
LOS		B	A		C	A
Approach Delay		15.1	9.2		11.6	
Approach LOS		B	A		B	
Stops (vph)		878	280		50	49
Fuel Used(gal)		36	5		4	8
CO Emissions (g/hr)		2505	361		258	563
NOx Emissions (g/hr)		487	70		50	110
VOC Emissions (g/hr)		581	84		60	131
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		224	72		25	1
Queue Length 95th (ft)		m255	89		55	49
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1268	1891		405	505
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.78	0.32		0.20	0.38

Intersection Summary

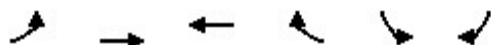
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 12.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 90.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1071: 127th Street & State Street



Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	70	693	490	136	239	80
Future Volume (vph)	70	693	490	136	239	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	1.00			0.99
Frt			0.967			0.850
Flt Protected		0.995			0.950	
Satd. Flow (prot)	0	3117	2961	0	1506	1360
Flt Permitted		0.834			0.950	
Satd. Flow (perm)	0	2612	2961	0	1506	1343
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			82			63
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	2			2		1
Confl. Bikes (#/hr)	1					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	10%	6%	5%
Adj. Flow (vph)	76	753	533	148	260	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	829	681	0	260	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (%)	58.5%	58.5%	58.5%		41.5%	41.5%
Maximum Green (s)	34.0	34.0	34.0		23.0	23.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			21.0			

Lanes, Volumes, Timings  
 1072: 127th Street & Michigan Avenue

PM Peak  
 Existing Conditions

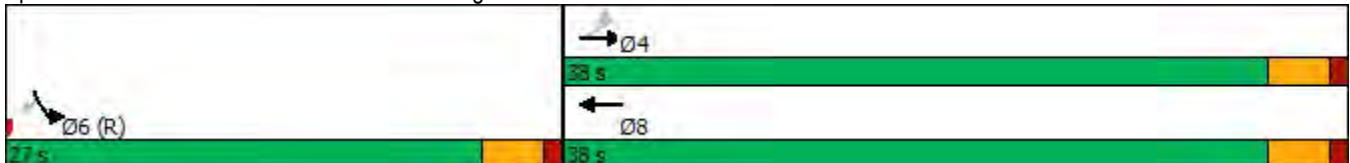


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		34.0	34.0		23.0	23.0
Actuated g/C Ratio		0.52	0.52		0.35	0.35
v/c Ratio		0.61	0.43		0.49	0.17
Control Delay		13.4	7.4		24.2	11.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		13.4	7.4		24.2	11.6
LOS		B	A		C	B
Approach Delay		13.4	7.4		21.0	
Approach LOS		B	A		C	
Stops (vph)		363	367		188	46
Fuel Used(gal)		8	16		17	5
CO Emissions (g/hr)		550	1097		1200	381
NOx Emissions (g/hr)		107	213		234	74
VOC Emissions (g/hr)		127	254		278	88
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		91	31		93	4
Queue Length 95th (ft)		149	84		m118	m10
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1366	1587		532	515
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.61	0.43		0.49	0.17

Intersection Summary













Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 35 (54%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 12.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 85.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1072: 127th Street & Michigan Avenue



Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
Existing Conditions

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	562	218	104	504	158	45
Future Volume (vph)	562	218	104	504	158	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						0.99
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1706	1450	1676	3288	1492	1428
Flt Permitted			0.253		0.950	
Satd. Flow (perm)	1706	1450	446	3288	1492	1410
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						49
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5343	2671	
Travel Time (s)	3.7			104.1	60.7	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	4%	7%	0%
Adj. Flow (vph)	618	240	114	554	174	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	618	240	114	554	174	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
Existing Conditions

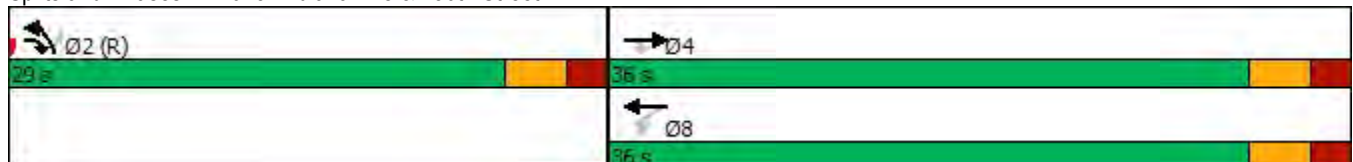


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	65.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	1.00	0.48	0.48	0.37	0.37
v/c Ratio	0.76	0.17	0.54	0.35	0.32	0.09
Control Delay	24.9	0.2	23.8	11.5	16.7	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	0.2	23.8	11.5	16.7	5.1
LOS	C	A	C	B	B	A
Approach Delay	18.0			13.6	14.1	
Approach LOS	B			B	B	
Stops (vph)	465	0	79	296	109	10
Fuel Used(gal)	17	4	5	23	4	1
CO Emissions (g/hr)	1176	310	357	1597	310	73
NOx Emissions (g/hr)	229	60	69	311	60	14
VOC Emissions (g/hr)	273	72	83	370	72	17
Dilemma Vehicles (#)	0	0	0	39	0	0
Queue Length 50th (ft)	224	0	30	67	48	0
Queue Length 95th (ft)	#342	0	#97	100	92	19
Internal Link Dist (ft)	83			5263	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	813	1450	212	1568	550	551
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	0.76	0.17	0.54	0.35	0.32	0.09

Intersection Summary

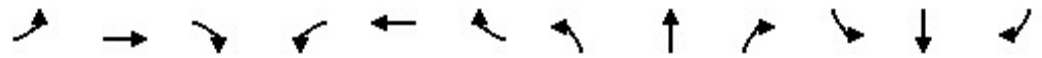
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 15.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 89.6%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
Existing Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	37	462	0	1	498	34	3	2	27	156	0	103
Future Volume (vph)	37	462	0	1	498	34	3	2	27	156	0	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00	0.80		0.96			0.98	
Frt						0.850		0.884			0.946	
Flt Protected		0.996						0.996			0.971	
Satd. Flow (prot)	0	3150	0	0	1663	1337	0	1505	0	0	1730	0
Flt Permitted		0.884						0.983			0.845	
Satd. Flow (perm)	0	2778	0	0	1663	1071	0	1484	0	0	1498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						64		30			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	60		44	44		60	14		10	10		14
Confl. Bikes (#/hr)	1			1		1						
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%	1%	0%	0%	1%	3%	20%	0%	0%	1%	0%	7%
Adj. Flow (vph)	41	513	0	1	553	38	3	2	30	173	0	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	554	0	0	554	38	0	35	0	0	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4		3	3			2		1	6	
Permitted Phases	4			3	3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0							14.0	



Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
Existing Conditions

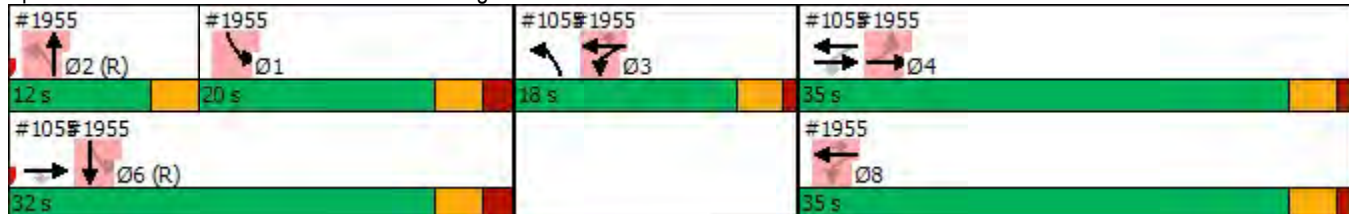


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			49.0	49.0		9.0				27.0
Actuated g/C Ratio		0.36			0.58	0.58		0.11				0.32
v/c Ratio		0.55			0.58	0.06		0.19				0.51
Control Delay		23.9			5.4	0.2		17.9				22.2
Queue Delay		0.3			44.5	4.8		0.0				0.0
Total Delay		24.2			49.9	5.0		17.9				22.2
LOS		C			D	A		B				C
Approach Delay		24.2			47.0			17.9				22.2
Approach LOS		C			D			B				C
Stops (vph)		382			61	0		14				159
Fuel Used(gal)		6			1	0		0				5
CO Emissions (g/hr)		451			90	2		16				337
NOx Emissions (g/hr)		88			18	0		3				66
VOC Emissions (g/hr)		105			21	0		4				78
Dilemma Vehicles (#)		0			0	0		0				0
Queue Length 50th (ft)		121			29	1		2				93
Queue Length 95th (ft)		172			m27	m1		29				167
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		1013			958	644		183				560
Starvation Cap Reductn		0			443	558		0				0
Spillback Cap Reductn		102			0	0		0				2
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.61			1.08	0.44		0.19				0.51

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 32.9 Intersection LOS: C  
 Intersection Capacity Utilization 73.8% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	599	248
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	5.50	7.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.948	0.929
Flow Rate (vi),pc/h	702	297
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.16	0.15

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.390
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	702	Ramp Junction Speed (S), mi/h	43.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	8.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	7.5

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# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	119	288	0	232
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	5.50	15.40	0.00	7.10
Heavy Vehicle Adjustment Factor (fHV)	0.948	0.867	1.000	0.934
Flow Rate (vi), pc/h	139	369	0	276
Weaving Flow Rate (vw), pc/h	645	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	139	Density-Based Capacity (ciWL), pc/h/ln		1352
Total Flow Rate (v), pc/h	784	Demand Flow-Based Capacity (ciW), pc/h		2916
Volume Ratio (VR)	0.823	Weaving Segment Capacity (cw), veh/h		2447
Minimum Lane Change Rate (LCMIN), lc/h	645	Adjusted Weaving Area Capacity, pc/h		2704
Maximum Weaving Length (LMAX), ft	11839	Volume-to-Capacity Ratio (v/c)		0.29

## Speed and Density

Non-Weaving Vehicle Index (INW)	7	Average Weaving Speed (SW), mi/h	39.5
Non-Weaving Lane Change Rate (LCNW), lc/h	50	Average Non-Weaving Speed (SNW), mi/h	38.5
Weaving Lane Change Rate (LCW), lc/h	695	Average Speed (S), mi/h	39.3
Weaving Lane Change Rate (LCAII), lc/h	745	Density (D), pc/mi/ln	10.0
Weaving Intensity Factor (W)	0.225	Level of Service (LOS)	A

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	407	425
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	14.00	40.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.877	0.713
Flow Rate (vi),pc/h	516	662
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.26	0.33

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	516	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1178	Average Density (D), pc/mi/ln	13.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.4

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# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	809	302
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	30.20	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.768	0.901
Flow Rate (vi),pc/h	1109	372
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.25	0.18

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.331
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1109	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	12.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.1

**A-220**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	188	335	0	319
Peak Hour Factor (PHF)	0.95	0.90	0.90	0.90
Total Trucks, %	30.20	11.70	0.00	43.60
Heavy Vehicle Adjustment Factor (fHV)	0.768	0.895	1.000	0.696
Flow Rate (vi), pc/h	258	416	0	509
Weaving Flow Rate (vw), pc/h	925	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	258	Density-Based Capacity (ciWL), pc/h/ln		1379
Total Flow Rate (v), pc/h	1183	Demand Flow-Based Capacity (ciW), pc/h		3069
Volume Ratio (VR)	0.782	Weaving Segment Capacity (cw), veh/h		2155
Minimum Lane Change Rate (LCMIN), lc/h	925	Adjusted Weaving Area Capacity, pc/h		2758
Maximum Weaving Length (LMAX), ft	11304	Volume-to-Capacity Ratio (v/c)		0.43

## Speed and Density

Non-Weaving Vehicle Index (INW)	10	Average Weaving Speed (Sw), mi/h	37.4
Non-Weaving Lane Change Rate (LCNW), lc/h	0	Average Non-Weaving Speed (SNW), mi/h	35.5
Weaving Lane Change Rate (LCW), lc/h	964	Average Speed (S), mi/h	37.0
Weaving Lane Change Rate (LCAII), lc/h	964	Density (D), pc/mi/ln	16.0
Weaving Intensity Factor (W)	0.342	Level of Service (LOS)	B



# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	523	264
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	7.90	4.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.927	0.955
Flow Rate (vi),pc/h	594	307
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.20	0.15

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.303
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	594	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	901	Average Density (D), pc/mi/ln	10.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.3

**A-222**

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	944	452
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fhv)	0.984	0.971
Flow Rate (vi),pc/h	1066	517
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.24	0.26

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.410
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1066	Ramp Junction Speed (S), mi/h	43.8
Flow Entering Ramp-Infl. Area (vr12), pc/h	-	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.6

**A-223**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	222	377	0	270
Peak Hour Factor (PHF)	0.90	0.95	0.90	0.90
Total Trucks, %	1.60	2.70	0.00	3.20
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.974	1.000	0.969
Flow Rate (vi), pc/h	251	407	0	310
Weaving Flow Rate (vw), pc/h	717	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	251	Density-Based Capacity (ciWL), pc/h/ln		1433
Total Flow Rate (v), pc/h	968	Demand Flow-Based Capacity (ciW), pc/h		3239
Volume Ratio (VR)	0.741	Weaving Segment Capacity (cw), veh/h		2794
Minimum Lane Change Rate (LCMIN), lc/h	717	Adjusted Weaving Area Capacity, pc/h		2866
Maximum Weaving Length (LMAX), ft	10777	Volume-to-Capacity Ratio (v/c)		0.34

## Speed and Density

Non-Weaving Vehicle Index (INW)	13	Average Weaving Speed (SW), mi/h	39.1
Non-Weaving Lane Change Rate (LCNW), lc/h	73	Average Non-Weaving Speed (SNW), mi/h	37.5
Weaving Lane Change Rate (LCW), lc/h	767	Average Speed (S), mi/h	38.7
Weaving Lane Change Rate (LCAII), lc/h	840	Density (D), pc/mi/ln	12.5
Weaving Intensity Factor (W)	0.247	Level of Service (LOS)	B

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	599	601
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.30	6.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.987	0.942
Flow Rate (vi),pc/h	674	709
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.31	0.35

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.311
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	674	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1383	Average Density (D), pc/mi/ln	15.7
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.0

**A-225**

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1146	395
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	9.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.976
Flow Rate (vi),pc/h	1396	450
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.31	0.21

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.338
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1396	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.5

**A-226**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	128	297	0	623
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	9.60	5.00	0.00	6.70
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.952	1.000	0.937
Flow Rate (vi), pc/h	156	347	0	739
Weaving Flow Rate (vw), pc/h	1086	Freeway Max Capacity (cIFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	156	Density-Based Capacity (cIWL), pc/h/ln		1286
Total Flow Rate (v), pc/h	1242	Demand Flow-Based Capacity (cIW), pc/h		2746
Volume Ratio (VR)	0.874	Weaving Segment Capacity (cw), veh/h		2413
Minimum Lane Change Rate (LCMIN), lc/h	1086	Adjusted Weaving Area Capacity, pc/h		2572
Maximum Weaving Length (LMAX), ft	12515	Volume-to-Capacity Ratio (v/c)		0.48

## Speed and Density

Non-Weaving Vehicle Index (INW)	6	Average Weaving Speed (Sw), mi/h	36.6
Non-Weaving Lane Change Rate (LCNW), lc/h	0	Average Non-Weaving Speed (SNW), mi/h	34.2
Weaving Lane Change Rate (LCW), lc/h	1125	Average Speed (S), mi/h	36.3
Weaving Lane Change Rate (LCAII), lc/h	1125	Density (D), pc/mi/ln	17.1
Weaving Intensity Factor (W)	0.386	Level of Service (LOS)	B

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Existing
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	425	257
Peak Hour Factor (PHF)	0.90	0.95
Total Trucks, %	1.80	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.982	0.974
Flow Rate (vi),pc/h	481	278
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.17	0.14

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	481	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	759	Average Density (D), pc/mi/ln	8.6
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.2

**A-228**

**Attachment B**  
**2050 No Build Condition**



<p>460/(620) 10/(120) 665/(795)</p> <p>70/(50) 730/(800) 35/(40)</p>	<p>40/(40) 60/(55)</p> <p>365/(370) 615/(720) 30/(70)</p>	<p>105/(100) 505/(820) 75/(150)</p> <p>145/(150) 350/(370) 85/(140)</p>	<p>55/(105) 440/(500) 55/(105)</p> <p>35/(60) 260/(305) 65/(70)</p>	<p>35/(35) 1270/(1120) 10/(5)</p> <p>630/(475) 1130/(1135) 170/(305)</p>	<p>130/(85) 390/(400) 130/(185)</p> <p>125/(85) 1630/(655) 140/(110)</p> <p>65/(100) 500/(475) 65/(100)</p> <p>60/(80) 65/(70) 70/(60)</p> <p>25/(25) 520/(520) 70/(85)</p> <p>105/(100) 180/(105) 55/(50)</p>	<p>2</p> <p>95TH STREET LAFAYETTE AVENUE</p>	<p>3</p> <p>95TH STREET STATE STREET</p>	<p>16</p> <p>103RD STREET HALSTED STREET</p>	<p>17</p> <p>103RD STREET NORMAL AVENUE</p>	<p>18</p> <p>103RD STREET WENTWORTH AVENUE</p>			
<p>50/(70) 540/(955) 100/(110)</p> <p>120/(125) 195/(270) 60/(125)</p>	<p>85/(95) 345/(380)</p>	<p>25/(55) 135/(195) 65/(70)</p> <p>50/(55) 360/(390) 20/(45)</p>	<p>20/(65) 100/(235) 50/(95)</p> <p>85/(95) 385/(495) 40/(90)</p>	<p>170/(105) 275/(280) 75/(135)</p> <p>55/(65) 1050/(615) 40/(75)</p>	<p>45/(105) 420/(415)</p> <p>105/(40) 65/(55) 30/(65)</p>	<p>50/(25) 420/(395) 35/(35)</p> <p>40/(40) 190/(125) 20/(30)</p>	<p>55/(55) 280/(350) 20/(55)</p> <p>95/(130) 335/(285) 50/(55)</p>	<p>85/(75) 400/(390) 25/(95)</p> <p>55/(65) 380/(260) 15/(50)</p>	<p>34</p> <p>111TH STREET HALSTED STREET</p>	<p>35</p> <p>111TH STREET NORMAL AVENUE</p>	<p>36</p> <p>111TH STREET WENTWORTH AVENUE</p>	<p>37</p> <p>111TH STREET STATE STREET</p>	<p>38</p> <p>111TH STREET MICHIGAN AVENUE</p>
<p>80/(135) 425/(855) 75/(85)</p> <p>80/(80) 225/(395) 65/(200)</p>	<p>55/(85) 75/(160) 25/(45)</p> <p>10/(30) 275/(475) 20/(40)</p>	<p>40/(70) 95/(225) 40/(115)</p> <p>40/(40) 255/(305) 20/(50)</p>	<p>25/(65) 145/(340) 25/(70)</p> <p>50/(70) 255/(360) 115/(220)</p>	<p>215/(135) 255/(255) 50/(110)</p> <p>75/(65) 1050/(525) 75/(120)</p>	<p>50/(60) 325/(375) 25/(40)</p> <p>35/(45) 115/(105) 45/(35)</p>	<p>80/(95) 300/(385) 15/(25)</p> <p>25/(25) 115/(135) 15/(15)</p>	<p>45/(75) 300/(315) 20/(80)</p> <p>25/(25) 345/(310) 30/(30)</p>	<p>20/(20) 315/(370) 20/(20)</p> <p>195/(195) 110/(130) 30/(60)</p>	<p>49</p> <p>115TH STREET HALSTED STREET</p>	<p>50</p> <p>115TH STREET WENTWORTH AVENUE</p>	<p>51</p> <p>115TH STREET STATE STREET</p>	<p>52</p> <p>115TH STREET MICHIGAN AVENUE</p>	<p>53</p> <p>115TH STREET INDIANA AVENUE</p>
<p>85/(190) 75/(147)</p> <p>55/(45) 470/(635)</p>	<p>80/(131) 50/(10) 50/(20)</p> <p>90/(45) 615/(630) 30/(0) 30/(0)</p>	<p>250/(280) 101/(10) 0/(0) 5/(2)</p> <p>640/(395) 30/(30)</p>	<p>100/(150) 440/(101) 60/(71)</p> <p>55/(75) 170/(240) 45/(100)</p>	<p>95/(90) 410/(470)</p> <p>85/(45) 490/(585) 0/(0) 0/(0)</p>	<p>0/(35) 0/(5) 0/(5)</p> <p>0/(35) 0/(5) 0/(5)</p>	<p>225/(255) 230/(685)</p> <p>225/(275)</p> <p>670/(425)</p>	<p>245/(165) 300/(300) 85/(160)</p> <p>70/(75) 925/(560) 100/(115)</p>	<p>54</p> <p>115TH STREET MARTIN LUTHER KING JR. DRIVE</p>	<p>55</p> <p>115TH STREET COTTAGE GROVE AVENUE</p>	<p>56</p> <p>115TH STREET I-94 EASTBOUND RAMP</p>	<p>57</p> <p>115TH STREET I-94 WESTBOUND RAMP</p>	<p>60</p> <p>119TH STREET HALSTED STREET</p>	
<p>45/(60) 50/(105) 15/(25)</p> <p>25/(25) 245/(340) 5/(15)</p>	<p>35/(75) 60/(190) 10/(15)</p> <p>10/(10) 180/(245) 10/(15)</p>	<p>465/(425) 250/(360) 340/(650)</p> <p>1270/(1065) 300/(370)</p>	<p>115/(155) 140/(205) 471/(15)</p> <p>50/(60) 865/(715) 90/(120)</p>	<p>55/(45) 330/(375) 20/(75)</p> <p>20/(25) 100/(70) 45/(45)</p>	<p>80/(70) 215/(235) 25/(50)</p> <p>25/(20) 240/(120) 45/(40)</p>	<p>970/(1095) 270/(365)</p> <p>380/(430) 930/(1315)</p> <p>375/(300) 355/(340) 540/(410)</p>	<p>120/(155) 515/(725) 260/(465)</p> <p>50/(85) 225/(225) 285/(285)</p>	<p>61</p> <p>119TH STREET WENTWORTH AVENUE</p>	<p>62</p> <p>119TH STREET STATE STREET</p>	<p>64</p> <p>127TH STREET PAULINA STREET</p>	<p>65</p> <p>127TH STREET MARSHALL AVENUE</p>	<p>66</p> <p>127TH STREET ASHLAND AVENUE</p>	























**NO-BUILD (2050) INTERSECTION TRAFFIC VOLUMES**  
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<p>70/(70) 325/(615) 115/(260)</p> <p>105/(110) 175/(205) 60/(70)</p> <p>65/(60) 135/(245) 290/(465)</p> <p>80/(100) 475/(430) 410/(460)</p>	<p>100/(180) 320/(695) 80/(195)</p> <p>125/(85) 470/(475) 10/(15)</p> <p>190/(110) 455/(620) 90/(145)</p> <p>10/(10) 620/(330) 70/(120)</p>	<p>45/(70) 370/(680) 10/(35)</p> <p>15/(30) 140/(165) 75/(105)</p> <p>50/(85) 115/(250) 45/(170)</p> <p>80/(90) 670/(515) 40/(80)</p>	<p>0/(0) 0/(0) 0/(0) 5/(5)</p> <p>15/(20) 640/(605) 185/(250) 0/(0)</p> <p>50/(50) 5/(10) 15/(10) 5/(5)</p> <p>0/(5) 510/(795) 0/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0) 220/(300) 0/(0)</p>	<p>200/(230) 50/(95)</p> <p>70/(70) 645/(650)</p> <p>200/(290) 595/(875)</p>
<p><b>67</b> VERMONT STREET ASHLAND AVENUE</p>	<p><b>68</b> 127TH STREET HALSTED STREET</p>	<p><b>69</b> VERMONT STREET HALSTED STREET</p>	<p><b>70</b> 127TH STREET/VERMONT STREET/WALLACE STREET</p>	<p><b>71</b> 127TH STREET STATE STREET</p>
<p>60/(100) 150/(305)</p> <p>215/(170) 655/(620)</p> <p>60/(90) 590/(880)</p>	<p>305/(635) 20/(130)</p> <p>80/(55) 410/(200)</p> <p>530/(705) 160/(275)</p>	<p>10/(0) 695/(755) 285/(120)</p> <p>180/(150) 0/(0) 70/(60)</p> <p>0/(0) 570/(1035) 85/(40)</p>	<p>19/(27)</p> <p>102/(2) 166/(144)</p>	<p>31/(17) 4/(1) 2/(2)</p> <p>8/(2) 127/(154) 4/(2) 0/(1)</p> <p>6/(9) 2/(4) 2/(4)</p>
<p><b>72</b> 127TH STREET MICHIGAN AVENUE</p>	<p><b>73</b> 130TH STREET INDIANA AVENUE</p>	<p><b>74</b> 130TH STREET ELLIS AVENUE</p>	<p><b>75</b> OLD 130TH STREET ELLIS AVENUE</p>	<p><b>76</b> GREENWOOD AVENUE ELLIS AVENUE</p>
<p>35/(29) 6/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 39/(18)</p>	<p>17/(20) 0/(0) 0/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 14/(12)</p>	<p>12/(1) 8/(14) 10/(0) 2/(1)</p> <p>4/(0) 4/(0) 0/(0) 2/(0)</p> <p>2/(0) 15/(7) 6/(2) 2/(0)</p> <p>8/(2) 0/(0) 14/(5)</p>	<p>0/(1) 0/(14) 0/(0) 0/(1)</p> <p>0/(0) 2/(0) 0/(0)</p> <p>0/(2) 15/(0) 0/(5)</p>	<p>0/(0) 0/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0)</p> <p>0/(1) 10/(2) 4/(0) 4/(1)</p> <p>0/(0) 0/(3) 4/(1)</p>
<p><b>77</b> 130TH PLACE GREENWOOD AVENUE</p>	<p><b>78</b> 131ST STREET GREENWOOD AVENUE</p>	<p><b>79</b> 132ND STREET GREENWOOD AVENUE</p>	<p><b>80</b> 132ND STREET BEAUBIEN WOODS</p>	<p><b>81</b> 132ND STREET DOTY AVENUE</p>
<p>330/(325)</p> <p>660/(535)</p> <p>440/(620) 310/(570)</p>	<p>400/(785) 660/(535)</p> <p>440/(620)</p> <p>365/(475)</p>	<p>420/(375)</p> <p>640/(945)</p> <p>510/(755) 290/(340)</p>	<p>380/(495) 640/(945)</p> <p>510/(755)</p> <p>535/(755)</p>	
<p><b>82</b> 130TH STREET EB: I-94 EB ON-RAMP WB: I-94 EB OFF-RAMP (1 OF 4)</p>	<p><b>83</b> 130TH STREET EB: I-94 EB OFF-RAMP WB: I-94 EB ON-RAMP (2 OF 4)</p>	<p><b>84</b> 130TH STREET EB: I-94 WB ON-RAMP WB: I-94 WB OFF-RAMP (3 OF 4)</p>	<p><b>85</b> 130TH STREET EB: I-94 WB OFF-RAMP WB: I-94 WB ON-RAMP (4 OF 4)</p>	

**NO-BUILD (2050) INTERSECTION TRAFFIC VOLUMES**  
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Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	570	85	285	695	10	70	0	180	0	0	0
Future Volume (vph)	0	570	85	285	695	10	70	0	180	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1800	3109	1471	1644	3138	1366	0	1449	1443	0	2040	0
Flt Permitted				0.366				0.757				
Satd. Flow (perm)	1800	3109	1471	633	3138	1366	0	1155	1443	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		5340			1172			141			331	
Travel Time (s)		104.0			22.8			3.2			7.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	10%	4%	4%	9%	12%	18%	0%	6%	100%	0%	0%
Adj. Flow (vph)	0	594	89	297	724	10	73	0	188	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	89	297	724	10	0	73	188	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)		46.4	46.4	59.4	58.4	58.4		18.6	18.6			
Actuated g/C Ratio		0.55	0.55	0.70	0.69	0.69		0.22	0.22			
v/c Ratio		0.35	0.11	0.54	0.34	0.01		0.29	0.59			
Control Delay		12.3	11.1	9.9	6.5	5.6		29.6	37.5			
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay		12.3	11.1	9.9	6.5	5.6		29.6	37.5			
LOS		B	B	A	A	A		C	D			
Approach Delay		12.1			7.5			35.3				
Approach LOS		B			A			D				
90th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	43.0	43.0	43.0	9.6	55.6	55.6	21.4	21.4	21.4	21.4	21.4	21.4
70th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	43.9	43.9	43.9	11.2	58.1	58.1	18.9	18.9	18.9	18.9	18.9	18.9
50th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	48.3	48.3	48.3	9.4	60.7	60.7	16.3	16.3	16.3	16.3	16.3	16.3
30th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	54.0	54.0	54.0	7.5	64.5	64.5	12.5	12.5	12.5	12.5	12.5	12.5
10th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)		310	42	104	269	5		58	161			
Fuel Used(gal)		26	4	4	10	0		1	2			
CO Emissions (g/hr)		1798	265	297	699	11		57	172			
NOx Emissions (g/hr)		350	51	58	136	2		11	33			
VOC Emissions (g/hr)		417	61	69	162	2		13	40			
Dilemma Vehicles (#)		34	0	0	41	0		0	0			
Queue Length 50th (ft)		94	23	50	72	2		33	93			
Queue Length 95th (ft)		134	48	102	122	7		m67	153			
Internal Link Dist (ft)		5260			1092			61			251	
Turn Bay Length (ft)			165	165		165						
Base Capacity (vph)		1698	803	548	2155	938		326	407			
Starvation Cap Reductn		0	0	0	0	0		0	0			
Spillback Cap Reductn		0	0	0	0	0		0	0			
Storage Cap Reductn		0	0	0	0	0		0	0			
Reduced v/c Ratio		0.35	0.11	0.54	0.34	0.01		0.22	0.46			

Intersection Summary

Area Type: Other

# Lanes, Volumes, Timings

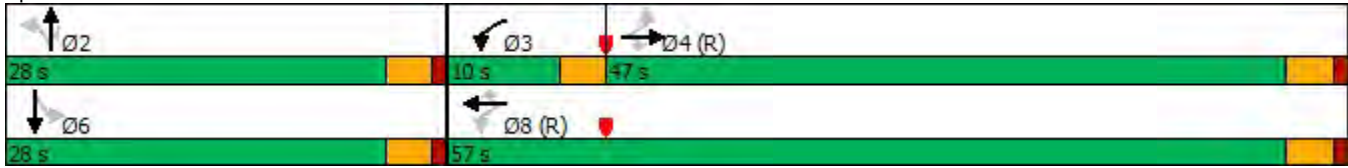
## 1: Ellis Avenue & 130th Street

AM Peak  
No Build Conditions

Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 12.7 Intersection LOS: B  
 Intersection Capacity Utilization 86.7% ICU Level of Service E  
 Analysis Period (min) 15












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

### Splits and Phases: 1: Ellis Avenue & 130th Street














Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

AM Peak  
No Build Conditions

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	19	166	102	0	296
Future Volume (vph)	0	19	166	102	0	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Fr <sub>t</sub>		0.865	0.943			
Fl <sub>t</sub> Protected						
Satd. Flow (prot)	0	1557	3225	0	0	3420
Fl <sub>t</sub> Permitted						
Satd. Flow (perm)	0	1557	3225	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	642		174			141
Travel Time (s)	14.6		4.0			3.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	21	184	113	0	329
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	21	297	0	0	329
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	18.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Ellis Avenue & Old 130th Street

AM Peak  
No Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	0	19	166	102	0	296
Future Volume (Veh/h)	0	19	166	102	0	296
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	21	184	113	0	329
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						141
pX, platoon unblocked						
vC, conflicting volume	405	148			297	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	148			297	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	579	878			1276	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	21	123	174	164	164	
Volume Left	0	0	0	0	0	
Volume Right	21	0	113	0	0	
cSH	878	1700	1700	1700	1700	
Volume to Capacity	0.02	0.07	0.10	0.10	0.10	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.2	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			18.3%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	6	2	2	2	4	31	4	127	8	87	25	135
Future Volume (vph)	6	2	2	2	4	31	4	127	8	87	25	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.975			0.885			0.992				
Flt Protected		0.969			0.998			0.999				0.978
Satd. Flow (prot)	0	1701	0	0	1590	0	0	1727	0	0	0	1737
Flt Permitted		0.969			0.998			0.999				0.978
Satd. Flow (perm)	0	1701	0	0	1590	0	0	1727	0	0	0	1737
Link Speed (mph)		30			30			30				30
Link Distance (ft)		472			392			265				174
Travel Time (s)		10.7			8.9			6.0				4.0
Confl. Peds. (#/hr)			4	4		1			1	4	1	
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%	0%	0%	0%	0%	0%	0%	2%	25%	0%	8%	1%
Adj. Flow (vph)	7	2	2	2	4	34	4	141	9	97	28	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	40	0	0	154	0	0	0	275
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.6%
ICU Level of Service	A
Analysis Period (min)	15



Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

AM Peak  
 No Build Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	1800
Flt Permitted	
Satd. Flow (perm)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	4
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

AM Peak  
No Build Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (veh/h)	6	2	2	2	4	31	4	127	8	87	25	135
Future Volume (Veh/h)	6	2	2	2	4	31	4	127	8	87	25	135
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	7	2	2	2	4	34	4	141	9	0	28	150
Pedestrians		4			1			4				1
Lane Width (ft)		12.0			12.0			12.0				12.0
Walking Speed (ft/s)		4.0			4.0			4.0				4.0
Percent Blockage		0			0			0				0
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												315
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99			0.00		
vC, conflicting volume	400	369	158	368	364	148	154			0	151	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	385	353	139	351	348	148	135			0	151	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			0.0	4.2	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			0.0	2.3	
p0 queue free %	99	100	100	100	99	96	100			0	98	
cM capacity (veh/h)	531	552	896	581	555	903	1437			0	1393	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	11	40	154	178	0							
Volume Left	7	2	4	28	0							
Volume Right	2	34	9	0	0							
cSH	578	828	1437	1393	1700							
Volume to Capacity	0.02	0.05	0.00	0.02	0.00							
Queue Length 95th (ft)	1	4	0	2	0							
Control Delay (s)	11.3	9.6	0.2	1.3	0.0							
Lane LOS	B	A	A	A								
Approach Delay (s)	11.3	9.6	0.2	1.3								
Approach LOS	B	A										
<b>Intersection Summary</b>												
Average Delay			2.0									
Intersection Capacity Utilization			36.6%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue

AM Peak  
 No Build Conditions

Movement	SBR
Lane Configurations	7
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

AM Peak  
No Build Conditions



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	39	0	6	35
Future Volume (vph)	0	0	39	0	6	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.992
Satd. Flow (prot)	1765	0	1765	0	0	1751
Flt Permitted						0.992
Satd. Flow (perm)	1765	0	1765	0	0	1751
Link Speed (mph)	30		30			30
Link Distance (ft)	331		199			206
Travel Time (s)	7.5		4.5			4.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	42	0	7	38
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	42	0	0	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	10.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
4: Greenwood Avenue & 130th Place

AM Peak  
No Build Conditions



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	39	0	6	35
Future Volume (Veh/h)	0	0	39	0	6	35
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	42	0	7	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	94	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	42			42	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	902	1029			1567	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	42	45			
Volume Left	0	0	7			
Volume Right	0	0	0			
cSH	1700	1700	1567			
Volume to Capacity	0.00	0.02	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	1.2			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	1.2			
Approach LOS	A					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			10.7%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street










AM Peak  
No Build Conditions



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	14	0	0	17
Future Volume (vph)	0	0	14	0	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1800	0	1800	0	0	1622
Flt Permitted						
Satd. Flow (perm)	1800	0	1800	0	0	1622
Link Speed (mph)	30		30			30
Link Distance (ft)	383		252			706
Travel Time (s)	8.7		5.7			16.0
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	11%
Adj. Flow (vph)	0	0	16	0	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	16	0	0	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	7.6%			ICU Level of Service A		
Analysis Period (min)	15					

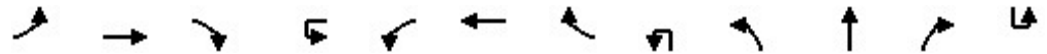
HCM Unsignalized Intersection Capacity Analysis  
5: Greenwood Avenue & 131st Street

AM Peak  
No Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	14	0	0	17
Future Volume (Veh/h)	0	0	14	0	0	17
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	16	0	0	19
Pedestrians	3		3			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	41	19			19	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	41	19			19	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	971	1062			1607	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	16	19			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1607			
Volume to Capacity	0.00	0.01	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			7.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations		↕				↕				↕		
Traffic Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Frt		0.914				0.946				0.990		
Flt Protected		0.982				0.990				0.984		
Satd. Flow (prot)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Flt Permitted		0.982				0.990				0.984		
Satd. Flow (perm)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Link Speed (mph)		30				30				30		
Link Distance (ft)		303				1025				274		
Travel Time (s)		6.9				23.3				6.2		
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Adj. Flow (vph)	9	0	16	2	0	4	4	2	7	17	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	0	10	0	0	0	28	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	R NA	Left	Left	Right	R NA
Median Width(ft)		0				0				0		
Link Offset(ft)		0				0				0		
Crosswalk Width(ft)		16				16				16		
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	9	15		9	9	15		9	9
Sign Control		Stop				Stop				Free		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15



Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
No Build Conditions


















Lane Group	SBL	SBT	SBR
Lane Configurations		↕	
Traffic Volume (vph)	10	8	12
Future Volume (vph)	10	8	12
Ideal Flow (vphpl)	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00
Fr <sub>t</sub>		0.950	
Fl <sub>t</sub> Protected		0.982	
Satd. Flow (prot)	0	1578	0
Fl <sub>t</sub> Permitted		0.982	
Satd. Flow (perm)	0	1578	0
Link Speed (mph)		30	
Link Distance (ft)		252	
Travel Time (s)		5.7	
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	25%	0%
Adj. Flow (vph)	11	9	13
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	35	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		0	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	15		9
Sign Control		Free	
<b>Intersection Summary</b>			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Greenwood Avenue & 132nd Street

AM Peak  
No Build Conditions

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (Veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Sign Control		Stop				Stop				Free		
Grade		0%				0%				0%		
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
Hourly flow rate (vph)	9	0	16	0	0	4	4	0	7	17	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked				0.00				0.00				0.00
vC, conflicting volume	76	70	16	0	86	76	18	0	22			0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	76	70	16	0	86	76	18	0	22			0
tC, single (s)	7.1	6.5	6.2	0.0	7.1	6.5	6.2	0.0	4.1			0.0
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	0.0	3.5	4.0	3.3	0.0	2.2			0.0
p0 queue free %	99	100	99	0	100	100	100	0	100			0
cM capacity (veh/h)	905	815	1070	0	884	809	1066	0	1607			0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	25	8	26	33								
Volume Left	9	0	7	11								
Volume Right	16	4	2	13								
cSH	1004	920	1607	1611								
Volume to Capacity	0.02	0.01	0.00	0.01								
Queue Length 95th (ft)	2	1	0	1								
Control Delay (s)	8.7	8.9	2.0	2.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	8.9	2.0	2.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			13.3%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
6: Greenwood Avenue & 132nd Street

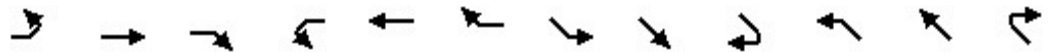
AM Peak  
No Build Conditions



Movement	SBL	SBT	SBR
Lane Configurations		↔	
Traffic Volume (veh/h)	10	8	12
Future Volume (Veh/h)	10	8	12
Sign Control		Free	
Grade		0%	
Peak Hour Factor	0.90	0.90	0.90
Hourly flow rate (vph)	11	9	13
Pedestrians			
Lane Width (ft)			
Walking Speed (ft/s)			
Percent Blockage			
Right turn flare (veh)			
Median type		None	
Median storage (veh)			
Upstream signal (ft)			
pX, platoon unblocked			
vC, conflicting volume	19		
vC1, stage 1 conf vol			
vC2, stage 2 conf vol			
vCu, unblocked vol	19		
tC, single (s)	4.1		
tC, 2 stage (s)			
tF (s)	2.2		
p0 queue free %	99		
cM capacity (veh/h)	1611		
Direction, Lane #			

Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

AM Peak  
No Build Conditions



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
<b>Fr t</b>												
<b>Flt Protected</b>												
Satd. Flow (prot)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
<b>Flt Permitted</b>												
Satd. Flow (perm)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1025			255			543			489	
Travel Time (s)		23.3			5.8			12.3			11.1	
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%	63%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
<b>Shared Lane Traffic (%)</b>												
Lane Group Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
<b>Two way Left Turn Lane</b>												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
ICU Level of Service	A
Analysis Period (min)	15

















HCM Unsignalized Intersection Capacity Analysis  
 7: Beaubien Woods Driveway & 132nd Street

AM Peak  
 No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2			17			19	19	2	19	19	17
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2			17			19	19	2	19	19	17
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1634			1613			1000	879	1088	1000	879	1068
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	17	2	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1634	1613	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			6.7%		ICU Level of Service			A				
Analysis Period (min)			15									

Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.972									0.932	
Fl <sub>t</sub> Protected		0.972						0.950				
Satd. Flow (prot)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Fl <sub>t</sub> Permitted		0.972						0.950				
Satd. Flow (perm)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		275			334			409			294	
Travel Time (s)		6.3			7.6			9.3			6.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	4	4	0	0	0	4	0	0	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	0	0	0	4	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	13.5%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 8: Doty Avenue & 132nd Street/School Driveway

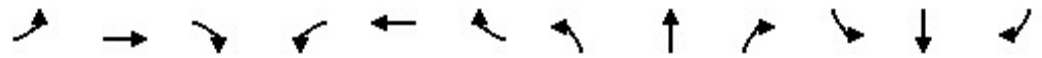
AM Peak  
 No Build Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
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
Hourly flow rate (vph)	11	4	4	0	0	0	4	0	0	0	2	2
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	19	0	4	4								
Volume Left (vph)	11	0	4	0								
Volume Right (vph)	4	0	0	2								
Hadj (s)	0.02	0.00	0.23	-0.27								
Departure Headway (s)	3.9	3.9	4.2	3.7								
Degree Utilization, x	0.02	0.00	0.00	0.00								
Capacity (veh/h)	905	900	845	968								
Control Delay (s)	7.0	6.9	7.2	6.7								
Approach Delay (s)	7.0	0.0	7.2	6.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.0									
Level of Service			A									
Intersection Capacity Utilization			13.5%	ICU Level of Service	A							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1270	10	35	730	70	0	0	0	665	10	460
Future Volume (vph)	35	1270	10	35	730	70	0	0	0	665	10	460
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.83	1.00		1.00		0.49				0.98		0.97
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4720	0	1710	3138	765	0	1800	0	3100	1392	1409
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	711	4720	0	1706	3138	373	0	1800	0	3032	1392	1361
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		808			328			758				669
Travel Time (s)		18.4			7.5			17.2				15.2
Confl. Peds. (#/hr)	354		13	13		354	22		22	22		22
Confl. Bikes (#/hr)	4					4			1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	4%	0%	0%	9%	100%	0%	0%	0%	7%	25%	5%
Adj. Flow (vph)	38	1366	11	38	785	75	0	0	0	715	11	495
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1377	0	38	785	75	0	0	0	715	11	495
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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



Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

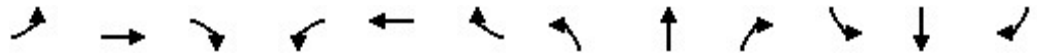
AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	71.1		7.9	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.55		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.58	0.53		0.37	0.49	0.31				0.77	0.03	0.96
Control Delay	92.1	20.3		52.9	46.9	20.8				47.9	32.5	69.5
Queue Delay	0.0	0.1		0.0	52.7	0.0				5.7	0.0	0.0
Total Delay	92.1	20.4		52.9	99.5	20.8				53.7	32.5	69.5
LOS	F	C		D	F	C				D	C	E
Approach Delay		22.3			91.0						59.9	
Approach LOS		C			F						E	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	68.7		8.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	70.0		7.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	32	794		35	614	44				595	9	513
Fuel Used(gal)	1	18		1	12	1				13	0	12
CO Emissions (g/hr)	74	1241		46	855	50				926	12	821
NOx Emissions (g/hr)	14	241		9	166	10				180	2	160
VOC Emissions (g/hr)	17	288		11	198	12				215	3	190
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	32	273		33	314	25				282	7	371

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

AM Peak  
 No Build Conditions

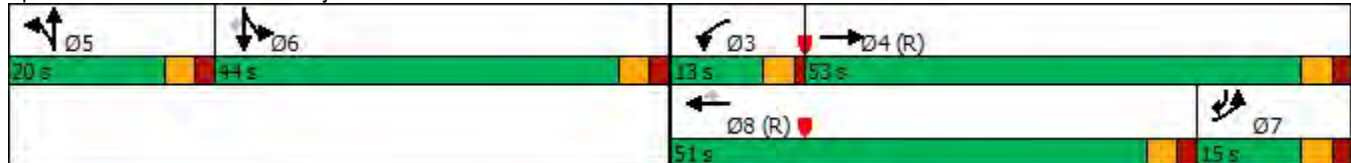


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#86	321		m37	m341	m27				356	22	#631
Internal Link Dist (ft)		728			248			678			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2583		118	1593	239				930	417	516
Starvation Cap Reductn	0	0		0	963	0				0	0	0
Spillback Cap Reductn	0	240		0	0	0				162	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.58	0.59		0.32	1.25	0.31				0.93	0.03	0.96

Intersection Summary























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 110 (85%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 52.8  
 Intersection LOS: D  
 Intersection Capacity Utilization 80.8%  
 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: 1002: Lafayette Avenue & 95th Street



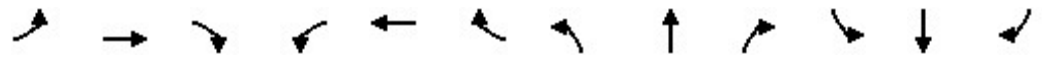
Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	1130	170	30	615	365	180	705	85	60	0	40
Future Volume (vph)	630	1130	170	30	615	365	180	705	85	60	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.77	0.99		1.00		0.65		1.00	0.95	0.99		
Frt		0.980				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	3190	3103	0	1503	2923	1409	0	3190	1600	855	0	765
Flt Permitted	0.950			0.950				0.990		0.950		
Satd. Flow (perm)	2453	3103	0	1497	2923	917	0	3186	1523	846	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				50			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		328			972			10386				681
Travel Time (s)		7.5			18.9			236.0				15.5
Confl. Peds. (#/hr)	425		21	21		425	6		34	34		6
Confl. Bikes (#/hr)	1					1						
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 (%)	4%	8%	3%	10%	17%	5%	1%	3%	2%	100%	0%	100%
Adj. Flow (vph)	670	1202	181	32	654	388	191	750	90	64	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	670	1383	0	32	654	388	0	941	90	64	0	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			

Lanes, Volumes, Timings  
1003: State Street & 95th Street

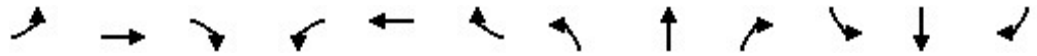
AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	54.0		11.0	37.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	32.0	54.0		15.0	37.0	20.0	41.0	41.0	15.0	20.0		20.0
Total Split (%)	24.6%	41.5%		11.5%	28.5%	15.4%	31.5%	31.5%	11.5%	15.4%		15.4%
Maximum Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		21.0			7.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	28.0	49.0		10.0	32.0	47.0		36.0	46.0	15.0		15.0
Actuated g/C Ratio	0.22	0.38		0.08	0.25	0.36		0.28	0.35	0.12		0.12
v/c Ratio	0.98	1.17		0.28	0.91	0.92		1.07	0.15	0.65		0.21
Control Delay	66.3	119.7		63.2	65.5	49.0		94.5	5.9	85.3		2.3
Queue Delay	39.7	0.0		0.0	1.6	0.0		17.7	0.0	0.0		0.8
Total Delay	106.0	119.7		63.2	67.1	49.0		112.2	5.9	85.3		3.0
LOS	F	F		E	E	D		F	A	F		A
Approach Delay		115.2			60.4			102.9				52.2
Approach LOS		F			E			F				D
90th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
90th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
70th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
50th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
50th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
30th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
30th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
10th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
10th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
Stops (vph)	572	848		29	561	250		792	24	54		0
Fuel Used(gal)	13	40		1	17	8		95	7	2		0
CO Emissions (g/hr)	928	2774		57	1169	565		6649	511	116		16
NOx Emissions (g/hr)	181	540		11	228	110		1294	99	23		3
VOC Emissions (g/hr)	215	643		13	271	131		1541	119	27		4
Dilemma Vehicles (#)	0	0		0	23	0		0	0	0		0
Queue Length 50th (ft)	272	~717		26	283	127		~467	1	52		0
Queue Length 95th (ft)	#407	#881		61	#394	#339		#603	33	#124		0
Internal Link Dist (ft)		248			892			10306				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	687	1178		115	719	420		883	604	98		206
Starvation Cap Reductn	97	3		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
No Build Conditions

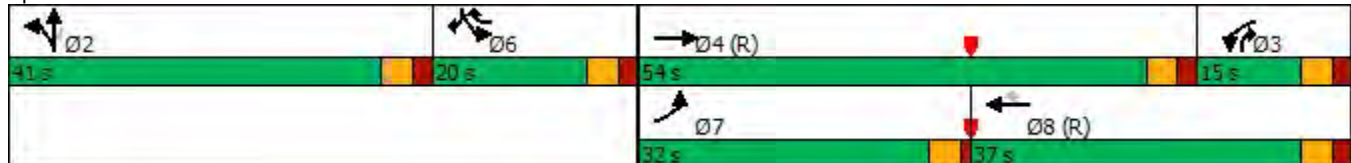


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	16	0		403	0	0		56
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	1.14	1.18		0.28	0.93	0.92		1.96	0.15	0.65		0.29

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green
Natural Cycle:	125
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.17
Intersection Signal Delay:	96.9
Intersection LOS:	F
Intersection Capacity Utilization	97.0%
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.	

Splits and Phases: 1003: State Street & 95th Street



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	390	130	85	350	145	140	1630	125	75	505	105
Future Volume (vph)	130	390	130	85	350	145	140	1630	125	75	505	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99	0.98		0.99		0.97	1.00		0.96
Frt		0.962			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1613	1872	0	1710	1814	0	1506	3099	1324	1425	2956	1324
Flt Permitted	0.125			0.292			0.350			0.095		
Satd. Flow (perm)	212	1872	0	519	1814	0	549	3099	1283	142	2956	1265
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			20				83			113
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304			1099	
Travel Time (s)		15.1			46.3			120.5			25.0	
Confl. Peds. (#/hr)	42		39	39		42	20		8	8		20
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	4%	3%	0%	6%	5%	6%	3%	4%	8%	8%	4%
Adj. Flow (vph)	140	419	140	91	376	156	151	1753	134	81	543	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	559	0	91	532	0	151	1753	134	81	543	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		53.0	44.8	44.8	51.3	42.3	42.3
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.50	0.43	0.43	0.49	0.40	0.40
v/c Ratio	0.63	0.74		0.64	1.03		0.42	1.33	0.23	0.49	0.46	0.20
Control Delay	33.4	32.8		55.8	85.4		17.3	180.2	9.8	24.5	24.6	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	32.8		55.8	85.4		17.3	180.2	9.8	24.5	24.6	4.8
LOS	C	C		E	F		B	F	A	C	C	A
Approach Delay		32.9			81.1			156.9			21.5	
Approach LOS		C			F			F			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.5	42.5	8.5	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	43.6	43.6	7.4	42.0	42.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		7.5	54.0	54.0	0.0	43.5	43.5
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Skip	Coord	Coord
Stops (vph)	81	422		74	409		73	1228	35	39	358	13
Fuel Used(gal)	2	8		3	19		7	134	6	1	9	1
CO Emissions (g/hr)	140	593		190	1309		467	9366	392	86	617	75
NOx Emissions (g/hr)	27	115		37	255		91	1822	76	17	120	15
VOC Emissions (g/hr)	32	138		44	303		108	2171	91	20	143	17
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	59	304		54	~375		51	~831	21	26	138	0
Queue Length 95th (ft)	#116	437		#131	#585		88	#975	62	58	187	34
Internal Link Dist (ft)		583			1956			5224			1019	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	222	760		143	515		359	1322	595	180	1190	576
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

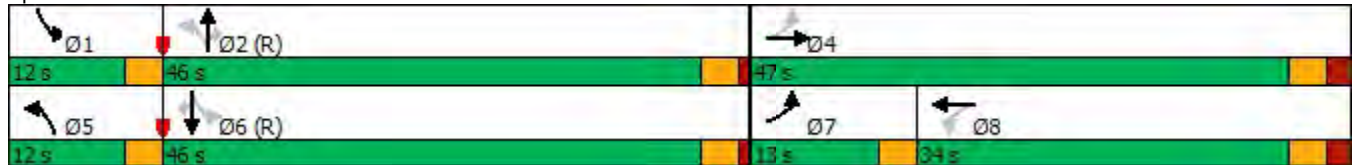
AM Peak  
 No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.63	0.74		0.64	1.03		0.42	1.33	0.23	0.45	0.46	0.20

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	86 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.33
Intersection Signal Delay:	99.9
Intersection LOS:	F
Intersection Capacity Utilization	111.1%
ICU Level of Service	H
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.	




















Splits and Phases: 1016: Halsted Street & 103rd Street





Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	500	65	55	440	55	70	65	60	0	0	0
Future Volume (vph)	65	500	65	55	440	55	70	65	60	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.958				
Fl <sub>t</sub> Protected	0.950			0.950				0.982				
Satd. Flow (prot)	1520	1543	1311	1520	1543	1311	0	1774	0	0	0	0
Fl <sub>t</sub> Permitted	0.438			0.393				0.982				
Satd. Flow (perm)	701	1543	1311	629	1543	1311	0	1774	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			70			59		32				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2036			1955			343				764
Travel Time (s)		46.3			44.4			7.8				17.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	70	538	70	59	473	59	75	70	65	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	538	70	59	473	59	0	210	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

AM Peak  
No Build Conditions

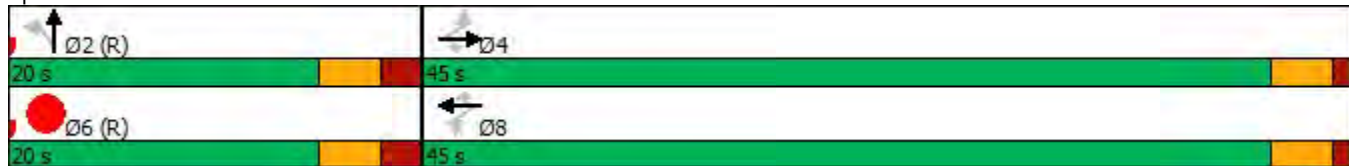


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.16	0.55	0.08	0.15	0.49	0.07		0.48				
Control Delay	6.0	9.5	1.7	6.0	8.5	1.7		22.6				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	6.0	9.5	1.7	6.0	8.5	1.7		22.6				
LOS	A	A	A	A	A	A		C				
Approach Delay		8.3			7.6			22.6				
Approach LOS		A			A			C				
Stops (vph)	26	268	7	22	220	7		141				
Fuel Used(gal)	1	10	1	1	9	1		2				
CO Emissions (g/hr)	88	726	76	72	607	63		154				
NOx Emissions (g/hr)	17	141	15	14	118	12		30				
VOC Emissions (g/hr)	20	168	18	17	141	15		36				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	10	103	0	8	86	0		60				
Queue Length 95th (ft)	25	179	11	22	146	11		119				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	442	973	852	396	973	848		434				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.16	0.55	0.08	0.15	0.49	0.07		0.48				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 10.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.5%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 1017: Normal Avenue & 103rd Street



Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	520	70	35	460	45	55	180	105	65	260	35
Future Volume (vph)	25	520	70	35	460	45	55	180	105	65	260	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99	0.97		0.99	
Frt		0.982			0.987				0.850		0.987	
Flt Protected	0.950			0.950				0.988			0.991	
Satd. Flow (prot)	1596	1605	0	1341	1623	0	0	1685	1515	0	1777	0
Flt Permitted	0.365			0.301				0.820			0.899	
Satd. Flow (perm)	606	1605	0	423	1623	0	0	1383	1473	0	1611	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			11				111			8
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1955			4661			5190				1320
Travel Time (s)		44.4			105.9			118.0				30.0
Confl. Peds. (#/hr)	33		15	15		33	68		5	5		68
Confl. Bikes (#/hr)	4					4						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	14%	19%	5%	9%	2%	2%	1%	10%	7%	8%
Adj. Flow (vph)	26	547	74	37	484	47	58	189	111	68	274	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	621	0	37	531	0	0	247	111	0	379	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2		6	
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	37.3%
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	13.0

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

AM Peak  
No Build Conditions

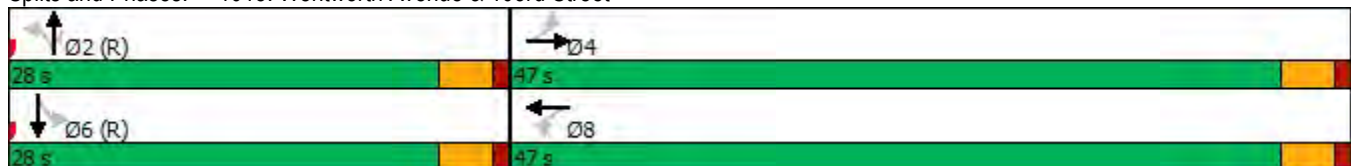


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0		24.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32		0.32	
v/c Ratio	0.07	0.67		0.15	0.57			0.56	0.20		0.73	
Control Delay	7.9	15.3		9.5	12.9			27.0	5.2		32.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	7.9	15.3		9.5	12.9			27.0	5.2		32.0	
LOS	A	B		A	B			C	A		C	
Approach Delay		15.0			12.7			20.2			32.0	
Approach LOS		B			B			C			C	
Stops (vph)	13	390		17	300			192	17		300	
Fuel Used(gal)	0	13		1	21			12	5		8	
CO Emissions (g/hr)	34	908		100	1488			852	322		539	
NOx Emissions (g/hr)	7	177		19	290			166	63		105	
VOC Emissions (g/hr)	8	210		23	345			197	75		125	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	5	178		7	139			94	0		151	
Queue Length 95th (ft)	16	293		22	227			166	33		#275	
Internal Link Dist (ft)		1875			4581			5110			1240	
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	347	926		242	935			442	546		520	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.07	0.67		0.15	0.57			0.56	0.20		0.73	

Intersection Summary

























Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 18.6 Intersection LOS: B  
 Intersection Capacity Utilization 86.8% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1018: Wentworth Avenue & 103rd Street



Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	170	275	75	60	195	120	40	1050	55	100	540	50
Future Volume (vph)	170	275	75	60	195	120	40	1050	55	100	540	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.98		0.99		0.98	1.00		0.97
Frt		0.978			0.952				0.850			0.850
Flt Protected		0.984			0.992		0.950			0.950		
Satd. Flow (prot)	0	2845	0	0	2773	0	1506	3069	1377	1550	2956	1311
Flt Permitted		0.658			0.800		0.353			0.125		
Satd. Flow (perm)	0	1888	0	0	2234	0	555	3069	1352	204	2956	1270
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			98				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1044			375			2662				5304
Travel Time (s)		23.7			8.5			60.5				120.5
Confl. Peds. (#/hr)	49		20	20		49	26		8	8		26
Confl. Bikes (#/hr)	2					2						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	7%	4%	9%	7%	5%	6%	4%	0%	3%	8%	5%
Adj. Flow (vph)	175	284	77	62	201	124	41	1082	57	103	557	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	536	0	0	387	0	41	1082	57	103	557	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.62			0.48		0.14	0.89	0.10	0.68	0.48	0.09
Control Delay		21.1			19.0		16.2	28.5	3.3	38.4	20.9	0.9
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.1			19.0		16.2	28.5	3.3	38.4	20.9	0.9
LOS		C			B		B	C	A	D	C	A
Approach Delay		21.1			19.0			26.9			22.0	
Approach LOS		C			B			C			C	
Stops (vph)		336			218		22	582	6	53	387	1
Fuel Used(gal)		8			8		1	31	1	5	27	2
CO Emissions (g/hr)		582			588		76	2174	85	364	1871	146
NOx Emissions (g/hr)		113			114		15	423	16	71	364	28
VOC Emissions (g/hr)		135			136		18	504	20	84	434	34
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		97			62		12	173	1	29	114	0
Queue Length 95th (ft)		141			105		m15	m#232	m3	#80	161	4
Internal Link Dist (ft)		964			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		860			801		286	1209	587	152	1165	556
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.62			0.48		0.14	0.89	0.10	0.68	0.48	0.09

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 58 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 23.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 101.5%  
 ICU Level of Service G  
 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: 1034: Halsted Street & 111th Street





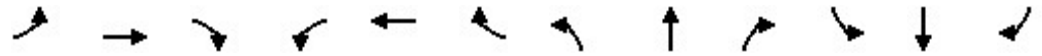
Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	420	0	0	345	85	30	65	105	0	0	0
Future Volume (vph)	45	420	0	0	345	85	30	65	105	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.973			0.929				
Fl <sub>t</sub> Protected		0.995						0.993				
Satd. Flow (prot)	0	1706	0	0	1668	0	0	1581	0	0	0	0
Fl <sub>t</sub> Permitted		0.932						0.993				
Satd. Flow (perm)	0	1598	0	0	1668	0	0	1581	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34			85				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	48	452	0	0	371	91	32	70	113	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	500	0	0	462	0	0	215	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.52			0.46			0.43				
Control Delay		10.0			3.4			14.7				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
 1035: Normal Avenue & 111th Street

AM Peak  
 No Build Conditions

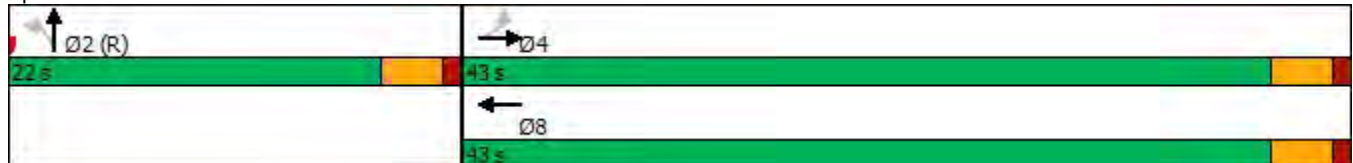


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		10.0			3.4			14.7				
LOS		B			A			B				
Approach Delay		10.0			3.4			14.7				
Approach LOS		B			A			B				
Stops (vph)		256			46			100				
Fuel Used(gal)		9			7			2				
CO Emissions (g/hr)		663			508			167				
NOx Emissions (g/hr)		129			99			33				
VOC Emissions (g/hr)		154			118			39				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		101			20			40				
Queue Length 95th (ft)		172			27			95				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		958			1014			499				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.52			0.46			0.43				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	8.3
Intersection LOS:	A
Intersection Capacity Utilization	72.7%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	420	35	20	360	50	20	190	40	65	135	25
Future Volume (vph)	50	420	35	20	360	50	20	190	40	65	135	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.991			0.984			0.976			0.983	
Flt Protected		0.995			0.998			0.996			0.986	
Satd. Flow (prot)	0	1888	0	0	1835	0	0	3081	0	0	3056	0
Flt Permitted		0.926			0.970			0.926			0.815	
Satd. Flow (perm)	0	1755	0	0	1783	0	0	2859	0	0	2517	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			13			42			26	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			181			180	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	29		16	16		29	28		14	14		28
Confl. Bikes (#/hr)	1					1	1					1
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 (%)	3%	7%	4%	12%	8%	13%	0%	4%	4%	4%	4%	6%
Adj. Flow (vph)	53	447	37	21	383	53	21	202	43	69	144	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	537	0	0	457	0	0	266	0	0	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	

Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

AM Peak  
No Build Conditions

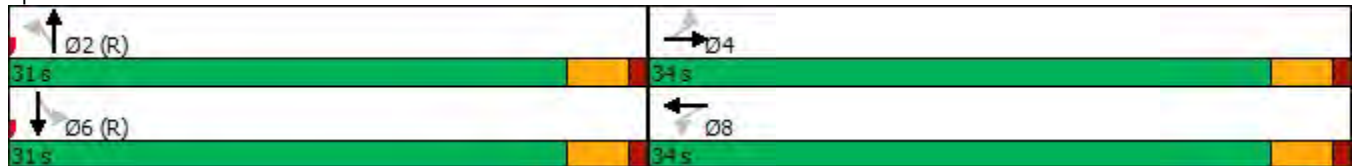


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.66			0.55			0.22			0.23	
Control Delay		18.5			7.4			8.2			11.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.5			7.4			8.2			11.6	
LOS		B			A			A			B	
Approach Delay		18.5			7.4			8.2			11.6	
Approach LOS		B			A			A			B	
Stops (vph)		308			129			143			121	
Fuel Used(gal)		11			6			6			11	
CO Emissions (g/hr)		803			402			446			745	
NOx Emissions (g/hr)		156			78			87			145	
VOC Emissions (g/hr)		186			93			103			173	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		137			38			13			27	
Queue Length 95th (ft)		238			46			25			49	
Internal Link Dist (ft)		1924			812			101			100	
Turn Bay Length (ft)												
Base Capacity (vph)		814			829			1212			1060	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.66			0.55			0.22			0.23	

Intersection Summary





















Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	12.2
Intersection LOS:	B
Intersection Capacity Utilization:	100.3%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 1036: Wentworth Avenue & 111th Street



Lanes, Volumes, Timings  
1037: State Street & 111th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	280	20	40	385	85	50	335	95	50	100	20
Future Volume (vph)	55	280	20	40	385	85	50	335	95	50	100	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99		0.99	1.00		1.00	1.00	
Frt		0.990			0.973			0.967			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	2936	0	1596	2932	0	1506	3033	0	1596	2946	0
Flt Permitted	0.397			0.548			0.671			0.480		
Satd. Flow (perm)	629	2936	0	909	2932	0	1058	3033	0	805	2946	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			44			87			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		418			546			2651			298	
Travel Time (s)		9.5			12.4			60.3			6.8	
Confl. Peds. (#/hr)	25		14	14		25	12		4	4		12
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	7%	12%	0%	6%	2%	6%	1%	3%	0%	4%	12%
Adj. Flow (vph)	59	298	21	43	410	90	53	356	101	53	106	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	319	0	43	500	0	53	457	0	53	127	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	

Lanes, Volumes, Timings  
1037: State Street & 111th Street

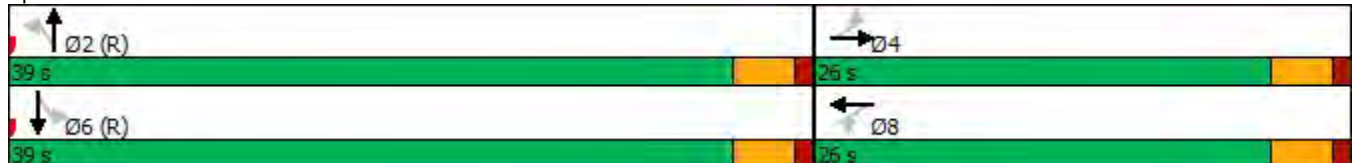
AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.28	0.32		0.14	0.49		0.09	0.27		0.12	0.08	
Control Delay	14.0	10.9		12.6	13.9		5.3	4.8		9.6	8.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.0	10.9		12.6	13.9		5.3	4.8		9.6	8.0	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		11.4			13.8			4.9			8.5	
Approach LOS		B			B			A			A	
Stops (vph)	36	157		32	364		24	176		26	55	
Fuel Used(gal)	1	5		0	5		1	10		4	10	
CO Emissions (g/hr)	64	321		31	374		85	719		308	728	
NOx Emissions (g/hr)	12	63		6	73		17	140		60	142	
VOC Emissions (g/hr)	15	74		7	87		20	167		71	169	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	15	41		13	84		4	10		23	25	
Queue Length 95th (ft)	m22	m55		m36	131		m9	27		m24	m24	
Internal Link Dist (ft)		338			466			2571			218	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	212	1001		307	1021		569	1673		433	1596	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.32		0.14	0.49		0.09	0.27		0.12	0.08	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.49  
 Intersection Signal Delay: 9.8      Intersection LOS: A  
 Intersection Capacity Utilization 67.5%      ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street



Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	400	25	50	430	110	15	380	55	50	150	50
Future Volume (vph)	85	400	25	50	430	110	15	380	55	50	150	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.98	0.99			0.99			0.99	
Frt		0.991			0.969			0.982			0.970	
Flt Protected	0.950			0.950				0.998			0.990	
Satd. Flow (prot)	1425	3011	0	1350	2919	0	0	2831	0	0	2727	0
Flt Permitted	0.396			0.472				0.943			0.817	
Satd. Flow (perm)	585	3011	0	658	2919	0	0	2672	0	0	2246	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			67			28			53	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			835			277			230	
Travel Time (s)		12.4			19.0			6.3			5.2	
Confl. Peds. (#/hr)	53		34	34		53	67		28	28		67
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 (%)	8%	5%	0%	14%	6%	1%	0%	9%	20%	5%	15%	5%
Adj. Flow (vph)	90	426	27	53	457	117	16	404	59	53	160	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	453	0	53	574	0	0	479	0	0	266	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

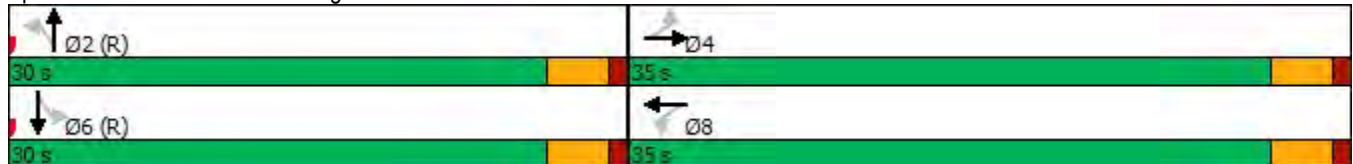
AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.32	0.31		0.17	0.40			0.44			0.29	
Control Delay	20.0	16.4		11.5	10.6			10.9			11.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	20.0	16.4		11.5	10.6			10.9			11.4	
LOS	B	B		B	B			B			B	
Approach Delay		17.0			10.7			10.9			11.4	
Approach LOS		B			B			B			B	
Stops (vph)	70	336		29	289			326			129	
Fuel Used(gal)	1	5		1	6			12			2	
CO Emissions (g/hr)	76	356		42	439			851			122	
NOx Emissions (g/hr)	15	69		8	85			166			24	
VOC Emissions (g/hr)	18	82		10	102			197			28	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	31	76		11	63			29			28	
Queue Length 95th (ft)	63	101		31	97			70			52	
Internal Link Dist (ft)		466			755			197			150	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	279	1443		313	1427			1085			930	
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	0.32	0.31		0.17	0.40			0.44			0.29	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.44  
 Intersection Signal Delay: 12.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 87.3%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 1038: Michigan Avenue & 111th Street





Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	255	50	65	225	80	75	1050	75	75	425	80
Future Volume (vph)	215	255	50	65	225	80	75	1050	75	75	425	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99		0.99	1.00		1.00	0.99	
Frt		0.975			0.961			0.990			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3002	0	1596	2892	0	1494	3446	0	1494	3348	0
Flt Permitted	0.517			0.517			0.376			0.125		
Satd. Flow (perm)	836	3002	0	865	2892	0	584	3446	0	196	3348	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			62			10			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	31		7	7		31	37		12	12		37
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	0%	0%	6%	2%	3%	5%	0%	3%	6%	4%
Adj. Flow (vph)	226	268	53	68	237	84	79	1105	79	79	447	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	226	321	0	68	321	0	79	1184	0	79	531	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		9.4%	43.5%		9.4%	43.5%	
Maximum Green (s)	5.0	27.0		5.0	27.0		5.0	33.0		5.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			21.0			21.0	

Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	33.0		37.0	33.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.39		0.44	0.39	
v/c Ratio	0.65	0.32		0.19	0.32		0.27	0.88		0.54	0.40	
Control Delay	29.5	20.4		16.5	18.1		14.9	33.4		38.8	14.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	20.4		16.5	18.1		14.9	33.4		38.8	14.8	
LOS	C	C		B	B		B	C		D	B	
Approach Delay		24.2			17.8			32.2			17.9	
Approach LOS		C			B			C			B	
Stops (vph)	177	199		40	178		43	966		59	317	
Fuel Used(gal)	5	6		2	12		2	36		2	14	
CO Emissions (g/hr)	315	387		171	807		141	2535		173	960	
NOx Emissions (g/hr)	61	75		33	157		27	493		34	187	
VOC Emissions (g/hr)	73	90		40	187		33	588		40	222	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	79	60		21	53		22	300		27	54	
Queue Length 95th (ft)	134	94		46	87		46	#428		m#73	106	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	349	1008		360	994		297	1343		146	1318	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.65	0.32		0.19	0.32		0.27	0.88		0.54	0.40	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 13 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 25.6 Intersection LOS: C  
 Intersection Capacity Utilization 86.0% ICU Level of Service E  
 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: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↖	↗
Traffic Volume (vph)	50	325	25	20	275	10	45	155	35	25	75	55
Future Volume (vph)	50	325	25	20	275	10	45	155	35	25	75	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.993			0.997			0.989			0.988	
Satd. Flow (prot)	0	1646	1395	0	1665	1321	0	1627	1373	0	1588	1360
Flt Permitted		0.925			0.966			0.926			0.915	
Satd. Flow (perm)	0	1532	1336	0	1612	1287	0	1520	1356	0	1471	1318
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			26			17			37			58
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2476	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	5		21	21		5	9		1	1		9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	6%	7%	4%	12%	6%	1%	4%	0%	6%	5%
Adj. Flow (vph)	53	342	26	21	289	11	47	163	37	26	79	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	26	0	310	11	0	210	37	0	105	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0

Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

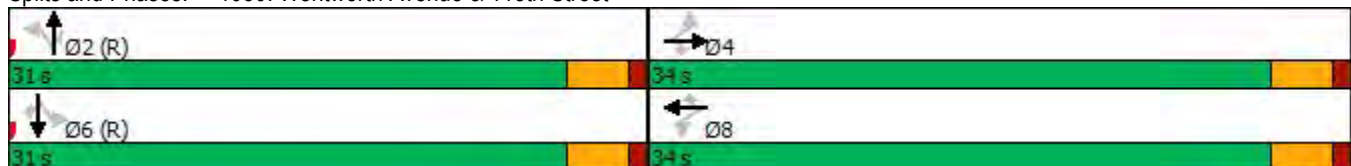
AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.56	0.04		0.42	0.02		0.33	0.06		0.17	0.10
Control Delay		16.5	4.5		7.2	0.9		15.7	4.9		11.0	2.1
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		16.5	4.5		7.2	0.9		15.7	4.9		11.0	2.1
LOS		B	A		A	A		B	A		B	A
Approach Delay		15.8			7.0			14.1			7.8	
Approach LOS		B			A			B			A	
Stops (vph)		263	7		88	0		151	13		70	13
Fuel Used(gal)		14	1		4	0		6	1		3	1
CO Emissions (g/hr)		1001	58		279	7		394	58		188	86
NOx Emissions (g/hr)		195	11		54	1		77	11		36	17
VOC Emissions (g/hr)		232	14		65	2		91	14		43	20
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		107	0		30	0		69	0		16	0
Queue Length 95th (ft)		185	11		40	m1		122	m9		m35	m2
Internal Link Dist (ft)		3325			1260			2589			2396	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		707	630		744	603		631	584		611	581
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.56	0.04		0.42	0.02		0.33	0.06		0.17	0.10

Intersection Summary

























Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	11.8
Intersection LOS:	B
Intersection Capacity Utilization:	87.2%
ICU Level of Service:	E
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street























AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	300	15	20	255	40	15	255	25	40	95	40
Future Volume (vph)	80	300	15	20	255	40	15	255	25	40	95	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.980			0.987			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	1600	1360	1520	2979	0	1520	3000	0	1520	2906	0
Flt Permitted	0.950			0.565			0.660			0.568		
Satd. Flow (perm)	1520	1600	1360	904	2979	0	1056	3000	0	909	2906	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1340			559			516			2651	
Travel Time (s)		30.5			12.7			11.7			60.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	86	323	16	22	274	43	16	274	27	43	102	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	323	16	22	317	0	16	301	0	43	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Effct Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	300	20	115	255	50	30	345	25	25	145	25
Future Volume (vph)	45	300	20	115	255	50	30	345	25	25	145	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.996			0.993	
Satd. Flow (prot)	1520	1600	1360	1520	1600	1360	0	1594	1360	0	1589	1360
Fl <sub>t</sub> Permitted	0.591			0.950				0.967			0.913	
Satd. Flow (perm)	946	1600	1360	1520	1600	1360	0	1547	1360	0	1461	1360
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			67			101			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	48	323	22	124	274	54	32	371	27	27	156	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	323	22	124	274	54	0	403	27	0	183	27
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	0.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effect Green (s)	



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

AM Peak  
No Build Conditions

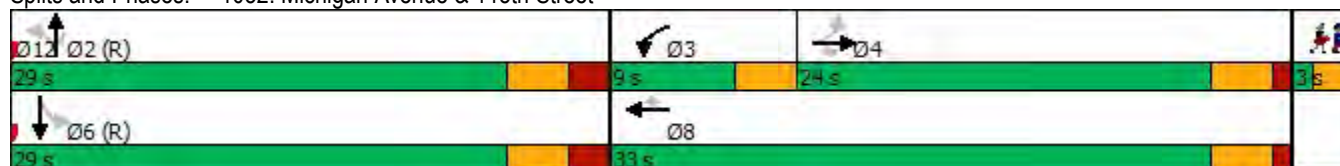


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.00
v/c Ratio	0.16	0.66	0.04	0.89	0.38	0.08		0.71	0.05		0.34	0.15
Control Delay	12.4	17.9	0.1	85.3	13.5	4.9		19.3	0.5		15.7	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	12.4	17.9	0.1	85.3	13.5	4.9		19.3	0.5		15.7	1.8
LOS	B	B	A	F	B	A		B	A		B	A
Approach Delay		16.2			32.2			18.1			13.9	
Approach LOS		B			C			B			B	
Stops (vph)	16	131	0	94	113	9		293	1		117	1
Fuel Used(gal)	0	3	0	3	3	0		27	2		5	1
CO Emissions (g/hr)	28	218	6	224	200	28		1856	110		331	37
NOx Emissions (g/hr)	5	43	1	44	39	5		361	21		64	7
VOC Emissions (g/hr)	6	51	1	52	46	6		430	25		77	9
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	8	53	0	56	45	0		120	0		53	0
Queue Length 95th (ft)	19	85	m0	m#117	m105	m9		#246	m0		84	1
Internal Link Dist (ft)		479			306			1260			2314	
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	291	492	499	140	713	643		571	565		539	185
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
Reduced v/c Ratio	0.16	0.66	0.04	0.89	0.38	0.08		0.71	0.05		0.34	0.15

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 21.3      Intersection LOS: C  
 Intersection Capacity Utilization 68.8%      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: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	315	20	80	390	80	30	110	195	0	0	0
Future Volume (vph)	20	315	20	80	390	80	30	110	195	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.921				
Fl <sub>t</sub> Protected		0.997			0.992			0.996				
Satd. Flow (prot)	0	1595	1360	0	1587	1360	0	1573	0	0	0	0
Fl <sub>t</sub> Permitted		0.962			0.882			0.996				
Satd. Flow (perm)	0	1539	1360	0	1411	1360	0	1573	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			86		112				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	22	339	22	86	419	86	32	118	210	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	361	22	0	505	86	0	360	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		37.7	37.7		37.7	37.7		18.3				
Actuated g/C Ratio		0.58	0.58		0.58	0.58		0.28				
v/c Ratio		0.40	0.03		0.62	0.10		0.69				
Control Delay		17.6	9.6		13.7	2.2		21.3				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		17.6	9.6		13.7	2.2		21.3				
LOS		B	A		B	A		C				
Approach Delay		17.2			12.1			21.3				
Approach LOS		B			B			C				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
30th %ile Green (s)	37.8	37.8	37.8	37.8	37.8	37.8	18.2	18.2				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
10th %ile Green (s)	42.9	42.9	42.9	42.9	42.9	42.9	13.1	13.1				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		226	13		307	10		205				
Fuel Used(gal)		4	0		8	1		5				
CO Emissions (g/hr)		313	16		548	64		325				
NOx Emissions (g/hr)		61	3		107	12		63				
VOC Emissions (g/hr)		72	4		127	15		75				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		104	2		126	0		81				
Queue Length 95th (ft)		158	m5		224	16		166				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

AM Peak  
 No Build Conditions

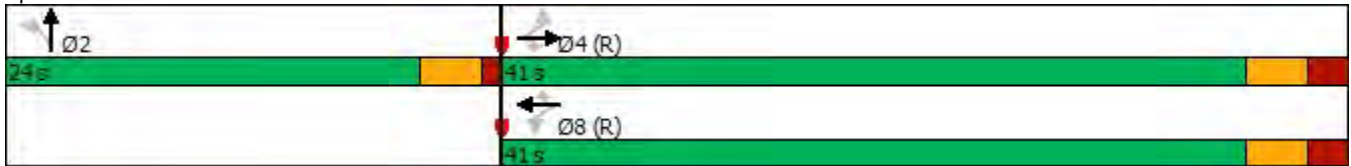


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		893	799		819	825		561				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.40	0.03		0.62	0.10		0.64				

Intersection Summary

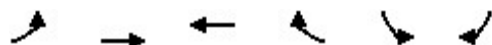
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 16.0 Intersection LOS: B  
 Intersection Capacity Utilization 81.8% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1053: Indiana Avenue & 115th Street



Lanes, Volumes, Timings  
1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
No Build Conditions



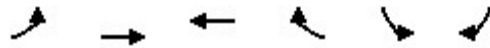
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	95	410	470	55	75	85
Future Volume (vph)	95	410	470	55	75	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.986			0.850
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	1817	1925	0	1565	1400
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	1817	1925	0	1565	1400
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	21			21	5	3
Confl. Bikes (#/hr)					2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	12%	3%	5%	0%	2%	2%
Adj. Flow (vph)	108	466	534	63	85	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	574	597	0	85	97
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	73.4%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
 No Build Conditions



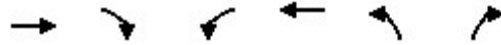
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	95	410	470	55	75	85
Future Volume (vph)	95	410	470	55	75	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	108	466	534	63	85	97

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total (vph)	574	597	85	97
Volume Left (vph)	108	0	85	0
Volume Right (vph)	0	63	0	97
Hadj (s)	0.12	0.01	0.53	-0.67
Departure Headway (s)	5.5	5.4	8.0	6.7
Degree Utilization, x	0.88	0.90	0.19	0.18
Capacity (veh/h)	641	656	438	514
Control Delay (s)	35.9	37.5	11.6	10.0
Approach Delay (s)	35.9	37.5	10.8	
Approach LOS	E	E	B	

Intersection Summary			
Delay		33.2	
Level of Service		D	
Intersection Capacity Utilization	73.4%		ICU Level of Service D
Analysis Period (min)		15	

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

AM Peak  
No Build Conditions

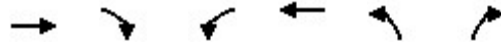


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↗		↖	↘					
Traffic Volume (vph)	540	0	30	735	0	0				
Future Volume (vph)	540	0	30	735	0	0				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt										
Flt Protected				0.998						
Satd. Flow (prot)	1600	1714	0	1437	1943	0				
Flt Permitted				0.965						
Satd. Flow (perm)	1600	1714	0	1390	1943	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)										
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%				
Parking (#/hr)				0						
Adj. Flow (vph)	581	0	32	790	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	581	0	0	822	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm	Perm	NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag										
							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0						
Actuated g/C Ratio	0.73			0.36						
v/c Ratio	0.50			1.62						



Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

AM Peak  
 No Build Conditions



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	3.3			314.4						
Queue Delay	2.9			1.2						
Total Delay	6.2			315.6						
LOS	A			F						
Approach Delay	6.2			315.6						
Approach LOS	A			F						
Stops (vph)	92			565						
Fuel Used(gal)	1			67						
CO Emissions (g/hr)	92			4673						
NOx Emissions (g/hr)	18			909						
VOC Emissions (g/hr)	21			1083						
Dilemma Vehicles (#)	0			0						
Queue Length 50th (ft)	39			~640						
Queue Length 95th (ft)	m62			#858						
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1167			506						
Starvation Cap Reductn	459			0						
Spillback Cap Reductn	0			64						
Storage Cap Reductn	0			0						
Reduced v/c Ratio	0.82			1.86						

Intersection Summary

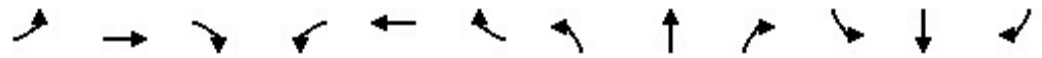
Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.62  
 Intersection Signal Delay: 187.5      Intersection LOS: F  
 Intersection Capacity Utilization 69.8%      ICU Level of Service C  
 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: 1055: Cottage Grove Avenue & 115th Street



Lanes, Volumes, Timings  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 No Build Conditions



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑	↑
Traffic Volume (vph)	0	225	230	30	640	0	0	0	0	5	0	250
Future Volume (vph)	0	225	230	30	640	0	0	0	0	5	0	250
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.924										0.850
Flt Protected					0.998						0.950	
Satd. Flow (prot)	0	3038	0	0	3191	0	0	0	0	0	1938	1471
Flt Permitted					0.998						0.950	
Satd. Flow (perm)	0	3038	0	0	3191	0	0	0	0	0	1938	1471
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	3%	5%	70%	4%	0%	0%	0%	0%	0%	0%	4%
Adj. Flow (vph)	0	239	245	32	681	0	0	0	0	5	0	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	484	0	0	713	0	0	0	0	0	5	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	225	230	30	640	0	0	0	0	5	0	250
Future Volume (Veh/h)	0	225	230	30	640	0	0	0	0	5	0	250
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	239	245	32	681	0	0	0	0	5	0	266
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	681			239			766	1106	242	864	984	340
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	681			239			766	1106	242	864	984	340
tC, single (s)	4.1			5.5			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	98	100	59
cM capacity (veh/h)	921			947			170	205	765	245	242	650
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	159	325	259	454	5	266						
Volume Left	0	0	32	0	5	0						
Volume Right	0	245	0	0	0	266						
cSH	1700	1700	947	1700	245	650						
Volume to Capacity	0.09	0.19	0.03	0.27	0.02	0.41						
Queue Length 95th (ft)	0	0	3	0	2	50						
Control Delay (s)	0.0	0.0	1.4	0.0	20.0	14.3						
Lane LOS			A		C	B						
Approach Delay (s)	0.0		0.5		14.4							
Approach LOS					B							
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			47.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

AM Peak  
 No Build Conditions



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖ ↗		↖			
Traffic Volume (vph)	225	0	670	0	0	0
Future Volume (vph)	225	0	670	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3159	0	1629	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3159	0	1629	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	242	0	720	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	242	0	720	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street
























AM Peak  
 No Build Conditions



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	225	0	670	0	0	0
Future Volume (vph)	225	0	670	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	242	0	720	0	0	0
Direction, Lane #	EB 1	EB 2	NB 1			
Volume Total (vph)	121	121	720			
Volume Left (vph)	121	121	720			
Volume Right (vph)	0	0	0			
Hadj (s)	0.58	0.58	0.29			
Departure Headway (s)	7.0	7.0	5.0			
Degree Utilization, x	0.24	0.24	0.99			
Capacity (veh/h)	511	512	720			
Control Delay (s)	11.0	11.0	53.9			
Approach Delay (s)	11.0		53.9			
Approach LOS	B		F			
Intersection Summary						
Delay			43.1			
Level of Service			E			
Intersection Capacity Utilization			52.6%	ICU Level of Service	A	
Analysis Period (min)			15			

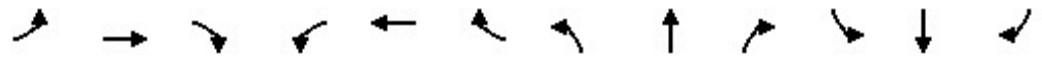
Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	300	85	45	170	55	100	925	70	60	440	100
Future Volume (vph)	245	300	85	45	170	55	100	925	70	60	440	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.99	1.00	0.99		0.98	1.00		1.00	0.99	
Frt			0.850		0.963			0.990				0.972
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1556	1347	1596	1717	0	1535	3098	0	1509	2871	0
Flt Permitted	0.476			0.467			0.356			0.120		
Satd. Flow (perm)	759	1556	1327	783	1717	0	562	3098	0	190	2871	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87		18			10			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		946			3955			5338			2655	
Travel Time (s)		21.5			89.9			121.3			60.3	
Confl. Peds. (#/hr)	33		3	3		33	42		8	8		42
Confl. Bikes (#/hr)							1					1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	8%	6%	0%	7%	5%	4%	5%	11%	2%	6%	9%
Adj. Flow (vph)	250	306	87	46	173	56	102	944	71	61	449	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	306	87	46	229	0	102	1015	0	61	551	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.6	32.0	31.0	34.0	27.0		40.8	36.0		40.8	36.0	
Actuated g/C Ratio	0.40	0.36	0.34	0.38	0.30		0.45	0.40		0.45	0.40	
v/c Ratio	0.71	0.55	0.17	0.13	0.43		0.32	0.82		0.35	0.47	
Control Delay	33.8	29.4	6.4	16.6	26.4		15.7	31.2		18.2	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.8	29.4	6.4	16.6	26.4		15.7	31.2		18.2	20.9	
LOS	C	C	A	B	C		B	C		B	C	
Approach Delay		28.0			24.7			29.8			20.6	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		0.0	44.0		0.0	44.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Skip	Coord		Skip	Coord	
Stops (vph)	187	243	15	27	161		55	833		31	366	
Fuel Used(gal)	5	5	1	2	9		5	52		2	15	
CO Emissions (g/hr)	316	374	57	118	629		334	3659		114	1083	
NOx Emissions (g/hr)	62	73	11	23	122		65	712		22	211	
VOC Emissions (g/hr)	73	87	13	27	146		78	848		26	251	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	95	148	0	15	96		30	273		18	115	
Queue Length 95th (ft)	#181	238	33	36	162		59	#390		39	164	
Internal Link Dist (ft)		866			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	353	553	514	350	527		319	1245		174	1169	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.71	0.55	0.17	0.13	0.43		0.32	0.82		0.35	0.47	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	26.7
Intersection LOS:	C
Intersection Capacity Utilization	86.2%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1060: Halsted Street & 119th Street





Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	55	330	20	5	245	25	45	100	20	15	50	45
Future Volume (vph)	55	330	20	5	245	25	45	100	20	15	50	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.97		1.00	0.97		1.00			0.99	
Frt			0.850			0.850		0.984			0.945	
Flt Protected		0.993			0.999			0.987			0.993	
Satd. Flow (prot)	0	1630	1428	0	1600	1231	0	1916	0	0	1848	0
Flt Permitted		0.927			0.995			0.913			0.964	
Satd. Flow (perm)	0	1521	1383	0	1593	1198	0	1770	0	0	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			27		13			49	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	6		11	11		6	4		8	8		4
Confl. Bikes (#/hr)	1		1	1		1			1	1		
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%	7%	0%	0%	5%	16%	0%	0%	0%	10%	0%	3%
Adj. Flow (vph)	60	363	22	5	269	27	49	110	22	16	55	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	423	22	0	274	27	0	181	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

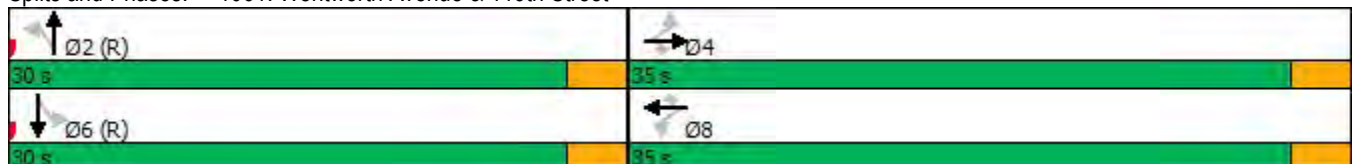
AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.57	0.03		0.35	0.04		0.24			0.16	
Control Delay		15.3	4.2		8.7	2.2		12.5			5.6	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		15.3	4.2		8.7	2.2		12.5			5.6	
LOS		B	A		A	A		B			A	
Approach Delay		14.8			8.1			12.5			5.6	
Approach LOS		B			A			B			A	
Stops (vph)		262	5		79	2		94			64	
Fuel Used(gal)		15	1		3	0		4			3	
CO Emissions (g/hr)		1015	46		242	20		306			192	
NOx Emissions (g/hr)		197	9		47	4		60			37	
VOC Emissions (g/hr)		235	11		56	5		71			44	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		110	0		40	0		41			1	
Queue Length 95th (ft)		190	10		57	3		80			10	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		748	692		784	603		742			773	
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		0.57	0.03		0.35	0.04		0.24			0.16	

Intersection Summary

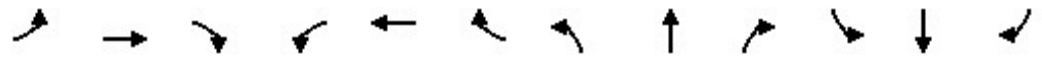
Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization	85.8%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	80	215	25	10	180	10	45	240	25	10	60	35
Future Volume (vph)	80	215	25	10	180	10	45	240	25	10	60	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.96		1.00	0.96		0.99	
Frt			0.850			0.850			0.850		0.955	
Flt Protected		0.987			0.997			0.992			0.995	
Satd. Flow (prot)	0	1556	1360	0	1494	1428	0	1637	1347	0	1873	0
Flt Permitted		0.860			0.980			0.945			0.969	
Satd. Flow (perm)	0	1351	1299	0	1467	1376	0	1559	1297	0	1822	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34			34			34			36
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	11		17	17		11	4		17	17		4
Confl. Bikes (#/hr)	1		1	1		1	1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	9%	5%	33%	11%	0%	6%	1%	6%	0%	0%	8%
Adj. Flow (vph)	83	224	26	10	188	10	47	250	26	10	63	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	307	26	0	198	10	0	297	26	0	109	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	

Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.64	0.05		0.38	0.02		0.39	0.04		0.12	
Control Delay		15.3	1.7		18.4	1.2		4.5	1.0		5.5	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		15.3	1.7		18.4	1.2		4.5	1.0		5.5	
LOS		B	A		B	A		A	A		A	
Approach Delay		14.3			17.6			4.2			5.5	
Approach LOS		B			B			A			A	
Stops (vph)		247	6		138	1		105	3		44	
Fuel Used(gal)		5	0		2	0		13	1		3	
CO Emissions (g/hr)		374	21		152	3		891	74		179	
NOx Emissions (g/hr)		73	4		30	1		173	14		35	
VOC Emissions (g/hr)		87	5		35	1		206	17		41	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		105	1		57	0		35	1		0	
Queue Length 95th (ft)		188	m2		108	3		m47	m1		12	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		478	481		519	508		767	655		915	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.64	0.05		0.38	0.02		0.39	0.04		0.12	

Intersection Summary

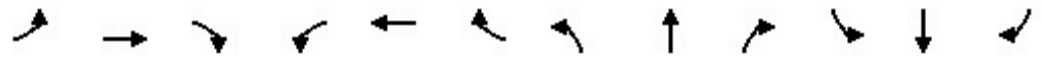
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 10.7      Intersection LOS: B  
 Intersection Capacity Utilization 85.0%      ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1062: State Street & 119th Street



Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

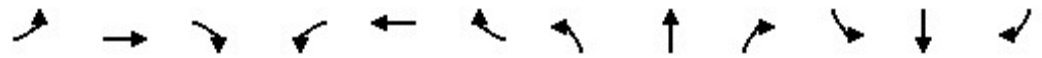
AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (vph)	0	970	270	300	1270	0	0	0	0	340	250	465
Future Volume (vph)	0	970	270	300	1270	0	0	0	0	340	250	465
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		1.00		1.00							0.99	0.99
Frt		0.967									0.939	0.850
Flt Protected				0.950						0.950	0.994	
Satd. Flow (prot)	0	4301	0	1644	3226	0	0	0	0	1468	2713	1375
Flt Permitted				0.130						0.950	0.994	
Satd. Flow (perm)	0	4301	0	225	3226	0	0	0	0	1468	2713	1356
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77									62	78
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			474			954	
Travel Time (s)		30.9			7.3			10.8			21.7	
Confl. Peds. (#/hr)	6		4	4		6	2					2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	11%	7%	4%	6%	0%	0%	0%	0%	6%	4%	8%
Adj. Flow (vph)	0	990	276	306	1296	0	0	0	0	347	255	474
Shared Lane Traffic (%)										19%		47%
Lane Group Flow (vph)	0	1266	0	306	1296	0	0	0	0	281	544	251
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (%)		43.8%		22.9%	66.7%					33.3%	33.3%	33.3%
Maximum Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										2.0	2.0	2.0
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		46.1		69.1	67.6					25.4	25.4	25.4
Actuated g/C Ratio		0.44		0.66	0.64					0.24	0.24	0.24
v/c Ratio		0.66		0.81	0.62					0.79	0.77	0.65
Control Delay		25.0		29.1	20.1					53.5	40.4	32.0
Queue Delay		0.0		6.6	49.8					0.0	0.0	0.0
Total Delay		25.0		35.6	69.9					53.5	40.4	32.0
LOS		C		D	E					D	D	C
Approach Delay		25.0			63.4						41.9	
Approach LOS		C			E						D	
90th %ile Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		41.1		19.9	65.5					27.5	27.5	27.5
50th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
30th %ile Green (s)		49.6		15.6	69.7					23.3	23.3	23.3
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		59.9		10.3	74.7					18.3	18.3	18.3
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		913		241	932					252	431	152
Fuel Used(gal)		25		4	14					6	11	4
CO Emissions (g/hr)		1713		270	947					450	750	299
NOx Emissions (g/hr)		333		53	184					87	146	58
VOC Emissions (g/hr)		397		63	219					104	174	69
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		246		161	375					190	172	112
Queue Length 95th (ft)		308		m194	m418					291	237	204
Internal Link Dist (ft)		1279			242			394			874	
Turn Bay Length (ft)				216						360		360

Lanes, Volumes, Timings  
 1064: S Paulina ST & 127th Street

AM Peak  
 No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1932		412	2076					405	794	430
Starvation Cap Reductn		0		67	1055					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		0.66		0.89	1.27					0.69	0.69	0.58

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	89 (85%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	45.2
Intersection LOS:	D
Intersection Capacity Utilization	114.4%
ICU Level of Service	H
Analysis Period (min)	15

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

Splits and Phases: 1064: S Paulina ST & 127th Street



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	930	0	0	1030	295	540	355	375	0	0	0
Future Volume (vph)	380	930	0	0	1030	295	540	355	375	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Fr <sub>t</sub>					0.967			0.923				
Fl <sub>t</sub> Protected	0.950						0.950					
Satd. Flow (prot)	3016	3138	0	0	4486	0	1644	3034	0	0	0	0
Fl <sub>t</sub> Permitted	0.950						0.950					
Satd. Flow (perm)	3013	3138	0	0	4486	0	1644	3034	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					76							
Link Speed (mph)		30			30			30				30
Link Distance (ft)		322			336			554				548
Travel Time (s)		7.3			7.6			12.6				12.5
Confl. Peds. (#/hr)	4						4					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	9%	0%	0%	6%	4%	4%	3%	5%	0%	0%	0%
Adj. Flow (vph)	400	979	0	0	1084	311	568	374	395	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	979	0	0	1395	0	568	769	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (%)	26.2%	67.1%			41.0%		32.9%	32.9%				
Maximum Green (s)	21.5	64.5			37.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	18.9	64.5			39.6		28.5	28.5				
Actuated g/C Ratio	0.18	0.61			0.38		0.27	0.27				
v/c Ratio	0.74	0.51			0.80		1.27	1.00dr				
Control Delay	53.5	7.9			28.6		173.5	57.1				
Queue Delay	0.0	0.5			1.6		8.9	0.0				
Total Delay	53.5	8.4			30.2		182.4	57.1				
LOS	D	A			C		F	E				
Approach Delay		21.5			30.2			110.3				
Approach LOS		C			C			F				
90th %ile Green (s)	21.5	64.5			37.0		28.5	28.5				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	21.5	64.5			37.0		28.5	28.5				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	19.5	64.5			39.0		28.5	28.5				
50th %ile Term Code	Gap	Coord			Coord		Max	Max				
30th %ile Green (s)	17.4	64.5			41.1		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	14.4	64.5			44.1		28.5	28.5				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	308	255			754		427	653				
Fuel Used(gal)	7	5			15		24	15				
CO Emissions (g/hr)	475	366			1073		1661	1066				
NOx Emissions (g/hr)	92	71			209		323	207				
VOC Emissions (g/hr)	110	85			249		385	247				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	118	73			193		~484	265				
Queue Length 95th (ft)	162	96			m224		#695	#384				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											
Base Capacity (vph)	617	1927			1741		446	823				

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

AM Peak  
 No Build Conditions

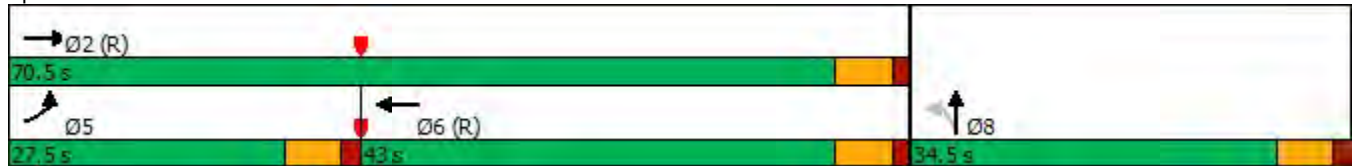


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	497			184		0	0				
Spillback Cap Reductn	0	0			53		236	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.65	0.68			0.90		2.70	0.93				

Intersection Summary























Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 7 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.27  
 Intersection Signal Delay: 53.3  
 Intersection LOS: D  
 Intersection Capacity Utilization 114.4%  
 ICU Level of Service H  
 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	515	260	90	865	50	285	225	50	45	140	115
Future Volume (vph)	120	515	260	90	865	50	285	225	50	45	140	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	1.00		0.99	1.00		1.00	0.99	
Frt			0.850		0.992			0.973				0.932
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3167	1311	1605	3232	0	1451	3226	0	1550	2789	0
Flt Permitted	0.103			0.447			0.493			0.573		
Satd. Flow (perm)	170	3167	1282	752	3232	0	748	3226	0	931	2789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277		6			26				122
Link Speed (mph)		30			30			30				30
Link Distance (ft)		336			5379			1555				925
Travel Time (s)		7.6			122.3			35.3				21.0
Confl. Peds. (#/hr)	3		12	12		3	9		6	6		9
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 (%)	2%	8%	5%	3%	5%	3%	10%	3%	2%	3%	7%	4%
Parking (#/hr)			0									
Adj. Flow (vph)	128	548	277	96	920	53	303	239	53	48	149	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	548	277	96	973	0	303	292	0	48	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (%)	12.9%	40.0%	11.9%	11.9%	39.0%		11.9%	36.2%		11.9%	36.2%	
Maximum Green (s)	9.0	36.0	8.0	8.0	35.0		8.0	32.0		8.0	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	63.7	51.6	61.1	44.7	35.0		28.9	21.0		27.0	18.3	
Actuated g/C Ratio	0.61	0.49	0.58	0.43	0.33		0.28	0.20		0.26	0.17	
v/c Ratio	0.32	0.35	0.32	0.25	0.90		1.17	0.44		0.17	0.46	
Control Delay	12.3	16.9	3.0	12.7	45.6		137.8	30.5		26.3	23.0	
Queue Delay	0.0	0.3	0.2	0.0	3.3		0.0	0.0		0.0	0.0	
Total Delay	12.3	17.2	3.2	12.7	48.9		137.8	30.5		26.3	23.0	
LOS	B	B	A	B	D		F	C		C	C	
Approach Delay		12.5			45.7			85.2			23.5	
Approach LOS		B			D			F			C	
90th %ile Green (s)	17.6	41.7	8.0	10.9	35.0		8.0	23.4		8.0	23.4	
90th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
70th %ile Green (s)	20.7	46.6	8.0	9.1	35.0		8.0	20.3		8.0	20.3	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
50th %ile Green (s)	23.4	50.4	8.0	8.0	35.0		8.0	17.7		7.9	17.6	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Gap	Hold	
30th %ile Green (s)	26.0	53.9	8.0	7.1	35.0		8.0	16.2		6.8	15.0	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Min	
10th %ile Green (s)	26.0	65.5	8.0	0.0	35.0		8.0	27.5		0.0	15.0	
10th %ile Term Code	MaxR	Coord	Max	Skip	Coord		Max	Hold		Skip	Min	
Stops (vph)	57	350	59	50	813		286	263		33	120	
Fuel Used(gal)	1	5	1	4	51		13	6		1	4	
CO Emissions (g/hr)	65	353	81	299	3591		911	453		52	258	
NOx Emissions (g/hr)	13	69	16	58	699		177	88		10	50	
VOC Emissions (g/hr)	15	82	19	69	832		211	105		12	60	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	27	116	3	25	323		~245	92		23	46	
Queue Length 95th (ft)	m60	m188	m33	54	#446		#405	137		48	82	
Internal Link Dist (ft)		256			5299			1475			845	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

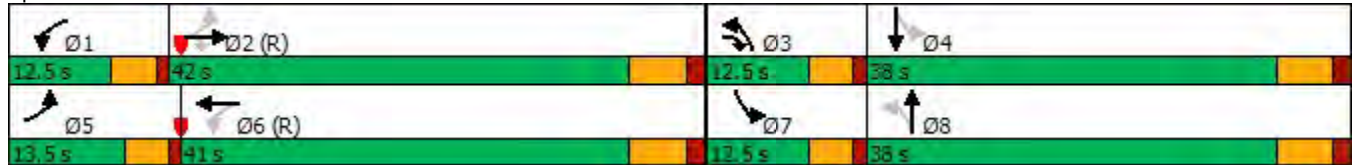
AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	405	1556	864	395	1081		259	1001		293	934	
Starvation Cap Reductn	0	447	158	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	56		0	0		0	1	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.49	0.39	0.24	0.95		1.17	0.29		0.16	0.29	

Intersection Summary






















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	16 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.17
Intersection Signal Delay:	40.5
Intersection LOS:	D
Intersection Capacity Utilization	86.3%
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: 1066: S Ashland & 127th Street



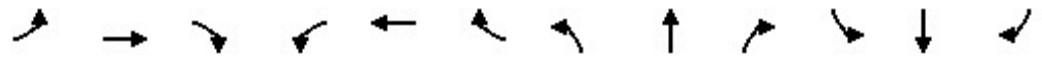
Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	135	290	60	175	105	410	475	80	115	325	70
Future Volume (vph)	65	135	290	60	175	105	410	475	80	115	325	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99		1.00	1.00		1.00	1.00	
Frt		0.898			0.944			0.978			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	2906	0	1513	3015	0	1589	3154	0	1660	3240	0
Flt Permitted	0.535			0.382			0.365			0.421		
Satd. Flow (perm)	912	2906	0	608	3015	0	610	3154	0	735	3240	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					111			21				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	20					20	1		2	2		1
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 (%)	4%	5%	6%	13%	6%	5%	4%	6%	5%	3%	3%	0%
Adj. Flow (vph)	71	148	319	66	192	115	451	522	88	126	357	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	467	0	66	307	0	451	610	0	126	434	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (%)	12.9%	30.0%		12.9%	30.0%		22.9%	44.3%		12.9%	34.3%	
Maximum Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					2.0							2.0
Flash Dont Walk (s)					23.5							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	37.8	28.7		37.8	28.7		56.0	41.1		41.0	30.1	
Actuated g/C Ratio	0.36	0.27		0.36	0.27		0.53	0.39		0.39	0.29	
v/c Ratio	0.18	0.59		0.23	0.34		0.88	0.49		0.35	0.47	
Control Delay	21.9	37.8		22.7	21.4		38.0	24.9		17.8	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	37.8		22.7	21.4		38.0	24.9		17.8	30.7	
LOS	C	D		C	C		D	C		B	C	
Approach Delay		35.7			21.6			30.5			27.8	
Approach LOS		D			C			C			C	
90th %ile Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
90th %ile Term Code	Max	MaxR		Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
70th %ile Term Code	Max	MaxR		Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.8	26.1		8.9	26.2		20.0	40.5		9.5	30.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.8	27.3		7.7	27.2		20.0	41.2		8.8	30.0	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Gap	Coord	
10th %ile Green (s)	0.0	39.0		0.0	39.0		19.6	42.8		7.2	30.4	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Gap	Coord		Gap	Coord	
Stops (vph)	41	365		39	143		243	391		70	289	
Fuel Used(gal)	1	8		3	14		8	9		2	9	
CO Emissions (g/hr)	60	537		209	950		539	660		156	635	
NOx Emissions (g/hr)	12	104		41	185		105	128		30	123	
VOC Emissions (g/hr)	14	124		49	220		125	153		36	147	
Dilemma Vehicles (#)	0	20		0	13		0	26		0	19	
Queue Length 50th (ft)	30	148		28	55		188	155		32	118	
Queue Length 95th (ft)	60	206		57	96		#360	208		66	177	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	398	793		303	904		511	1247		374	928	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.59		0.22	0.34		0.88	0.49		0.34	0.47	

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 9 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 29.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 90.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1067: S Ashland & Vermont St





Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

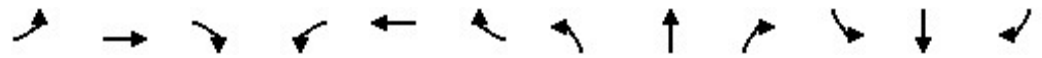
AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔↔		↔	↔↔	
Traffic Volume (vph)	190	455	90	10	470	125	70	620	10	80	320	100
Future Volume (vph)	190	455	90	10	470	125	70	620	10	80	320	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		0.99	1.00		1.00	0.99	
Frt		0.982			0.969			0.998			0.964	
Flt Protected		0.987			0.999		0.950			0.950		
Satd. Flow (prot)	0	2995	0	0	2985	0	1545	3288	0	1559	2995	0
Flt Permitted		0.626			0.938		0.437			0.274		
Satd. Flow (perm)	0	1899	0	0	2802	0	707	3288	0	448	2995	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			38			2			49	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	9		11	11		9	11		14	14		11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	6%	18%	50%	6%	6%	7%	3%	50%	6%	7%	2%
Adj. Flow (vph)	204	489	97	11	505	134	75	667	11	86	344	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	790	0	0	650	0	75	678	0	86	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Switch Phase													
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0		
Minimum Split (s)	6.5	37.0		21.0	21.0		6.5	31.0		6.5	21.0		
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0		
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%		
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0		
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0		
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0		
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0		
Lead/Lag	Lead			Lag			Lead		Lag		Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0		
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0		
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0		
Recall Mode	None	None		None	None		None	None		None	None		
Walk Time (s)		9.0						7.0					
Flash Dont Walk (s)		22.0						18.0					
Pedestrian Calls (#/hr)		11						14					
Act Effct Green (s)		34.4			34.4		34.1	25.2		33.7	25.0		
Actuated g/C Ratio		0.43			0.43		0.42	0.31		0.42	0.31		
v/c Ratio		0.96			0.53		0.20	0.66		0.30	0.47		
Control Delay		48.9			19.3		13.2	27.8		14.8	22.2		
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0		
Total Delay		48.9			19.3		13.2	27.8		14.8	22.2		
LOS		D			B		B	C		B	C		
Approach Delay		48.9			19.3			26.3			21.0		
Approach LOS		D			B			C			C		
90th %ile Green (s)	0.0	34.0		34.0	34.0		10.0	27.0		8.5	25.5		
90th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Max	Hold		
70th %ile Green (s)	0.0	34.0		34.0	34.0		8.6	27.0		8.5	26.9		
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Max	Hold		
50th %ile Green (s)	0.0	34.0		34.0	34.0		7.7	27.0		8.0	27.3		
50th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Gap	Hold		
30th %ile Green (s)	0.0	34.0		34.0	34.0		6.8	26.3		7.0	26.5		
30th %ile Term Code	Skip	Max		Hold	Hold		Gap	Gap		Gap	Hold		
10th %ile Green (s)	0.0	34.0		34.0	34.0		0.0	19.3		0.0	19.3		
10th %ile Term Code	Skip	Max		Hold	Hold		Skip	Gap		Skip	Hold		
Stops (vph)		574			409		37	517		43	287		
Fuel Used(gal)		41			11		1	9		4	21		
CO Emissions (g/hr)		2887			759		45	604		266	1465		
NOx Emissions (g/hr)		562			148		9	118		52	285		
VOC Emissions (g/hr)		669			176		10	140		62	340		
Dilemma Vehicles (#)		0			0		0	0		0	0		
Queue Length 50th (ft)		~220			128		21	160		24	87		
Queue Length 95th (ft)		#352			184		44	221		49	137		
Internal Link Dist (ft)		5299			1243			370			5258		
Turn Bay Length (ft)							135			130			

Lanes, Volumes, Timings  
 1068: Halsted Street & 127th Street

AM Peak  
 No Build Conditions

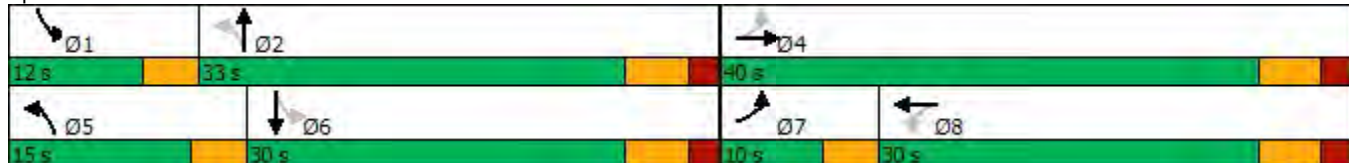


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		822			1217		440	1115		307	1007	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.96			0.53		0.17	0.61		0.28	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	80.5
Natural Cycle:	80
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.96
Intersection Signal Delay:	30.1
Intersection LOS:	C
Intersection Capacity Utilization:	84.1%
ICU Level of Service:	E
Analysis Period (min):	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	85
50th %ile Actuated Cycle:	84.5
30th %ile Actuated Cycle:	82.8
10th %ile Actuated Cycle:	65.3
~ 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: 1068: Halsted Street & 127th Street



Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	115	45	75	140	15	40	670	80	10	370	45
Future Volume (vph)	50	115	45	75	140	15	40	670	80	10	370	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.958			0.986			0.984			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1860	0	1629	1937	0	1660	3214	0	1140	3193	0
Flt Permitted	0.651			0.647			0.489			0.282		
Satd. Flow (perm)	1141	1860	0	1098	1937	0	853	3214	0	338	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			9			27			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	10		16	16		10	4		6	6		4
Confl. Bikes (#/hr)			4	4								
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 (%)	2%	4%	5%	5%	4%	0%	3%	4%	8%	50%	5%	6%
Adj. Flow (vph)	54	125	49	82	152	16	43	728	87	11	402	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	174	0	82	168	0	43	815	0	11	451	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

AM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.13	0.25		0.20	0.23		0.11	0.53		0.07	0.29	
Control Delay	14.7	12.5		25.4	24.4		10.3	13.0		10.7	10.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.7	12.5		25.4	24.4		10.3	13.0		10.7	10.3	
LOS	B	B		C	C		B	B		B	B	
Approach Delay		13.0			24.7			12.8			10.3	
Approach LOS		B			C			B			B	
Stops (vph)	33	86		72	143		23	476		7	220	
Fuel Used(gal)	2	8		2	3		1	15		0	4	
CO Emissions (g/hr)	173	542		112	226		55	1081		7	247	
NOx Emissions (g/hr)	34	105		22	44		11	210		1	48	
VOC Emissions (g/hr)	40	126		26	52		13	251		2	57	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	14	37		35	69		9	107		2	50	
Queue Length 95th (ft)	36	76		m38	m71		25	154		11	77	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	421	708		405	720		406	1546		161	1537	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.25		0.20	0.23		0.11	0.53		0.07	0.29	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.53  
 Intersection Signal Delay: 13.9 Intersection LOS: B  
 Intersection Capacity Utilization 70.2% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1069: Halsted Street & Vermont St



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

AM Peak  
No Build Conditions



Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	510	185	640	15	5	15	5	50	10	0	5	5
Future Volume (vph)	510	185	640	15	5	15	5	50	10	0	5	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	12	12	16	12	12	16	12	12
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00				1.00			0.99		
Frt			0.997				0.911			0.930		
Flt Protected			0.989				0.987			0.977		
Satd. Flow (prot)	2956	0	2959	0	0	0	1749	0	0	1828	0	0
Flt Permitted			0.612				0.933			0.892		
Satd. Flow (perm)	2956	0	1829	0	0	0	1651	0	0	1669	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)	30		30				30			30		
Link Distance (ft)	1323		3930				1256			658		
Travel Time (s)	30.1		89.3				28.5			15.0		
Confl. Peds. (#/hr)		7		6		3					3	
Confl. Bikes (#/hr)		1										
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 (%)	8%	8%	6%	0%	0%	8%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	567	206	711	17	6	17	6	56	11	0	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	567	0	934	0	0	0	85	0	0	23	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	0		0				0			0		
Link Offset(ft)	0		0				0			0		
Crosswalk Width(ft)	16		16				16			16		
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07	1.07
Turning Speed (mph)		15		9	15	15		9	15		9	9
Turn Type	NA	custom	NA		Perm	Perm	NA		Perm	NA		
Protected Phases	8	7	4				2			6		
Permitted Phases		4	7		2	2			6			
Minimum Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (%)	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%		
Maximum Green (s)	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0		0.0				0.0			0.0		
Total Lost Time (s)	5.0		5.0				4.0			4.0		
Lead/Lag	Lag	Lead										
Lead-Lag Optimize?												
Walk Time (s)	9.0		18.0		5.0	5.0	5.0					
Flash Dont Walk (s)	9.0		9.0		9.0	9.0	9.0					
Pedestrian Calls (#/hr)	0		0		0	0	0					
Act Effect Green (s)	18.0		27.0				14.0			14.0		

Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

AM Peak  
 No Build Conditions



Lane Group	NEL	NER
Lane Configurations		
Traffic Volume (vph)	0	220
Future Volume (vph)	0	220
Ideal Flow (vphpl)	1800	1800
Lane Width (ft)	12	12
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.865	
Flt Protected		
Satd. Flow (prot)	1428	0
Flt Permitted		
Satd. Flow (perm)	1428	0
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)	30	
Link Distance (ft)	1385	
Travel Time (s)	31.5	
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	9%
Adj. Flow (vph)	0	244
Shared Lane Traffic (%)		
Lane Group Flow (vph)	244	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)	15	9
Turn Type	Prot	
Protected Phases	3	
Permitted Phases		
Minimum Split (s)	15.0	
Total Split (s)	15.0	
Total Split (%)	23.1%	
Maximum Green (s)	10.0	
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	10.0	

Lanes, Volumes, Timings  
1070: S Wallance St & 127th Street

AM Peak  
No Build Conditions

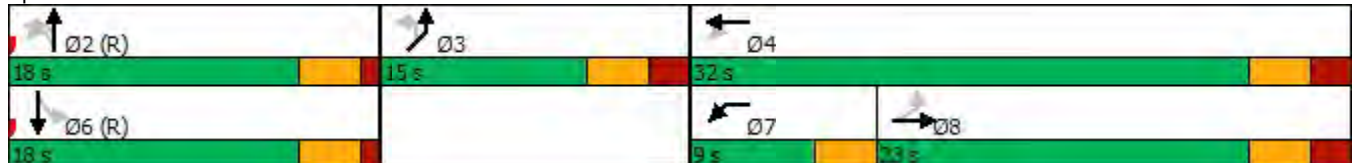


Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Actuated g/C Ratio	0.28		0.42				0.22			0.22		
v/c Ratio	0.69		1.13				0.24			0.06		
Control Delay	26.3		88.9				23.2			21.0		
Queue Delay	0.0		0.0				0.0			0.0		
Total Delay	26.3		88.9				23.2			21.0		
LOS	C		F				C			C		
Approach Delay	26.3		88.9				23.3			21.0		
Approach LOS	C		F				C			C		
Stops (vph)	439		521				61			19		
Fuel Used(gal)	10		44				1			0		
CO Emissions (g/hr)	728		3067				101			21		
NOx Emissions (g/hr)	142		597				20			4		
VOC Emissions (g/hr)	169		711				23			5		
Dilemma Vehicles (#)	0		0				0			0		
Queue Length 50th (ft)	105		~144				28			7		
Queue Length 95th (ft)	156		#351				62			24		
Internal Link Dist (ft)	1243		3850				1176			578		
Turn Bay Length (ft)												
Base Capacity (vph)	818		829				355			359		
Starvation Cap Reductn	0		0				0			0		
Spillback Cap Reductn	0		0				0			0		
Storage Cap Reductn	0		0				0			0		
Reduced v/c Ratio	0.69		1.13				0.24			0.06		

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 70.8  
 Intersection LOS: E  
 Intersection Capacity Utilization 81.7%  
 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.

Splits and Phases: 1070: S Wallance St & 127th Street





Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

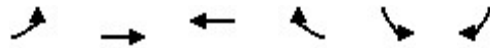
AM Peak  
 No Build Conditions



Lane Group	NEL	NER
Actuated g/C Ratio	0.15	
v/c Ratio	1.11	
Control Delay	126.4	
Queue Delay	0.0	
Total Delay	126.4	
LOS	F	
Approach Delay	126.4	
Approach LOS	F	
Stops (vph)	178	
Fuel Used(gal)	9	
CO Emissions (g/hr)	630	
NOx Emissions (g/hr)	123	
VOC Emissions (g/hr)	146	
Dilemma Vehicles (#)	0	
Queue Length 50th (ft)	~120	
Queue Length 95th (ft)	#252	
Internal Link Dist (ft)	1305	
Turn Bay Length (ft)		
Base Capacity (vph)	219	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.11	
Intersection Summary		

Lanes, Volumes, Timings  
1071: 127th Street & State Street

AM Peak  
No Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕	↕
Traffic Volume (vph)	200	595	645	70	50	200
Future Volume (vph)	200	595	645	70	50	200
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3004	2994	0	1520	1360
Flt Permitted		0.616			0.950	
Satd. Flow (perm)	0	1873	2994	0	1520	1360
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			33			215
Link Speed (mph)		30	30		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	14.5		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	215	640	694	75	54	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	855	769	0	54	215
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effect Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
 1071: 127th Street & State Street

AM Peak  
 No Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		0.74	0.41		0.14	0.42
Control Delay		15.3	5.5		17.7	4.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		15.3	5.5		17.7	4.6
LOS		B	A		B	A
Approach Delay		15.3	5.5		7.3	
Approach LOS		B	A		A	
Stops (vph)		762	170		34	22
Fuel Used(gal)		31	5		2	9
CO Emissions (g/hr)		2170	370		172	606
NOx Emissions (g/hr)		422	72		33	118
VOC Emissions (g/hr)		503	86		40	140
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		187	41		15	3
Queue Length 95th (ft)		m226	61		34	32
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1152	1855		397	514
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.74	0.41		0.14	0.42

Intersection Summary

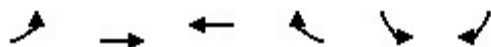
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 10.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 90.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1071: 127th Street & State Street



Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

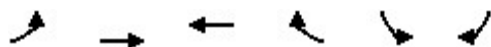
AM Peak  
No Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	60	590	655	215	150	60
Future Volume (vph)	60	590	655	215	150	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	0.99			
Frt			0.963			0.850
Flt Protected		0.995			0.950	
Satd. Flow (prot)	0	2926	2805	0	1464	1373
Flt Permitted		0.806			0.950	
Satd. Flow (perm)	0	2370	2805	0	1464	1373
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			118			65
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)	1			1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	9%	8%	12%	9%	4%
Adj. Flow (vph)	65	641	712	234	163	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	706	946	0	163	65
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (%)	64.6%	64.6%	64.6%		35.4%	35.4%
Maximum Green (s)	38.0	38.0	38.0		19.0	19.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			25.0			

Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

AM Peak  
No Build Conditions

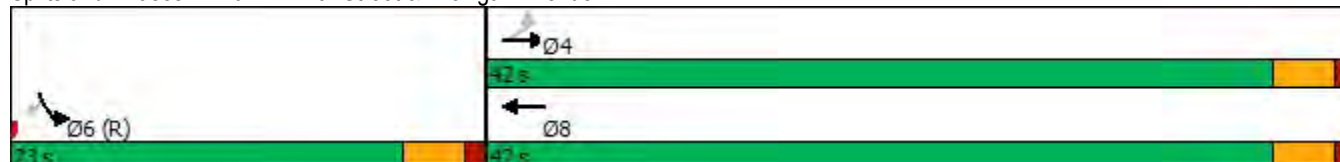


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		38.0	38.0		19.0	19.0
Actuated g/C Ratio		0.58	0.58		0.29	0.29
v/c Ratio		0.51	0.56		0.38	0.15
Control Delay		6.6	5.8		21.1	7.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		6.6	5.8		21.1	7.2
LOS		A	A		C	A
Approach Delay		6.6	5.8		17.2	
Approach LOS		A	A		B	
Stops (vph)		169	431		94	16
Fuel Used(gal)		5	21		11	4
CO Emissions (g/hr)		352	1472		738	275
NOx Emissions (g/hr)		68	286		143	53
VOC Emissions (g/hr)		82	341		171	64
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		36	60		46	0
Queue Length 95th (ft)		91	80		m67	m3
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1385	1688		427	447
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.51	0.56		0.38	0.15

Intersection Summary













Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 42 (65%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 7.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 88.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1072: 127th Street & Michigan Avenue



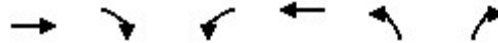
Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
No Build Conditions

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	160	20	305	410	80
Future Volume (vph)	530	160	20	305	410	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00			0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1568	1382	1660	3196	1565	1400
Flt Permitted			0.284		0.950	
Satd. Flow (perm)	1568	1347	496	3196	1565	1374
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						88
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5340	2671	
Travel Time (s)	3.7			104.0	60.7	
Confl. Peds. (#/hr)		4	4			8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	3%	7%	2%	2%
Adj. Flow (vph)	582	176	22	335	451	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	582	176	22	335	451	88
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
No Build Conditions

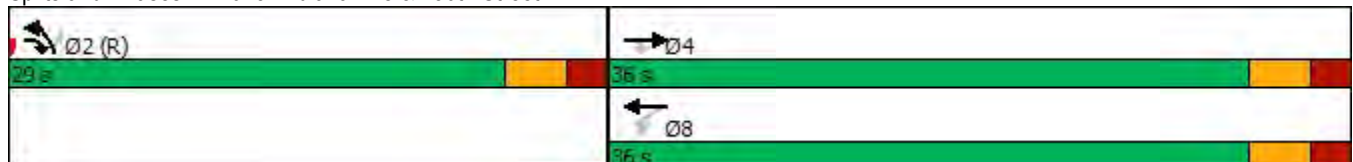


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	55.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	0.85	0.48	0.48	0.37	0.37
v/c Ratio	0.78	0.15	0.09	0.22	0.78	0.16
Control Delay	28.0	1.2	10.7	10.4	30.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	1.2	10.7	10.4	30.1	4.5
LOS	C	A	B	B	C	A
Approach Delay	21.7			10.4	26.0	
Approach LOS	C			B	C	
Stops (vph)	482	28	12	166	336	14
Fuel Used(gal)	16	3	1	14	13	2
CO Emissions (g/hr)	1149	240	63	954	902	127
NOx Emissions (g/hr)	224	47	12	186	176	25
VOC Emissions (g/hr)	266	56	15	221	209	29
Dilemma Vehicles (#)	0	0	0	23	0	0
Queue Length 50th (ft)	232	0	5	38	154	0
Queue Length 95th (ft)	#365	0	16	61	#298	25
Internal Link Dist (ft)	83			5260	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	747	1152	236	1524	577	562
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	0.78	0.15	0.09	0.22	0.78	0.16

Intersection Summary

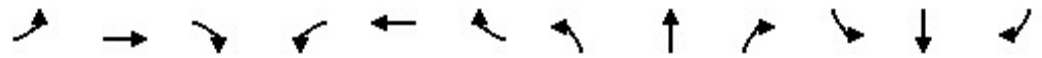
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 20.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 61.8%  
 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.

Splits and Phases: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
No Build Conditions



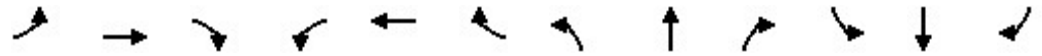
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	85	490	0	30	615	90	0	0	0	50	5	80
Future Volume (vph)	85	490	0	30	615	90	0	0	0	50	5	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00	0.88						0.96
Frt						0.850						0.920
Flt Protected		0.993			0.998							0.982
Satd. Flow (prot)	0	3073	0	0	1615	1377	0	1800	0	0	1588	0
Flt Permitted		0.734			0.968							0.925
Satd. Flow (perm)	0	2261	0	0	1566	1213	0	1800	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						100						89
Link Speed (mph)		30			30			30				30
Link Distance (ft)		228			105			169				1380
Travel Time (s)		5.2			2.4			3.8				31.4
Confl. Peds. (#/hr)	33		13	13		33	29		13	13		29
Confl. Bikes (#/hr)	1		1	1		1						
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 (%)	4%	3%	0%	0%	4%	0%	0%	0%	0%	5%	0%	11%
Adj. Flow (vph)	94	544	0	33	683	100	0	0	0	56	6	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	638	0	0	716	100	0	0	0	0	151	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA	Perm				pm+pt		NA
Protected Phases		4		3	3			2		1		6
Permitted Phases	4			3	3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0		32.0
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0		32.0
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%		37.6%
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0		27.0
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0		3.0
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0		2.0
Lost Time Adjust (s)		0.0						0.0				0.0
Total Lost Time (s)		4.0						3.0				5.0
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0								14.0



Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
No Build Conditions

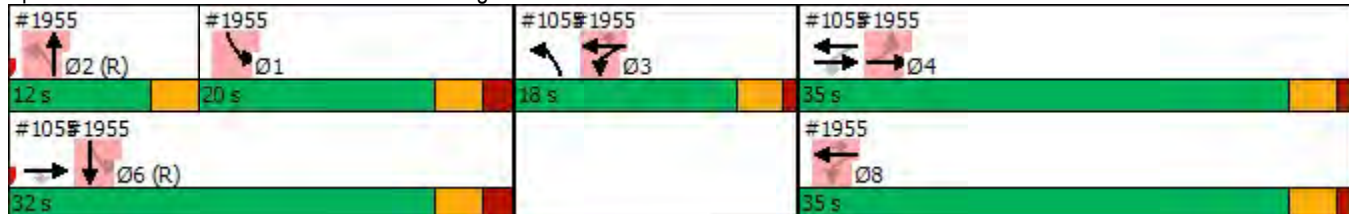


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			45.0	49.0						27.0
Actuated g/C Ratio		0.36			0.53	0.58						0.32
v/c Ratio		0.77			0.86	0.13						0.27
Control Delay		31.7			15.6	0.3						11.3
Queue Delay		0.9			51.2	26.0						0.0
Total Delay		32.6			66.9	26.2						11.3
LOS		C			E	C						B
Approach Delay		32.6			61.9							11.3
Approach LOS		C			E							B
Stops (vph)		489			169	1						46
Fuel Used(gal)		9			4	0						2
CO Emissions (g/hr)		601			245	6						142
NOx Emissions (g/hr)		117			48	1						28
VOC Emissions (g/hr)		139			57	1						33
Dilemma Vehicles (#)		0			0	0						0
Queue Length 50th (ft)		156			110	0						23
Queue Length 95th (ft)		224			m24	m0						67
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		824			837	741						551
Starvation Cap Reductn		0			343	629						0
Spillback Cap Reductn		49			0	0						1
Storage Cap Reductn		0			0	0						0
Reduced v/c Ratio		0.82			1.45	0.89						0.27

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.62  
 Intersection Signal Delay: 45.5      Intersection LOS: D  
 Intersection Capacity Utilization 86.2%      ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1035	40	120	755	0	60	0	150	0	0	0
Future Volume (vph)	0	1035	40	120	755	0	60	0	150	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1800	3320	1530	1644	3320	1800	0	1710	1500	0	2040	0
Flt Permitted				0.188				0.757				
Satd. Flow (perm)	1800	3320	1530	325	3320	1800	0	1363	1500	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30				30
Link Distance (ft)		5343			1170			134				331
Travel Time (s)		104.1			22.8			3.0				7.5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	0%	0%	2%	0%	0%	0%
Adj. Flow (vph)	0	1078	42	125	786	0	63	0	156	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1078	42	125	786	0	0	63	156	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		4.0	4.0		4.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)		49.5	49.5	61.1	60.1			16.9	16.9			
Actuated g/C Ratio		0.58	0.58	0.72	0.71			0.20	0.20			
v/c Ratio		0.56	0.05	0.36	0.34			0.23	0.52			
Control Delay		13.2	9.5	7.3	5.8			29.1	36.1			
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			
Total Delay		13.2	9.5	7.3	5.8			29.1	36.1			
LOS		B	A	A	A			C	D			
Approach Delay		13.1			6.0			34.1				
Approach LOS		B			A			C				
90th %ile Green (s)	43.0	43.0	43.0	8.0	54.0	54.0	23.0	23.0	23.0	23.0	23.0	23.0
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	46.6	46.6	46.6	8.3	57.9	57.9	19.1	19.1	19.1	19.1	19.1	19.1
70th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	49.8	49.8	49.8	7.4	60.2	60.2	16.8	16.8	16.8	16.8	16.8	16.8
50th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	52.5	52.5	52.5	7.0	62.5	62.5	14.5	14.5	14.5	14.5	14.5	14.5
30th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	55.8	55.8	55.8	7.0	65.8	65.8	11.2	11.2	11.2	11.2	11.2	11.2
10th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)		622	18	36	272			48	129			
Fuel Used(gal)		47	2	2	11			1	2			
CO Emissions (g/hr)		3313	123	116	740			48	138			
NOx Emissions (g/hr)		645	24	23	144			9	27			
VOC Emissions (g/hr)		768	28	27	172			11	32			
Dilemma Vehicles (#)		61	0	0	44			0	0			
Queue Length 50th (ft)		171	9	17	71			29	75			
Queue Length 95th (ft)		276	27	43	126			58	123			
Internal Link Dist (ft)		5263			1090			54			251	
Turn Bay Length (ft)			165	165								
Base Capacity (vph)		1935	891	350	2346			384	423			
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		0.56	0.05	0.36	0.34			0.16	0.37			

Intersection Summary

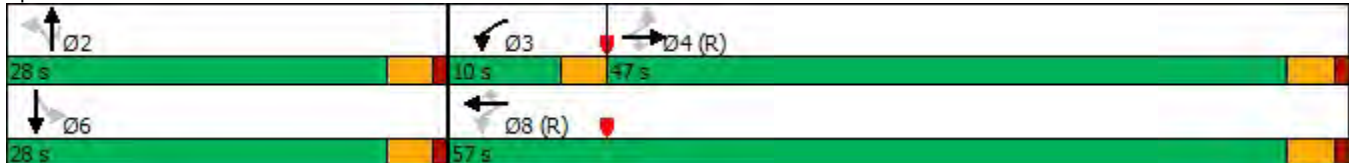
Area Type: Other

Lanes, Volumes, Timings  
 1: Ellis Avenue & 130th Street

PM Peak  
 No Build Conditions

Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Ellis Avenue & 130th Street



Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

PM Peak  
No Build Conditions



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↕
Traffic Volume (vph)	0	27	144	2	0	126
Future Volume (vph)	0	27	144	2	0	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1557	3413	0	0	3420
Flt Permitted						
Satd. Flow (perm)	0	1557	3413	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	602		184			134
Travel Time (s)	13.7		4.2			3.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	30	160	2	0	140
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	30	162	0	0	140
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
2: Ellis Avenue & Old 130th Street

PM Peak  
No Build Conditions

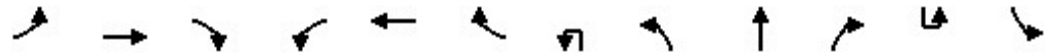


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↘		↕
Traffic Volume (veh/h)	0	27	144	2	0	126
Future Volume (Veh/h)	0	27	144	2	0	126
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	30	160	2	0	140
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						134
pX, platoon unblocked						
vC, conflicting volume	231	81			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	231	81			162	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	742	969			1429	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	30	107	55	70	70	
Volume Left	0	0	0	0	0	
Volume Right	30	0	2	0	0	
cSH	969	1700	1700	1700	1700	
Volume to Capacity	0.03	0.06	0.03	0.04	0.04	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	8.8	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	8.8	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			14.3%		ICU Level of Service	A
Analysis Period (min)			15			



Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕			↕				↕			
Traffic Volume (vph)	9	1	4	2	1	17	1	2	154	2	6	23
Future Volume (vph)	9	1	4	2	1	17	1	2	154	2	6	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.964			0.883				0.998			
Flt Protected		0.968			0.995				0.999			
Satd. Flow (prot)	0	1680	0	0	1581	0	0	0	1744	0	0	0
Flt Permitted		0.968			0.995				0.999			
Satd. Flow (perm)	0	1680	0	0	1581	0	0	0	1744	0	0	0
Link Speed (mph)		30			30				30			
Link Distance (ft)		472			392				265			
Travel Time (s)		10.7			8.9				6.0			
Confl. Peds. (#/hr)						43				43		43
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%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%
Adj. Flow (vph)	10	1	4	2	1	19	1	2	171	2	7	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	22	0	0	0	176	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				0			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Sign Control		Stop			Stop				Free			

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.1%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

PM Peak  
 No Build Conditions


















Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	90	8
Future Volume (vph)	90	8
Ideal Flow (vphpl)	1800	1800
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.850
Flt Protected	0.988	
Satd. Flow (prot)	1752	1530
Flt Permitted	0.988	
Satd. Flow (perm)	1752	1530
Link Speed (mph)	30	
Link Distance (ft)	184	
Travel Time (s)	4.2	
Confl. Peds. (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	1%	0%
Adj. Flow (vph)	100	9
Shared Lane Traffic (%)		
Lane Group Flow (vph)	133	9
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)		9
Sign Control	Free	
<b>Intersection Summary</b>		

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

PM Peak  
No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	9	1	4	2	1	17	1	2	154	2	6	23
Future Volume (Veh/h)	9	1	4	2	1	17	1	2	154	2	6	23
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
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
Hourly flow rate (vph)	10	1	4	2	1	19	0	2	171	2	0	26
Pedestrians					43							
Lane Width (ft)					12.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					4							
Right turn flare (veh)												
Median type									None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00				0.00	
vC, conflicting volume	390	372	100	376	380	258	0	109			0	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	372	100	376	380	258	0	109			0	216
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	98	100	100	100	100	97	0	100			0	98
cM capacity (veh/h)	513	530	961	537	524	730	0	1494			0	1294
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	15	22	175	126	9							
Volume Left	10	2	2	26	0							
Volume Right	4	19	2	0	9							
cSH	588	695	1494	1294	1700							
Volume to Capacity	0.03	0.03	0.00	0.02	0.01							
Queue Length 95th (ft)	2	2	0	2	0							
Control Delay (s)	11.3	10.3	0.1	1.8	0.0							
Lane LOS	B	B	A	A								
Approach Delay (s)	11.3	10.3	0.1	1.6								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay			1.8									
Intersection Capacity Utilization			40.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue

PM Peak  
 No Build Conditions



Movement	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (veh/h)	90	8
Future Volume (Veh/h)	90	8
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.90	0.90
Hourly flow rate (vph)	100	9
Pedestrians	43	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	4	
Right turn flare (veh)		
Median type	None	
Median storage (veh)		
Upstream signal (ft)	318	
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

PM Peak  
No Build Conditions



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	18	0	1	29
Future Volume (vph)	0	0	18	0	1	29
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.998
Satd. Flow (prot)	1765	0	1765	0	0	1761
Flt Permitted						0.998
Satd. Flow (perm)	1765	0	1765	0	0	1761
Link Speed (mph)	30		30			30
Link Distance (ft)	278		312			264
Travel Time (s)	6.3		7.1			6.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	20	0	1	32
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	20	0	0	33
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	6.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
4: Greenwood Avenue & 130th Place

PM Peak  
No Build Conditions



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	18	0	1	29
Future Volume (Veh/h)	0	0	18	0	1	29
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	20	0	1	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	54	20			20	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	54	20			20	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	953	1058			1596	
<b>Direction, Lane #</b>						
	WB 1	NB 1	SB 1			
Volume Total	0	20	33			
Volume Left	0	0	1			
Volume Right	0	0	0			
cSH	1700	1700	1596			
Volume to Capacity	0.00	0.01	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.2			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.2			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.1			
Intersection Capacity Utilization			6.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street

PM Peak  
No Build Conditions



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	0	0	12	0	1	0	20
Future Volume (vph)	0	0	12	0	1	0	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>							
Flt Protected							0.998
Satd. Flow (prot)	1800	0	1800	0	0	0	1730
Flt Permitted							0.998
Satd. Flow (perm)	1800	0	1800	0	0	0	1730
Link Speed (mph)	30		30				30
Link Distance (ft)	396		262				692
Travel Time (s)	9.0		6.0				15.7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%
Adj. Flow (vph)	0	0	13	0	1	0	21
<b>Shared Lane Traffic (%)</b>							
Lane Group Flow (vph)	0	0	13	0	0	0	22
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	R NA	Left	Left
Median Width(ft)	12		0				0
Link Offset(ft)	0		0				0
Crosswalk Width(ft)	16		16				16
<b>Two way Left Turn Lane</b>							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	9	15	
Sign Control	Stop		Free				Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
	ICU Level of Service A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 5: Greenwood Avenue & 131st Street

PM Peak  
No Build Conditions



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations	W		T				T
Traffic Volume (veh/h)	0	0	12	0	1	0	20
Future Volume (Veh/h)	0	0	12	0	1	0	20
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	13	0	0	0	21
<b>Pedestrians</b>							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	34	13			0	13	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	34	13			0	13	
tC, single (s)	6.4	6.2			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	100			0	100	
cM capacity (veh/h)	984	1073			0	1619	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	0	13	21				
Volume Left	0	0	0				
Volume Right	0	0	0				
cSH	1700	1700	1619				
Volume to Capacity	0.00	0.01	0.00				
Queue Length 95th (ft)	0	0	0				
Control Delay (s)	0.0	0.0	0.0				
Lane LOS	A						
Approach Delay (s)	0.0	0.0	0.0				
Approach LOS	A						
<b>Intersection Summary</b>							
Average Delay			0.0				
Intersection Capacity Utilization			6.7%	ICU Level of Service			A
Analysis Period (min)			15				



Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899										0.992
Fl <sub>t</sub> Protected		0.988						0.994				0.997
Satd. Flow (prot)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Fl <sub>t</sub> Permitted		0.988						0.994				0.997
Satd. Flow (perm)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Link Speed (mph)		30			30			30				30
Link Distance (ft)		330			1039			274				262
Travel Time (s)		7.5			23.6			6.2				6.0
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	8	0	1	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	9	0	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

















Lanes, Volumes, Timings  
 6: Greenwood Avenue & 132nd Street

PM Peak  
 No Build Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
6: Greenwood Avenue & 132nd Street

PM Peak  
No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (Veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	2	0	6	0	0	0	1	8	0	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked										0.00		
vC, conflicting volume	26	26	16	32	27	8	17			0	8	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26	26	16	32	27	8	17			0	8	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			0.0	4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			0.0	2.2	
p0 queue free %	100	100	99	100	100	100	100			0	100	
cM capacity (veh/h)	988	870	1068	974	870	1080	1613			0	1625	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	0	9	17								
Volume Left	2	0	1	0								
Volume Right	6	0	0	1								
cSH	1047	1700	1613	1625								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	8.5	0.0	0.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	0.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 6: Greenwood Avenue & 132nd Street

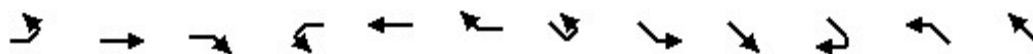
PM Peak  
 No Build Conditions



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	1
Future Volume (Veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations		↕			↕				↕			↕
Traffic Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899							0.992			
Fl <sub>t</sub> Protected		0.988							0.997			
Satd. Flow (prot)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Fl <sub>t</sub> Permitted		0.988							0.997			
Satd. Flow (perm)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Link Speed (mph)		30			30				15			15
Link Distance (ft)		1039			253				374			412
Travel Time (s)		23.6			5.8				17.0			18.7
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	0	16	1	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	0	18	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	Left	Left
Median Width(ft)		0			0				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Sign Control		Free			Free				Stop			Stop

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 13.3% ICU Level of Service A

















Analysis Period (min) 15



Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (Veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
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
Hourly flow rate (vph)	2	0	6	0	0	0	0	0	16	1	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00					
vC, conflicting volume	0			6			0	7	10	0	16	7
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			6			0	7	10	0	16	7
tC, single (s)	4.1			4.1			0.0	7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			0.0	3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			0	100	98	100	100	100
cM capacity (veh/h)	1636			1628			0	1017	888	1091	989	891
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	8	0	17	0								
Volume Left	2	0	0	0								
Volume Right	6	0	1	0								
cSH	1636	1700	898	1700								
Volume to Capacity	0.00	0.00	0.02	0.00								
Queue Length 95th (ft)	0	0	1	0								
Control Delay (s)	1.8	0.0	9.1	0.0								
Lane LOS	A		A	A								
Approach Delay (s)	1.8	0.0	9.1	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

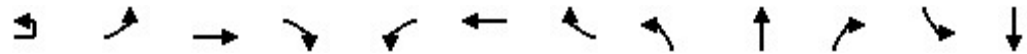


Movement	NWR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	3
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	3
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	1087
Direction, Lane #	



Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
No Build Conditions



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations			↔			↔			↑			↓
Traffic Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>			0.966									
Fl <sub>t</sub> Protected			0.964						0.988			
Satd. Flow (prot)	0	0	1643	0	0	1765	0	0	1744	0	0	1765
Fl <sub>t</sub> Permitted			0.964						0.988			
Satd. Flow (perm)	0	0	1643	0	0	1765	0	0	1744	0	0	1765
Link Speed (mph)			30			30			30			30
Link Distance (ft)			315			317			259			232
Travel Time (s)			7.2			7.2			5.9			5.3
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)	1	2	0	1	0	0	0	1	3	0	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	0	0	0	0	0	4	0	0	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			0			0			0			0
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Sign Control			Stop			Stop			Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
Analysis Period (min)	15
	ICU Level of Service A

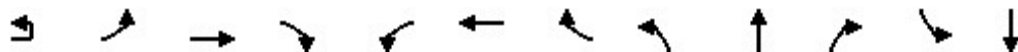
Lanes, Volumes, Timings  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 No Build Conditions

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 No Build Conditions



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations			↔			↔			↑			↓
Traffic Volume (veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (Veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Sign Control			Stop			Stop			Free			Free
Grade			0%			0%			0%			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
Hourly flow rate (vph)	0	2	0	1	0	0	0	1	3	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	7	7	2	8	7	3	2			3	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	7	7	2	8	7	3	2			3	
tC, single (s)	0.0	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1	
tC, 2 stage (s)												
tF (s)	0.0	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2	
p0 queue free %	0	100	100	100	100	100	100	100			100	
cM capacity (veh/h)	0	1012	888	1082	1010	888	1081	1620			1619	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	0	4	2								
Volume Left	2	0	1	0								
Volume Right	1	0	0	0								
cSH	1035	1700	1620	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	8.5	0.0	1.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	1.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 8: Doty Avenue & 132nd Street/School Driveway

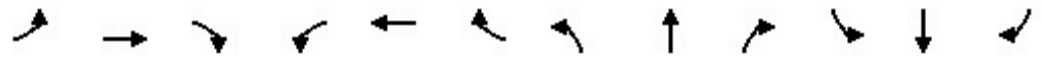
PM Peak  
 No Build Conditions



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1120	5	40	800	50	0	0	0	795	120	520
Future Volume (vph)	35	1120	5	40	800	50	0	0	0	795	120	520
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.85	1.00		1.00		0.49				0.99		0.98
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4856	0	1710	3226	765	0	1800	0	3285	1673	1464
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	727	4856	0	1708	3226	376	0	1800	0	3265	1673	1435
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		809			325			759				669
Travel Time (s)		18.4			7.4			17.3				15.2
Confl. Peds. (#/hr)	350		4	4		350	8		6	6		8
Confl. Bikes (#/hr)	4		1			7				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	1%	20%	0%	6%	100%	0%	0%	0%	1%	4%	1%
Adj. Flow (vph)	38	1204	5	43	860	54	0	0	0	855	129	559
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1209	0	43	860	54	0	0	0	855	129	559
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	71.0		8.0	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.55		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.58	0.46		0.41	0.53	0.23				0.87	0.26	1.03
Control Delay	92.1	19.0		71.1	26.3	6.9				53.7	36.3	85.4
Queue Delay	0.0	0.0		0.0	5.0	0.0				48.4	0.0	0.0
Total Delay	92.1	19.0		71.1	31.3	6.9				102.1	36.3	85.4
LOS	F	B		E	C	A				F	D	F
Approach Delay		21.3			31.7						90.5	
Approach LOS		C			C						F	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	68.4		8.6	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	69.7		7.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	32	657		39	369	8				722	89	581
Fuel Used(gal)	1	15		1	8	0				17	2	15
CO Emissions (g/hr)	74	1054		63	584	17				1176	140	1046
NOx Emissions (g/hr)	14	205		12	114	3				229	27	203
VOC Emissions (g/hr)	17	244		15	135	4				273	32	242
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	32	227		38	197	3				352	83	~461

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

PM Peak  
 No Build Conditions

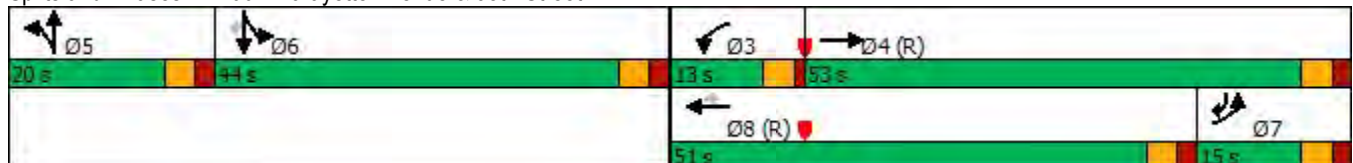


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#86	268		m52	258	m11				#443	137	#729
Internal Link Dist (ft)		729			245			679			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2653		118	1637	240				985	501	543
Starvation Cap Reductn	0	0		0	696	0				0	0	0
Spillback Cap Reductn	0	64		0	0	0				226	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.58	0.47		0.36	0.91	0.23				1.13	0.26	1.03

Intersection Summary


























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 124 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 52.5 Intersection LOS: D  
 Intersection Capacity Utilization 81.5% 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: 1002: Lafayette Avenue & 95th Street



Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (vph)	475	1135	305	70	720	370	130	335	75	55	0	40
Future Volume (vph)	475	1135	305	70	720	370	130	335	75	55	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.82	0.99		1.00		0.68		1.00	0.92	0.97		
Frt		0.968				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	3285	3259	0	1653	3138	1464	0	3191	1600	855	0	765
Flt Permitted	0.950			0.950				0.986		0.950		
Satd. Flow (perm)	2697	3259	0	1650	3138	998	0	3185	1479	827	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				78			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		325			954			10393				681
Travel Time (s)		7.4			18.6			236.2				15.5
Confl. Peds. (#/hr)	327		13	13		327	6		60	60		6
Confl. Bikes (#/hr)	1					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 (%)	1%	1%	0%	0%	9%	1%	0%	3%	2%	100%	0%	100%
Adj. Flow (vph)	505	1207	324	74	766	394	138	356	80	59	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	505	1531	0	74	766	394	0	494	80	59	0	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			



Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	56.0		11.0	41.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	28.0	56.0		13.0	41.0	20.0	41.0	41.0	13.0	20.0		20.0
Total Split (%)	21.5%	43.1%		10.0%	31.5%	15.4%	31.5%	31.5%	10.0%	15.4%		15.4%
Maximum Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		23.0			11.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	23.0	51.3		8.0	37.4	52.0		36.0	44.0	14.7		14.7
Actuated g/C Ratio	0.18	0.39		0.06	0.29	0.40		0.28	0.34	0.11		0.11
v/c Ratio	0.87	1.17		0.73	0.85	0.79		0.56	0.14	0.61		0.21
Control Delay	59.7	117.5		97.5	54.3	28.1		43.7	5.5	82.0		2.3
Queue Delay	7.2	0.0		0.0	0.0	0.0		0.3	0.0	0.0		0.2
Total Delay	66.8	117.5		97.5	54.3	28.1		44.0	5.5	82.0		2.5
LOS	E	F		F	D	C		D	A	F		A
Approach Delay		104.9			48.5			38.6				48.5
Approach LOS		F			D			D				D
90th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
90th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
70th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
50th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
50th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
30th %ile Green (s)	23.1	51.0		8.0	36.9	15.0	36.0	36.0	8.0	15.0		15.0
30th %ile Term Code	Gap	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
10th %ile Green (s)	19.7	52.6		8.0	41.9	13.4	36.0	36.0	8.0	13.4		13.4
10th %ile Term Code	Gap	Coord		Hold	Coord	Gap	MaxR	MaxR	Hold	Gap		Gap
Stops (vph)	426	1282		62	649	238		405	21	50		0
Fuel Used(gal)	9	45		2	18	6		45	6	1		0
CO Emissions (g/hr)	652	3155		163	1244	451		3146	451	104		16
NOx Emissions (g/hr)	127	614		32	242	88		612	88	20		3
VOC Emissions (g/hr)	151	731		38	288	105		729	104	24		4
Dilemma Vehicles (#)	0	0		0	27	0		0	0	0		0
Queue Length 50th (ft)	171	~818		62	325	116		200	3	48		0
Queue Length 95th (ft)	m#247	#608		#144	#433	#201		261	m8	#111		0
Internal Link Dist (ft)		245			874			10313				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	606	1305		101	901	502		883	568	98		206
Starvation Cap Reductn	70	3		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
 1003: State Street & 95th Street

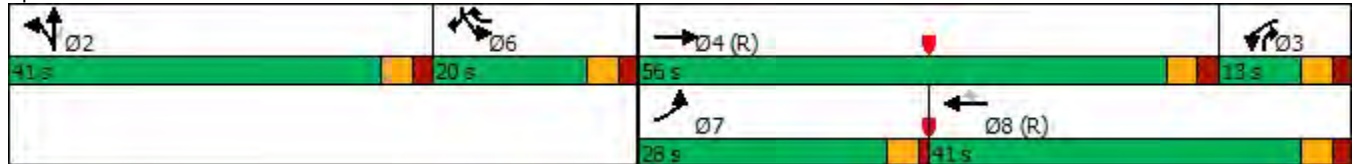
PM Peak  
 No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0	0		80	0	0		20
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	0.94	1.18		0.73	0.85	0.78		0.62	0.14	0.60		0.23

Intersection Summary























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 76.2 Intersection LOS: E  
 Intersection Capacity Utilization 99.7% 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: 1003: State Street & 95th Street



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	400	185	140	370	150	110	655	85	150	820	100
Future Volume (vph)	85	400	185	140	370	150	110	655	85	150	820	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99	0.99		0.99		0.95	0.99		0.94
Frt		0.953			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1879	0	1676	1880	0	1550	3040	1363	1509	3069	1337
Flt Permitted	0.125			0.193			0.190			0.271		
Satd. Flow (perm)	221	1879	0	337	1880	0	307	3040	1296	426	3069	1251
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				87			83
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304			668	
Travel Time (s)		15.1			46.3			120.5			15.2	
Confl. Peds. (#/hr)	24		45	45		24	36		24	24		36
Confl. Bikes (#/hr)						1				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	5%	1%	2%	4%	3%
Adj. Flow (vph)	91	430	199	151	398	161	118	704	91	161	882	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	629	0	151	559	0	118	704	91	161	882	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		51.7	42.3	42.3	52.3	42.6	42.6
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.49	0.40	0.40	0.50	0.41	0.41
v/c Ratio	0.39	0.82		1.62	1.05		0.47	0.58	0.16	0.53	0.71	0.19
Control Delay	24.0	37.4		353.2	89.7		19.5	26.8	5.5	20.5	30.0	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	37.4		353.2	89.7		19.5	26.8	5.5	20.5	30.0	7.7
LOS	C	D		F	F		B	C	A	C	C	A
Approach Delay		35.7			145.8			23.7			26.6	
Approach LOS		D			F			C			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		8.4	42.0	42.0	9.0	42.6	42.6
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Max	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		6.6	43.3	43.3	7.7	44.4	44.4
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Gap	Coord	Coord
Stops (vph)	50	484		95	432		55	495	13	78	667	21
Fuel Used(gal)	1	10		13	20		5	33	4	2	13	1
CO Emissions (g/hr)	79	710		896	1408		370	2334	257	129	907	55
NOx Emissions (g/hr)	15	138		174	274		72	454	50	25	176	11
VOC Emissions (g/hr)	18	164		208	326		86	541	60	30	210	13
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	37	357		~147	~401		39	191	2	55	257	10
Queue Length 95th (ft)	70	#551		#274	#614		71	251	33	94	333	45
Internal Link Dist (ft)		583			1956			5224			588	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	231	767		93	532		259	1223	573	306	1245	556
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

PM Peak  
 No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.39	0.82		1.62	1.05		0.46	0.58	0.16	0.53	0.71	0.19

Intersection Summary





















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	47 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.62
Intersection Signal Delay:	51.9
Intersection LOS:	D
Intersection Capacity Utilization	103.2%
ICU Level of Service	G
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.	

Splits and Phases: 1016: Halsted Street & 103rd Street



Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	475	100	105	500	105	60	70	80	0	0	0
Future Volume (vph)	100	475	100	105	500	105	60	70	80	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.949				
Fl <sub>t</sub> Protected	0.950			0.950				0.986				
Satd. Flow (prot)	1550	1573	1337	1550	1573	1337	0	1799	0	0	0	0
Fl <sub>t</sub> Permitted	0.393			0.411				0.986				
Satd. Flow (perm)	641	1573	1337	670	1573	1337	0	1799	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108			113		44				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2036			1955			343				764
Travel Time (s)		46.3			44.4			7.8				17.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	108	511	108	113	538	113	65	75	86	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	511	108	113	538	113	0	226	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

PM Peak  
No Build Conditions

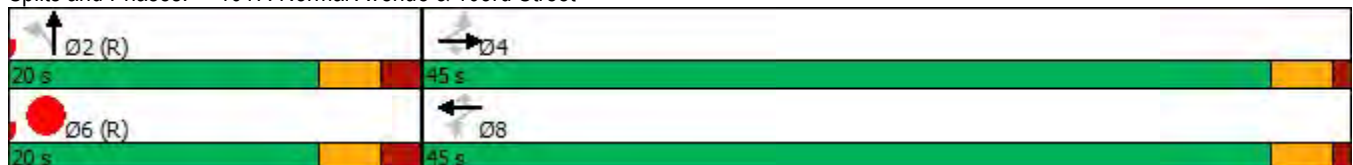


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.27	0.52	0.12	0.27	0.54	0.13		0.50				
Control Delay	7.5	8.9	1.5	7.4	9.3	1.5		21.9				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	7.5	8.9	1.5	7.4	9.3	1.5		21.9				
LOS	A	A	A	A	A	A		C				
Approach Delay		7.6			7.9			21.9				
Approach LOS		A			A			C				
Stops (vph)	44	244	9	45	264	9		145				
Fuel Used(gal)	2	10	2	2	10	2		2				
CO Emissions (g/hr)	139	681	117	140	701	118		161				
NOx Emissions (g/hr)	27	133	23	27	136	23		31				
VOC Emissions (g/hr)	32	158	27	33	162	27		37				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	16	95	0	17	102	0		62				
Queue Length 95th (ft)	40	161	14	41	175	14		123				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	404	992	883	422	992	885		449				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.27	0.52	0.12	0.27	0.54	0.13		0.50				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	9.6
Intersection LOS:	A
Intersection Capacity Utilization:	57.0%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 1017: Normal Avenue & 103rd Street





Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

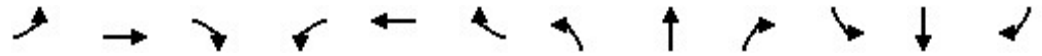
PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	520	85	90	600	45	50	105	100	70	305	60
Future Volume (vph)	25	520	85	90	600	45	50	105	100	70	305	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.99	0.99		0.99	1.00			0.99	0.93		0.98	
Frt		0.979			0.990				0.850		0.981	
Flt Protected	0.950			0.950				0.984			0.992	
Satd. Flow (prot)	1596	1645	0	1596	1702	0	0	1701	1515	0	1893	0
Flt Permitted	0.261			0.291				0.732			0.921	
Satd. Flow (perm)	435	1645	0	486	1702	0	0	1257	1415	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			8				105		11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1955			674			5189			1320	
Travel Time (s)		44.4			15.3			117.9			30.0	
Confl. Peds. (#/hr)	25		19	19		25	36		30	30		36
Confl. Bikes (#/hr)	4		2			1						3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	0%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	26	547	89	95	632	47	53	111	105	74	321	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	636	0	95	679	0	0	164	105	0	458	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0			24.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32			0.32
v/c Ratio	0.10	0.67		0.34	0.69			0.41	0.20			0.81
Control Delay	8.6	15.1		12.8	15.9			23.8	5.3			36.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	8.6	15.1		12.8	15.9			23.8	5.3			36.2
LOS	A	B		B	B			C	A			D
Approach Delay		14.9			15.5			16.6				36.2
Approach LOS		B			B			B				D
Stops (vph)	13	395		49	438			120	17			363
Fuel Used(gal)	0	13		1	8			8	4			10
CO Emissions (g/hr)	35	926		68	552			556	307			678
NOx Emissions (g/hr)	7	180		13	107			108	60			132
VOC Emissions (g/hr)	8	215		16	128			129	71			157
Dilemma Vehicles (#)	0	0		0	0			0	0			0
Queue Length 50th (ft)	5	180		21	201			59	0			189
Queue Length 95th (ft)	17	295		54	324			112	32			#342
Internal Link Dist (ft)		1875			594			5109				1240
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	249	950		278	979			402	524			566
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.10	0.67		0.34	0.69			0.41	0.20			0.81

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 91.1%

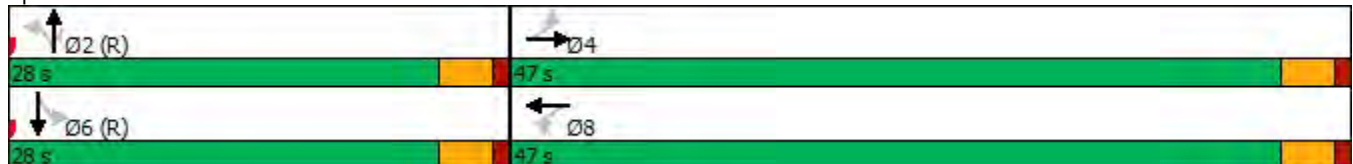
ICU Level of Service F

Analysis Period (min) 15

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





















Queue shown is maximum after two cycles.

Splits and Phases: 1018: Wentworth Avenue & 103rd Street



Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	280	135	125	270	125	75	615	65	110	955	70
Future Volume (vph)	105	280	135	125	270	125	75	615	65	110	955	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99		1.00		0.98	1.00		0.96
Frt		0.961			0.964				0.850			0.850
Flt Protected		0.990			0.988		0.950			0.950		
Satd. Flow (prot)	0	2941	0	0	2933	0	1565	3069	1350	1565	3099	1350
Flt Permitted		0.683			0.709		0.133			0.306		
Satd. Flow (perm)	0	2024	0	0	2100	0	218	3069	1326	503	3099	1298
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71			53				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		667			375			2662				5304
Travel Time (s)		15.2			8.5			60.5				120.5
Confl. Peds. (#/hr)	35		30	30		35	34		8	8		34
Confl. Bikes (#/hr)	2					1						1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	4%	0%	1%	3%	3%	2%	4%	2%	2%	3%	2%
Adj. Flow (vph)	108	289	139	129	278	129	77	634	67	113	985	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	536	0	0	536	0	77	634	67	113	985	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

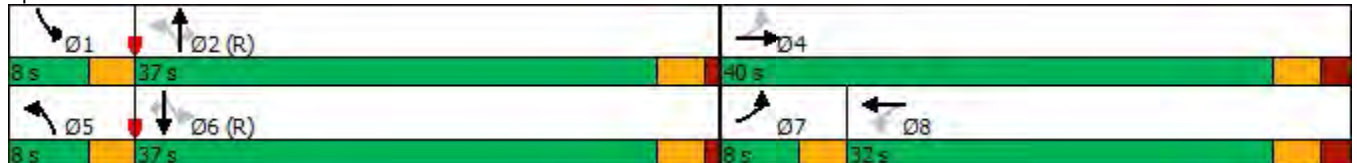
PM Peak  
No Build Conditions

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.57			0.74		0.49	0.52	0.12	0.42	0.81	0.13
Control Delay		18.1			29.8		29.4	14.7	0.8	18.4	29.2	2.3
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		18.1			29.8		29.4	14.7	0.8	18.4	29.2	2.3
LOS		B			C		C	B	A	B	C	A
Approach Delay		18.1			29.8			14.9			26.5	
Approach LOS		B			C			B			C	
Stops (vph)		303			412		55	263	1	64	813	5
Fuel Used(gal)		6			13		2	16	1	5	50	3
CO Emissions (g/hr)		440			937		161	1122	95	372	3472	207
NOx Emissions (g/hr)		86			182		31	218	19	72	676	40
VOC Emissions (g/hr)		102			217		37	260	22	86	805	48
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		87			119		20	82	0	32	240	0
Queue Length 95th (ft)		129			182		m61	111	m2	62	321	15
Internal Link Dist (ft)		587			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		941			727		158	1209	577	268	1221	566
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.57			0.74		0.49	0.52	0.12	0.42	0.81	0.13

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 48 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 22.6      Intersection LOS: C  
 Intersection Capacity Utilization 98.9%      ICU Level of Service F  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1034: Halsted Street & 111th Street



Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	105	415	0	0	380	95	65	55	40	0	0	0
Future Volume (vph)	105	415	0	0	380	95	65	55	40	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.973			0.966				
Fl <sub>t</sub> Protected		0.990						0.980				
Satd. Flow (prot)	0	1730	0	0	1700	0	0	1654	0	0	0	0
Fl <sub>t</sub> Permitted		0.819						0.980				
Satd. Flow (perm)	0	1431	0	0	1700	0	0	1654	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					35			26				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	113	446	0	0	409	102	70	59	43	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	559	0	0	511	0	0	172	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.65			0.49			0.36				
Control Delay		13.1			4.5			18.5				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
No Build Conditions

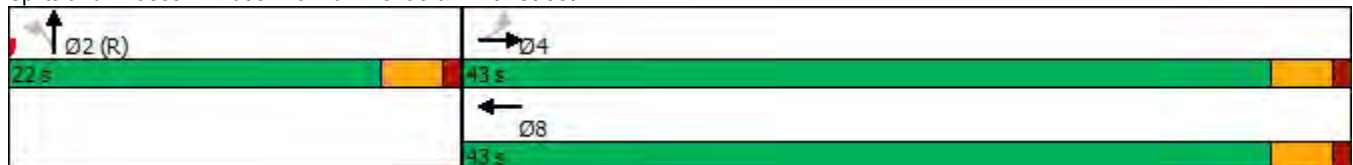


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		13.1			4.5			18.5				
LOS		B			A			B				
Approach Delay		13.1			4.5			18.5				
Approach LOS		B			A			B				
Stops (vph)		329			70			106				
Fuel Used(gal)		11			8			2				
CO Emissions (g/hr)		781			576			152				
NOx Emissions (g/hr)		152			112			30				
VOC Emissions (g/hr)		181			134			35				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		128			32			46				
Queue Length 95th (ft)		227			42			94				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		858			1034			476				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.65			0.49			0.36				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	10.3
Intersection LOS:	B
Intersection Capacity Utilization	75.8%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	25	395	35	45	390	55	30	125	40	70	195	55
Future Volume (vph)	25	395	35	45	390	55	30	125	40	70	195	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.990			0.985			0.969			0.974	
Flt Protected		0.997			0.995			0.992			0.989	
Satd. Flow (prot)	0	1958	0	0	1940	0	0	3100	0	0	3106	0
Flt Permitted		0.961			0.929			0.881			0.849	
Satd. Flow (perm)	0	1887	0	0	1810	0	0	2735	0	0	2654	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			13			43			47	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			179			181	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	32		25	25		32	59		24	24		59
Confl. Bikes (#/hr)	1		2			3	1		2			4
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%	3%	0%	3%	3%	0%	0%	0%	7%	4%	0%	0%
Adj. Flow (vph)	27	420	37	48	415	59	32	133	43	74	207	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	484	0	0	522	0	0	208	0	0	340	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
No Build Conditions

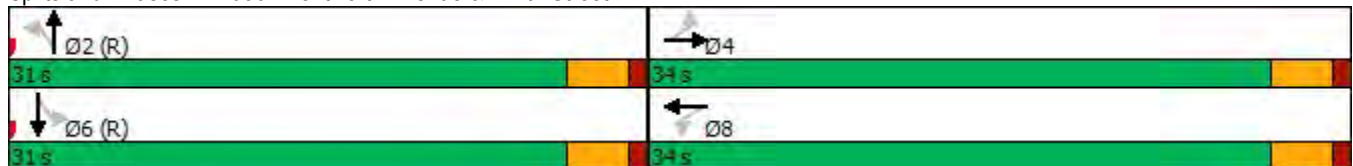


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.55			0.62			0.18			0.30	
Control Delay		18.9			8.1			9.9			11.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.9			8.1			9.9			11.7	
LOS		B			A			A			B	
Approach Delay		18.9			8.1			9.9			11.7	
Approach LOS		B			A			A			B	
Stops (vph)		287			137			158			172	
Fuel Used(gal)		10			7			5			15	
CO Emissions (g/hr)		730			460			373			1056	
NOx Emissions (g/hr)		142			90			72			206	
VOC Emissions (g/hr)		169			107			86			245	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		124			58			13			38	
Queue Length 95th (ft)		220			72			m22			65	
Internal Link Dist (ft)		1924			812			99			101	
Turn Bay Length (ft)												
Base Capacity (vph)		875			842			1161			1129	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.55			0.62			0.18			0.30	

Intersection Summary






















Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 12.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 96.5%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1036: Wentworth Avenue & 111th Street



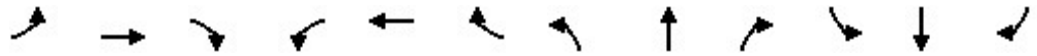
Lanes, Volumes, Timings  
1037: State Street & 111th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	350	55	90	495	95	55	285	130	85	235	65
Future Volume (vph)	55	350	55	90	495	95	55	285	130	85	235	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.98	1.00		0.99	0.99		0.99	1.00	
Frt		0.979			0.976			0.953				0.968
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	3019	0	1596	3075	0	1596	2961	0	1596	3076	0
Flt Permitted	0.307			0.451			0.558			0.490		
Satd. Flow (perm)	488	3019	0	740	3075	0	932	2961	0	818	3076	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			37			138				69
Link Speed (mph)		30			30			30				30
Link Distance (ft)		418			546			2651				289
Travel Time (s)		9.5			12.4			60.3				6.6
Confl. Peds. (#/hr)	20		31	31		20	16		20	20		16
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	3%	0%	0%	1%	0%	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	59	372	59	96	527	101	59	303	138	90	250	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	431	0	96	628	0	59	441	0	90	319	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	

Lanes, Volumes, Timings  
1037: State Street & 111th Street

PM Peak  
No Build Conditions

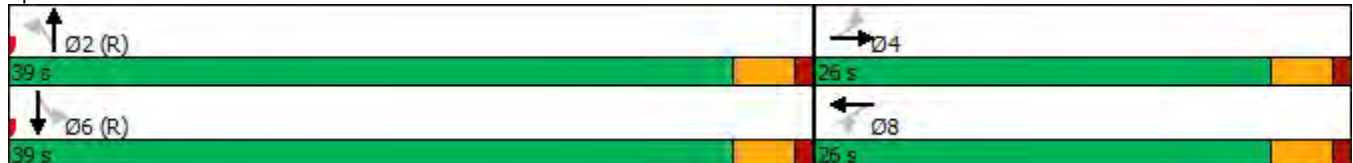


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.36	0.41		0.38	0.59		0.12	0.27		0.20	0.19	
Control Delay	18.9	12.4		21.1	18.7		6.7	4.4		9.8	7.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.9	12.4		21.1	18.7		6.7	4.4		9.8	7.9	
LOS	B	B		C	B		A	A		A	A	
Approach Delay		13.2			19.0			4.7			8.3	
Approach LOS		B			B			A			A	
Stops (vph)	45	336		77	489		25	134		48	142	
Fuel Used(gal)	1	7		1	7		1	10		8	26	
CO Emissions (g/hr)	71	490		84	522		94	677		525	1835	
NOx Emissions (g/hr)	14	95		16	101		18	132		102	357	
VOC Emissions (g/hr)	17	114		19	121		22	157		122	425	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	19	68		33	114		7	13		39	62	
Queue Length 95th (ft)	m40	93		m76	168		m21	45		m38	m57	
Internal Link Dist (ft)		338			466			2571			209	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	165	1041		250	1065		501	1658		440	1688	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.36	0.41		0.38	0.59		0.12	0.27		0.20	0.19	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 12.2 Intersection LOS: B  
 Intersection Capacity Utilization 71.1% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street



Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	390	95	95	430	55	50	260	65	60	350	80
Future Volume (vph)	75	390	95	95	430	55	50	260	65	60	350	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	1.00			0.99			0.98	
Frt		0.971			0.983			0.974			0.976	
Flt Protected	0.950			0.950				0.993			0.994	
Satd. Flow (prot)	1539	3013	0	1438	3071	0	0	2890	0	0	2909	0
Flt Permitted	0.431			0.431				0.843			0.860	
Satd. Flow (perm)	690	3013	0	649	3071	0	0	2439	0	0	2510	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		63			29			45			42	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			221			277			684	
Travel Time (s)		12.4			5.0			6.3			15.5	
Confl. Peds. (#/hr)	38		17	17		38	125		53	53		125
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%	3%	0%	7%	2%	0%	0%	6%	10%	2%	5%	5%
Adj. Flow (vph)	80	415	101	101	457	59	53	277	69	64	372	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	516	0	101	516	0	0	399	0	0	521	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

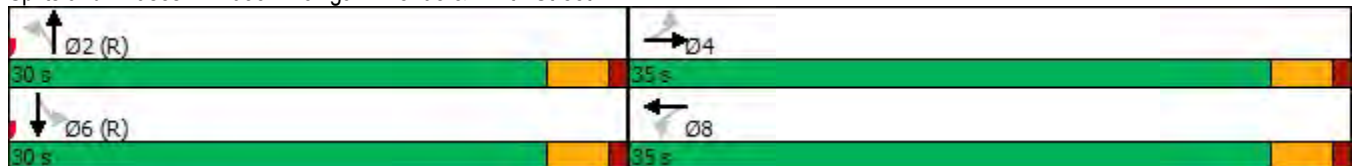
PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.24	0.35		0.33	0.35			0.40			0.51	
Control Delay	17.5	15.7		14.3	10.8			10.4			15.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	17.5	15.7		14.3	10.8			10.4			15.5	
LOS	B	B		B	B			B			B	
Approach Delay		15.9			11.4			10.4			15.5	
Approach LOS		B			B			B			B	
Stops (vph)	57	536		58	267			250			324	
Fuel Used(gal)	1	7		1	5			10			6	
CO Emissions (g/hr)	63	460		74	343			698			416	
NOx Emissions (g/hr)	12	89		14	67			136			81	
VOC Emissions (g/hr)	15	106		17	80			162			96	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	24	86		23	58			23			71	
Queue Length 95th (ft)	50	93		57	90			62			113	
Internal Link Dist (ft)		466			141			197			604	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	329	1469		309	1479			1002			1029	
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	0.24	0.35		0.33	0.35			0.40			0.51	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 13.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 88.1%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 1038: Michigan Avenue & 111th Street



Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	255	110	200	395	80	120	525	65	85	855	135
Future Volume (vph)	135	255	110	200	395	80	120	525	65	85	855	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	1.00	
Frt		0.955			0.975			0.984			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	2982	0	1580	3036	0	1509	3454	0	1524	3471	0
Flt Permitted	0.365			0.460			0.133			0.306		
Satd. Flow (perm)	596	2982	0	759	3036	0	211	3454	0	487	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			30			18			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	19		16	16		19	22		25	25		22
Confl. Bikes (#/hr)										1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	1%	2%	2%	2%	4%	0%	1%	3%	0%
Adj. Flow (vph)	142	268	116	211	416	84	126	553	68	89	900	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	384	0	211	500	0	126	621	0	89	1042	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		11.8%	41.2%		11.8%	41.2%	
Maximum Green (s)	5.0	27.0		5.0	27.0		7.0	31.0		7.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			19.0			19.0	

Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

PM Peak  
No Build Conditions

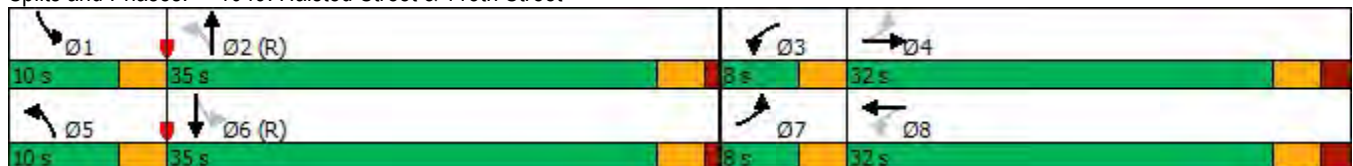


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	31.0		37.0	31.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.36		0.44	0.36	
v/c Ratio	0.53	0.37		0.65	0.49		0.69	0.49		0.31	0.81	
Control Delay	25.4	17.9		30.3	23.3		35.0	21.8		20.2	30.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	17.9		30.3	23.3		35.0	21.8		20.2	30.8	
LOS	C	B		C	C		C	C		C	C	
Approach Delay		19.9			25.4			24.0			29.9	
Approach LOS		B			C			C			C	
Stops (vph)	98	207		161	344		63	425		52	629	
Fuel Used(gal)	3	6		8	19		4	17		2	30	
CO Emissions (g/hr)	184	438		581	1318		258	1201		168	2113	
NOx Emissions (g/hr)	36	85		113	256		50	234		33	411	
VOC Emissions (g/hr)	43	101		135	305		60	278		39	490	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	47	62		73	104		36	128		29	199	
Queue Length 95th (ft)	86	100		#128	150		#101	177		m41	268	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	269	1039		324	1020		183	1271		285	1280	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.53	0.37		0.65	0.49		0.69	0.49		0.31	0.81	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 25.8 Intersection LOS: C  
 Intersection Capacity Utilization 84.3% ICU Level of Service E  
 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: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↖	↗
Traffic Volume (vph)	60	375	40	40	475	30	35	105	45	45	160	85
Future Volume (vph)	60	375	40	40	475	30	35	105	45	45	160	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.993			0.996			0.988			0.989	
Satd. Flow (prot)	0	1675	1479	0	1702	1479	0	1660	1428	0	1649	1428
Flt Permitted		0.789			0.945			0.903			0.919	
Satd. Flow (perm)	0	1330	1417	0	1613	1431	0	1517	1406	0	1531	1398
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			40			32			47			86
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2478	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	11		20	20		11	1		4	4		1
Confl. Bikes (#/hr)			1			1			1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	63	395	42	42	500	32	37	111	47	47	168	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	458	42	0	542	32	0	148	47	0	215	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

PM Peak  
No Build Conditions

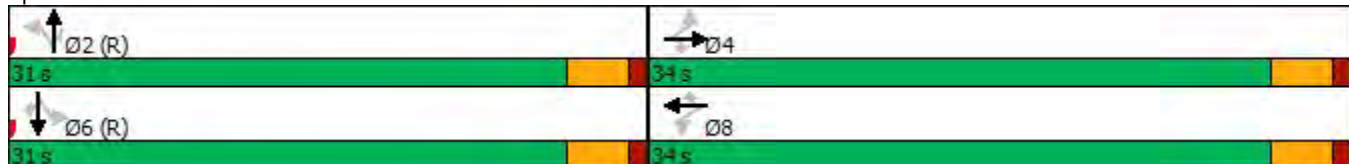


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.75	0.06		0.73	0.05		0.23	0.08		0.34	0.14
Control Delay		24.1	4.2		15.1	1.7		15.3	5.4		13.5	2.1
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		24.1	4.2		15.1	1.7		15.3	5.4		13.5	2.1
LOS		C	A		B	A		B	A		B	A
Approach Delay		22.4			14.3			12.9			10.2	
Approach LOS		C			B			B			B	
Stops (vph)		338	10		288	2		104	17		156	19
Fuel Used(gal)		17	1		9	0		4	1		6	2
CO Emissions (g/hr)		1221	93		598	23		276	75		395	133
NOx Emissions (g/hr)		238	18		116	5		54	15		77	26
VOC Emissions (g/hr)		283	21		139	5		64	17		92	31
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		141	0		88	1		43	1		72	1
Queue Length 95th (ft)		#289	15		111	4		m89	m12		110	m3
Internal Link Dist (ft)		3325			1260			2589			2398	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		613	675		744	677		630	611		635	630
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.75	0.06		0.73	0.05		0.23	0.08		0.34	0.14

Intersection Summary

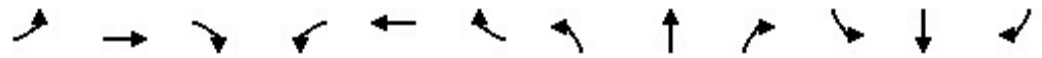
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 15.9 Intersection LOS: B  
 Intersection Capacity Utilization 101.8% ICU Level of Service G  
 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: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	385	25	50	305	40	15	135	25	115	225	70
Future Volume (vph)	95	385	25	50	305	40	15	135	25	115	225	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.983			0.976			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1631	1386	1550	3046	0	1550	3025	0	1550	2991	0
Flt Permitted	0.950			0.520			0.560			0.643		
Satd. Flow (perm)	1550	1631	1386	848	3046	0	913	3025	0	1049	2991	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1340			559			516			2651	
Travel Time (s)		30.5			12.7			11.7			60.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	102	414	27	54	328	43	16	145	27	124	242	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	414	27	54	371	0	16	172	0	124	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Effct Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	

Lanes, Volumes, Timings  
1051: State Street & 115th Street

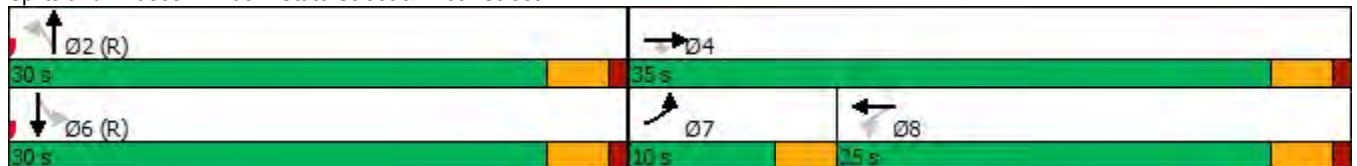
PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.48	0.48	0.32	0.32		0.40	0.40		0.40	0.40	
v/c Ratio	0.61	0.53	0.04	0.20	0.38		0.04	0.14		0.30	0.27	
Control Delay	45.0	7.9	4.9	13.8	13.6		10.0	10.6		17.0	15.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.0	7.9	4.9	13.8	13.6		10.0	10.6		17.0	15.1	
LOS	D	A	A	B	B		A	B		B	B	
Approach Delay		14.7			13.6			10.6			15.6	
Approach LOS		B			B			B			B	
Stops (vph)	76	148	6	19	136		10	92		92	222	
Fuel Used(gal)	2	5	0	0	3		0	4		3	8	
CO Emissions (g/hr)	160	381	22	32	224		28	293		229	575	
NOx Emissions (g/hr)	31	74	4	6	44		5	57		45	112	
VOC Emissions (g/hr)	37	88	5	8	52		6	68		53	133	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	32	34	2	9	33		3	15		62	76	
Queue Length 95th (ft)	m52	49	m4	m17	43		m8	m28		105	91	
Internal Link Dist (ft)		1260			479			436			2571	
Turn Bay Length (ft)	80			55			45			55		
Base Capacity (vph)	166	777	661	273	984		365	1210		419	1196	
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	
Reduced v/c Ratio	0.61	0.53	0.04	0.20	0.38		0.04	0.14		0.30	0.27	

Intersection Summary























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 14.2 Intersection LOS: B  
 Intersection Capacity Utilization 50.3% ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1051: State Street & 115th Street



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	315	80	220	360	70	30	310	25	70	340	65
Future Volume (vph)	75	315	80	220	360	70	30	310	25	70	340	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.996			0.992	
Satd. Flow (prot)	1550	1631	1386	1550	1631	1386	0	1625	1386	0	1618	1386
Fl <sub>t</sub> Permitted	0.533			0.950				0.929			0.805	
Satd. Flow (perm)	869	1631	1386	1550	1631	1386	0	1515	1386	0	1313	1386
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			75			101			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	81	339	86	237	387	75	32	333	27	75	366	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	339	86	237	387	75	0	365	27	0	441	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	0.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effect Green (s)	

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

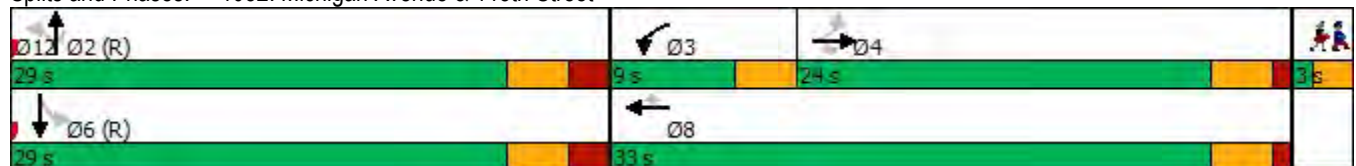
PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.00
v/c Ratio	0.30	0.68	0.17	1.66	0.53	0.11		0.65	0.05		0.91	0.38
Control Delay	16.7	21.4	2.1	335.0	16.8	6.8		17.0	0.8		42.1	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	16.7	21.4	2.1	335.0	16.8	6.8		17.0	0.8		42.1	6.6
LOS	B	C	A	F	B	A		B	A		D	A
Approach Delay		17.4			123.6			15.9			37.2	
Approach LOS		B			F			B			D	
Stops (vph)	37	189	9	171	201	19		255	2		367	10
Fuel Used(gal)	1	4	0	17	5	1		24	2		14	1
CO Emissions (g/hr)	55	265	30	1207	315	43		1663	110		984	105
NOx Emissions (g/hr)	11	52	6	235	61	8		324	21		191	20
VOC Emissions (g/hr)	13	61	7	280	73	10		385	26		228	24
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	18	78	2	~149	101	5		101	0		166	1
Queue Length 95th (ft)	40	128	8	m#166	m109	m6		m164	m1		#351	14
Internal Link Dist (ft)		479			306			1260			2314	
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	267	501	507	143	727	659		559	575		484	185
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
Reduced v/c Ratio	0.30	0.68	0.17	1.66	0.53	0.11		0.65	0.05		0.91	0.38

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.66  
 Intersection Signal Delay: 57.1      Intersection LOS: E  
 Intersection Capacity Utilization 87.3%      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.

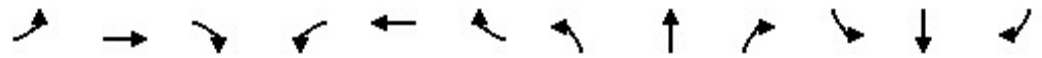
Splits and Phases: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕↗				
Traffic Volume (vph)	20	370	20	80	660	80	60	130	195	0	0	0
Future Volume (vph)	20	370	20	80	660	80	60	130	195	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.932				
Fl <sub>t</sub> Protected		0.997			0.995			0.992				
Satd. Flow (prot)	0	1626	1386	0	1623	1386	0	1616	0	0	0	0
Fl <sub>t</sub> Permitted		0.949			0.912			0.992				
Satd. Flow (perm)	0	1548	1386	0	1488	1386	0	1616	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			56		82				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	22	398	22	86	710	86	65	140	210	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	420	22	0	796	86	0	415	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				



Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

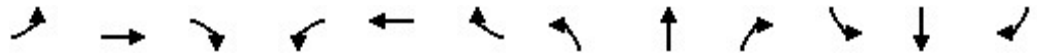
PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		36.8	36.8		36.8	36.8		19.2				
Actuated g/C Ratio		0.57	0.57		0.57	0.57		0.30				
v/c Ratio		0.48	0.03		0.95	0.11		0.77				
Control Delay		17.0	8.3		37.1	3.7		28.2				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		17.0	8.3		37.1	3.7		28.2				
LOS		B	A		D	A		C				
Approach Delay		16.6			33.8			28.2				
Approach LOS		B			C			C				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
30th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
10th %ile Green (s)	39.8	39.8	39.8	39.8	39.8	39.8	16.2	16.2				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		264	12		561	18		270				
Fuel Used(gal)		5	0		16	1		6				
CO Emissions (g/hr)		361	15		1139	69		426				
NOx Emissions (g/hr)		70	3		222	13		83				
VOC Emissions (g/hr)		84	4		264	16		99				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		126	3		274	5		117				
Queue Length 95th (ft)		m174	m4		#521	22		#248				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

PM Peak  
 No Build Conditions

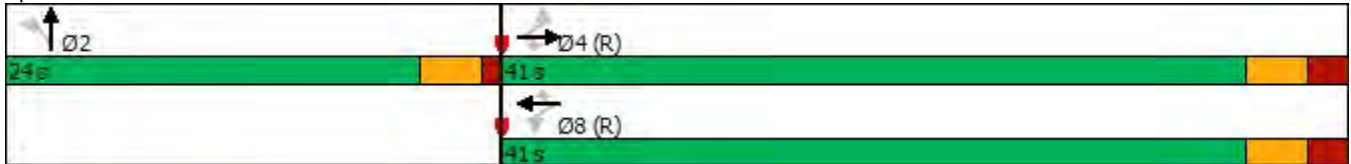


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		875	793		841	808		554				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.48	0.03		0.95	0.11		0.75				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 28.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 99.7%  
 ICU Level of Service F  
 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: 1053: Indiana Avenue & 115th Street



Lanes, Volumes, Timings  
 1054: 115th Street & Martin Luther King Jr Drive

PM Peak  
 No Build Conditions



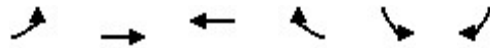
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Volume (vph)	90	470	635	45	140	190
Future Volume (vph)	90	470	635	45	140	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.991			0.850
Flt Protected		0.992			0.950	
Satd. Flow (prot)	0	1859	1985	0	1596	1428
Flt Permitted		0.992			0.950	
Satd. Flow (perm)	0	1859	1985	0	1596	1428
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	17			17	6	5
Confl. Bikes (#/hr)				3	2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	2%	2%	0%	0%	0%
Adj. Flow (vph)	102	534	722	51	159	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	636	773	0	159	216
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	88.6%
ICU Level of Service	E
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

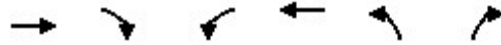
PM Peak  
 No Build Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	90	470	635	45	140	190
Future Volume (vph)	90	470	635	45	140	190
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	102	534	722	51	159	216
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total (vph)	636	773	159	216		
Volume Left (vph)	102	0	159	0		
Volume Right (vph)	0	51	0	216		
Hadj (s)	0.07	-0.01	0.50	-0.70		
Departure Headway (s)	6.2	6.1	8.1	6.9		
Degree Utilization, x	1.09	1.31	0.36	0.41		
Capacity (veh/h)	573	599	441	518		
Control Delay (s)	89.4	171.6	14.3	13.4		
Approach Delay (s)	89.4	171.6	13.8			
Approach LOS	F	F	B			
Intersection Summary						
Delay			109.1			
Level of Service			F			
Intersection Capacity Utilization			88.6%	ICU Level of Service	E	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

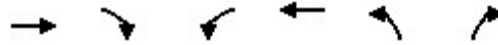
PM Peak  
No Build Conditions



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	815	0	0	700	5	35				
Future Volume (vph)	815	0	0	700	5	35				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.881					
Flt Protected					0.994					
Satd. Flow (prot)	1631	1748	0	1468	1734	0				
Flt Permitted					0.994					
Satd. Flow (perm)	1631	1748	0	1468	1734	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					38					
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Parking (#/hr)				0						
Adj. Flow (vph)	876	0	0	753	5	38				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	876	0	0	753	43	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm		NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0	14.0					
Actuated g/C Ratio	0.73			0.36	0.16					
v/c Ratio	0.74			1.41	0.14					

Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

PM Peak  
 No Build Conditions



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	7.6			220.3	13.2					
Queue Delay	4.2			0.9	0.0					
Total Delay	11.8			221.2	13.2					
LOS	B			F	B					
Approach Delay	11.8			221.2	13.3					
Approach LOS	B			F	B					
Stops (vph)	293			541	14					
Fuel Used(gal)	4			48	0					
CO Emissions (g/hr)	248			3353	24					
NOx Emissions (g/hr)	48			652	5					
VOC Emissions (g/hr)	57			777	6					
Dilemma Vehicles (#)	0			0	0					
Queue Length 50th (ft)	145			~546	2					
Queue Length 95th (ft)	155			#759	30					
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1189			535	317					
Starvation Cap Reductn	234			0	0					
Spillback Cap Reductn	0			55	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.92			1.57	0.14					

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 106.2 Intersection LOS: F  
 Intersection Capacity Utilization 56.1% ICU Level of Service B  
 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.

Splits and Phases: 1055: Cottage Grove Avenue & 115th Street

#1955 Ø2 (R) 12 s	#1955 Ø1 20 s	#105#1955 Ø3 18 s	#105#1955 Ø4 35 s
#105#1955 Ø6 (R) 32 s			#1955 Ø8 35 s

Lanes, Volumes, Timings  
1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
No Build Conditions





















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑	↑
Traffic Volume (vph)	0	255	685	30	395	0	0	0	0	20	10	280
Future Volume (vph)	0	255	685	30	395	0	0	0	0	20	10	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.891										0.850
Flt Protected					0.996						0.968	
Satd. Flow (prot)	0	3025	0	0	3366	0	0	0	0	0	1975	1500
Flt Permitted					0.996						0.968	
Satd. Flow (perm)	0	3025	0	0	3366	0	0	0	0	0	1975	1500
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	4%	1%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	271	729	32	420	0	0	0	0	21	11	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1000	0	0	452	0	0	0	0	0	32	298
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
 No Build Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	255	685	30	395	0	0	0	0	20	10	280
Future Volume (Veh/h)	0	255	685	30	395	0	0	0	0	20	10	280
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	271	729	32	420	0	0	0	0	21	11	298
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	420			271			915	1120	500	620	755	210
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	420			271			915	1120	500	620	755	210
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	94	97	63
cM capacity (veh/h)	1150			1275			138	203	522	369	332	796
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	181	819	172	280	32	298						
Volume Left	0	0	32	0	21	0						
Volume Right	0	729	0	0	0	298						
cSH	1700	1700	1275	1700	356	796						
Volume to Capacity	0.11	0.48	0.03	0.16	0.09	0.37						
Queue Length 95th (ft)	0	0	2	0	7	44						
Control Delay (s)	0.0	0.0	1.6	0.0	16.1	12.2						
Lane LOS			A		C	B						
Approach Delay (s)	0.0		0.6		12.6							
Approach LOS					B							
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			45.6%	ICU Level of Service	A							
Analysis Period (min)			15									



Lanes, Volumes, Timings  
1057: Bishop Ford Freeway WB Ramps & 115th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Traffic Volume (vph)	275	0	425	0	0	0
Future Volume (vph)	275	0	425	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3221	0	1660	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3221	0	1660	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	296	0	457	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	296	0	457	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

PM Peak  
 No Build Conditions

























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶↶		↶			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	275	0	425	0	0	0
Future Volume (vph)	275	0	425	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	296	0	457	0	0	0

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total (vph)	148	148	457
Volume Left (vph)	148	148	457
Volume Right (vph)	0	0	0
Hadj (s)	0.55	0.55	0.25
Departure Headway (s)	6.3	6.3	5.0
Degree Utilization, x	0.26	0.26	0.63
Capacity (veh/h)	544	545	697
Control Delay (s)	10.3	10.3	16.2
Approach Delay (s)	10.3		16.2
Approach LOS	B		C

Intersection Summary		
Delay		13.9
Level of Service		B
Intersection Capacity Utilization	39.8%	ICU Level of Service
Analysis Period (min)		15
		A

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	300	160	100	240	75	115	560	75	120	1015	150
Future Volume (vph)	165	300	160	100	240	75	115	560	75	120	1015	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.98	1.00	0.99		0.99	1.00		0.99	0.99	
Frt			0.850		0.964			0.982			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1580	1600	1400	1596	1778	0	1580	3122	0	1539	3002	0
Flt Permitted	0.364			0.425			0.123			0.290		
Satd. Flow (perm)	596	1600	1372	711	1778	0	203	3122	0	467	3002	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163		18			19			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			3955			5338			2655	
Travel Time (s)		17.1			89.9			121.3			60.3	
Confl. Peds. (#/hr)	28		8	8		28	59		11	11		59
Confl. Bikes (#/hr)						3	1		2			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	5%	2%	0%	4%	0%	1%	4%	0%	0%	3%	3%
Adj. Flow (vph)	168	306	163	102	245	77	117	571	77	122	1036	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	306	163	102	322	0	117	648	0	122	1189	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	34.8	30.0	29.0	34.0	27.0		40.0	34.0		40.0	34.0	
Actuated g/C Ratio	0.39	0.33	0.32	0.38	0.30		0.44	0.38		0.44	0.38	
v/c Ratio	0.57	0.57	0.30	0.31	0.59		0.64	0.54		0.44	1.04	
Control Delay	26.6	30.9	5.6	19.1	30.5		31.3	23.3		18.4	65.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.6	30.9	5.6	19.1	30.5		31.3	23.3		18.4	65.1	
LOS	C	C	A	B	C		C	C		B	E	
Approach Delay		23.3			27.7			24.6			60.8	
Approach LOS		C			C			C			E	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	34.0		7.0	34.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Max	Coord	
Stops (vph)	116	249	22	63	249		61	465		68	990	
Fuel Used(gal)	3	5	1	4	13		6	32		3	45	
CO Emissions (g/hr)	175	351	87	267	914		409	2238		231	3147	
NOx Emissions (g/hr)	34	68	17	52	178		80	435		45	612	
VOC Emissions (g/hr)	41	81	20	62	212		95	519		54	729	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	60	147	0	35	146		35	144		37	~383	
Queue Length 95th (ft)	106	236	44	67	234		#91	198		69	#514	
Internal Link Dist (ft)		672			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	295	533	552	327	546		182	1191		279	1147	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

PM Peak  
 No Build Conditions

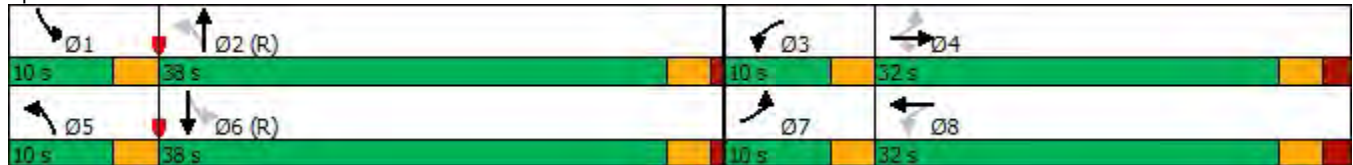


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.57	0.57	0.30	0.31	0.59		0.64	0.54		0.44	1.04	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	39.9
Intersection LOS:	D
Intersection Capacity Utilization	88.3%
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.	

Splits and Phases: 1060: Halsted Street & 119th Street



Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	375	75	15	340	25	45	70	25	25	105	80
Future Volume (vph)	45	375	75	15	340	25	45	70	25	25	105	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		0.99			0.99	
Frt			0.850			0.850		0.976			0.948	
Flt Protected		0.995			0.998			0.984			0.994	
Satd. Flow (prot)	0	1681	1428	0	1630	1428	0	1894	0	0	1870	0
Flt Permitted		0.935			0.980			0.872			0.964	
Satd. Flow (perm)	0	1578	1369	0	1600	1381	0	1675	0	0	1813	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			27		20			59	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	12		20	20		12	8		2	2		8
Confl. Bikes (#/hr)	1		2	1		1			1	1		
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 (%)	3%	3%	0%	0%	3%	0%	0%	0%	0%	0%	1%	3%
Adj. Flow (vph)	49	412	82	16	374	27	49	77	27	27	115	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	461	82	0	390	27	0	153	0	0	230	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.59	0.11		0.50	0.04		0.22			0.29	
Control Delay		15.8	2.9		10.5	2.4		11.6			6.9	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		15.8	2.9		10.5	2.4		11.6			6.9	
LOS		B	A		B	A		B			A	
Approach Delay		13.9			9.9			11.6			6.9	
Approach LOS		B			A			B			A	
Stops (vph)		291	11		134	3		74			135	
Fuel Used(gal)		16	2		5	0		4			5	
CO Emissions (g/hr)		1112	169		362	20		254			377	
NOx Emissions (g/hr)		216	33		70	4		49			73	
VOC Emissions (g/hr)		258	39		84	5		59			87	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		123	0		66	1		32			10	
Queue Length 95th (ft)		209	19		88	m4		66			m27	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		776	715		787	693		707			787	
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		0.59	0.11		0.50	0.04		0.22			0.29	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 11.2

Intersection LOS: B

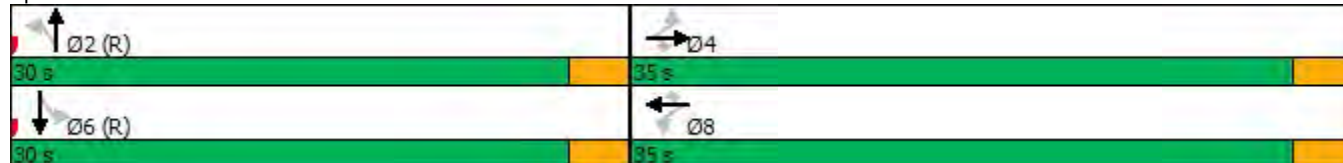
Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

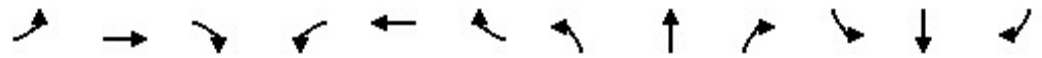
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
No Build Conditions















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	70	235	50	15	245	10	40	120	20	15	190	75
Future Volume (vph)	70	235	50	15	245	10	40	120	20	15	190	75
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.94		1.00	0.95		1.00	0.97		0.99	
Frt			0.850			0.850			0.850		0.964	
Flt Protected		0.989			0.997			0.988			0.997	
Satd. Flow (prot)	0	1636	1428	0	1614	1428	0	1600	1428	0	1938	0
Flt Permitted		0.863			0.972			0.880			0.984	
Satd. Flow (perm)	0	1422	1347	0	1572	1360	0	1424	1390	0	1912	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52			34			34			40
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	19		25	25		19	3		6	6		3
Confl. Bikes (#/hr)	1		2	1		1	1		1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	0%	4%	0%	0%	5%	0%	0%	0%	2%
Adj. Flow (vph)	73	245	52	16	255	10	42	125	21	16	198	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	52	0	271	10	0	167	21	0	292	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0



Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.63	0.10		0.49	0.02		0.24	0.03		0.30	
Control Delay		15.0	1.9		20.1	1.2		2.2	0.8		8.2	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		15.0	1.9		20.1	1.2		2.2	0.8		8.2	
LOS		B	A		C	A		A	A		A	
Approach Delay		13.2			19.4			2.0			8.2	
Approach LOS		B			B			A			A	
Stops (vph)		254	12		198	1		41	3		238	
Fuel Used(gal)		6	1		3	0		7	1		8	
CO Emissions (g/hr)		385	42		218	3		488	60		533	
NOx Emissions (g/hr)		75	8		42	1		95	12		104	
VOC Emissions (g/hr)		89	10		51	1		113	14		124	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		109	3		82	0		11	1		136	
Queue Length 95th (ft)		178	m4		146	3		m11	m1		142	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		503	510		556	503		701	701		961	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.63	0.10		0.49	0.02		0.24	0.03		0.30	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 11.6      Intersection LOS: B  
 Intersection Capacity Utilization 85.0%      ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1062: State Street & 119th Street



Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (vph)	0	1095	365	370	1065	0	0	0	0	650	360	425
Future Volume (vph)	0	1095	365	370	1065	0	0	0	0	650	360	425
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		0.99		1.00								
Frt		0.963									0.980	0.850
Flt Protected				0.950						0.950	0.981	
Satd. Flow (prot)	0	4569	0	1676	3320	0	0	0	0	1541	2911	1442
Flt Permitted				0.081						0.950	0.981	
Satd. Flow (perm)	0	4569	0	143	3320	0	0	0	0	1541	2911	1442
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76									12	111
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			590			708	
Travel Time (s)		30.9			7.3			13.4			16.1	
Confl. Peds. (#/hr)	15		11	11		15						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	3%	3%	2%	3%	0%	0%	0%	0%	1%	3%	3%
Adj. Flow (vph)	0	1117	372	378	1087	0	0	0	0	663	367	434
Shared Lane Traffic (%)										43%		23%
Lane Group Flow (vph)	0	1489	0	378	1087	0	0	0	0	378	752	334
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4

Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (%)		36.1%		33.9%	70.0%					30.0%	30.0%	30.0%
Maximum Green (s)		35.5		34.5	74.5					28.5	28.5	28.5
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										1.5	1.5	1.5
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		44.6		76.0	74.5					28.5	28.5	28.5
Actuated g/C Ratio		0.39		0.66	0.65					0.25	0.25	0.25
v/c Ratio		0.82		0.87	0.51					0.99	1.03	0.76
Control Delay		35.7		36.3	22.3					88.1	83.4	38.8
Queue Delay		0.1		7.9	51.0					0.0	0.0	0.0
Total Delay		35.8		44.2	73.3					88.1	83.4	38.8
LOS		D		D	E					F	F	D
Approach Delay		35.8			65.8						74.4	
Approach LOS		D			E						E	
90th %ile Green (s)		35.5		34.5	74.5					28.5	28.5	28.5
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		40.0		30.0	74.5					28.5	28.5	28.5
70th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
50th %ile Green (s)		44.2		25.8	74.5					28.5	28.5	28.5
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		48.5		21.5	74.5					28.5	28.5	28.5
30th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
10th %ile Green (s)		54.8		15.2	74.5					28.5	28.5	28.5
10th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
Stops (vph)		1148		320	895					321	638	206
Fuel Used(gal)		32		5	12					10	20	6
CO Emissions (g/hr)		2264		380	871					731	1405	386
NOx Emissions (g/hr)		441		74	169					142	273	75
VOC Emissions (g/hr)		525		88	202					169	326	90
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		343		219	353					307	~343	171
Queue Length 95th (ft)		#511		m261	m415					#525	#481	#319
Internal Link Dist (ft)		1279			242			510			628	

Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
No Build Conditions

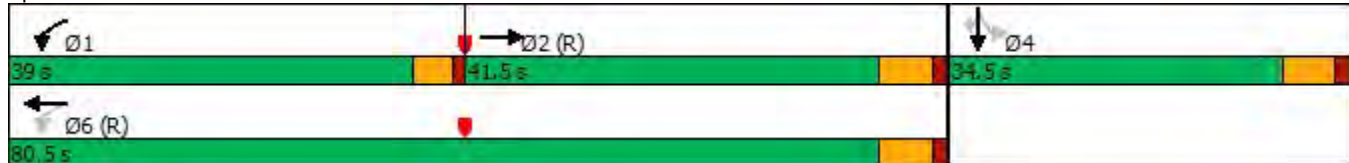


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)				216						360		360
Base Capacity (vph)		1818		554	2150					381	730	440
Starvation Cap Reductn		0		136	1318					0	0	0
Spillback Cap Reductn		24		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.83		0.90	1.31					0.99	1.03	0.76

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 85 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 58.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 115.4%  
 ICU Level of Service H  
 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: 1064: S Paulina St & 127th Street



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↑↑		↖	↑↑				
Traffic Volume (vph)	430	1315	0	0	1025	330	410	340	300	0	0	0
Future Volume (vph)	430	1315	0	0	1025	330	410	340	300	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Flt					0.963			0.930				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3252	3353	0	0	4631	0	1676	3120	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3247	3353	0	0	4631	0	1676	3120	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					87							
Link Speed (mph)		30			30			30				30
Link Distance (ft)		322			336			554				548
Travel Time (s)		7.3			7.6			12.6				12.5
Confl. Peds. (#/hr)	7		5	5		7						
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	2%	1%	3%	0%	0%	0%
Adj. Flow (vph)	453	1384	0	0	1079	347	432	358	316	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	1384	0	0	1426	0	432	674	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

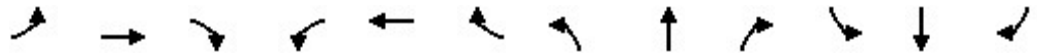
PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (%)	23.0%	70.0%			47.0%		30.0%	30.0%				
Maximum Green (s)	20.5	74.5			48.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	19.5	74.5			49.0		28.5	28.5				
Actuated g/C Ratio	0.17	0.65			0.43		0.25	0.25				
v/c Ratio	0.82	0.64			0.71		1.04	0.87				
Control Delay	53.3	3.1			22.6		97.9	55.0				
Queue Delay	0.4	2.8			2.0		21.8	0.0				
Total Delay	53.7	5.9			24.5		119.8	55.0				
LOS	D	A			C		F	D				
Approach Delay		17.6			24.5			80.3				
Approach LOS		B			C			F				
90th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
50th %ile Term Code	Max	Coord			Coord		Max	Max				
30th %ile Green (s)	19.6	74.5			48.9		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	16.5	74.5			52.0		28.5	28.5				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	376	308			630		348	581				
Fuel Used(gal)	8	6			13		12	13				
CO Emissions (g/hr)	547	408			927		830	918				
NOx Emissions (g/hr)	106	79			180		161	179				
VOC Emissions (g/hr)	127	94			215		192	213				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	142	11			179		~346	253				
Queue Length 95th (ft)	m170	m12			m250		#545	#353				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	579	2172			2022		415	773				
Starvation Cap Reductn	11	646			295		0	0				
Spillback Cap Reductn	0	130			420		40	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.80	0.91			0.89		1.15	0.87				

Intersection Summary























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 35.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 115.4%  
 ICU Level of Service H  
 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: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

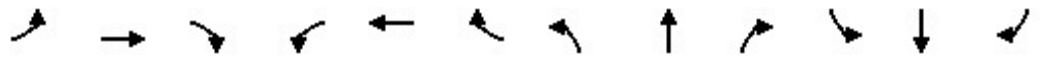
PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	725	465	120	715	60	285	225	85	95	205	155
Future Volume (vph)	155	725	465	120	715	60	285	225	85	95	205	155
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	1.00		1.00	0.99		0.99	0.99	
Frt			0.850		0.988			0.959				0.935
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3386	1337	1605	3282	0	1580	3216	0	1550	2945	0
Flt Permitted	0.138			0.352			0.298			0.553		
Satd. Flow (perm)	227	3386	1292	591	3282	0	493	3216	0	894	2945	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			384		8			50			165	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		336			5379			1555			925	
Travel Time (s)		7.6			122.3			35.3			21.0	
Confl. Peds. (#/hr)	11		23	23		11	8		12	12		8
Confl. Bikes (#/hr)									1			
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 (%)	2%	1%	3%	3%	3%	0%	1%	1%	2%	3%	0%	1%
Parking (#/hr)			0									
Adj. Flow (vph)	165	771	495	128	761	64	303	239	90	101	218	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	771	495	128	825	0	303	329	0	101	383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (%)	13.0%	38.3%	17.8%	10.9%	36.1%		17.8%	37.8%		13.0%	33.0%	
Maximum Green (s)	10.5	38.0	16.0	8.0	35.5		16.0	37.5		10.5	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	63.9	48.2	65.7	47.1	35.5		41.7	26.2		30.8	19.8	
Actuated g/C Ratio	0.56	0.42	0.57	0.41	0.31		0.36	0.23		0.27	0.17	
v/c Ratio	0.42	0.54	0.55	0.39	0.81		0.92	0.43		0.34	0.60	
Control Delay	14.4	22.1	6.3	18.1	43.7		58.4	29.0		27.8	27.9	
Queue Delay	0.0	1.1	0.2	0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay	14.4	23.2	6.5	18.1	43.8		58.4	29.0		27.8	27.9	
LOS	B	C	A	B	D		E	C		C	C	
Approach Delay		16.4			40.3			43.1			27.9	
Approach LOS		B			D			D			C	
90th %ile Green (s)	16.4	38.0	16.0	13.9	35.5		16.0	31.6		10.5	26.1	
90th %ile Term Code	MaxR	Coord	Max	Max	Coord		Max	Hold		Max	Gap	
70th %ile Green (s)	20.4	44.5	16.0	11.4	35.5		16.0	27.6		10.5	22.1	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
50th %ile Green (s)	23.6	49.3	16.0	9.8	35.5		16.0	24.4		10.5	18.9	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
30th %ile Green (s)	25.8	52.8	16.0	8.5	35.5		16.0	23.6		9.1	16.7	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Gap	
10th %ile Green (s)	27.8	56.5	15.7	6.8	35.5		15.7	23.8		6.9	15.0	
10th %ile Term Code	MaxR	Coord	Gap	Gap	Coord		Gap	Hold		Gap	Min	
Stops (vph)	69	535	164	69	690		233	244		69	186	
Fuel Used(gal)	1	8	3	6	43		8	7		2	6	
CO Emissions (g/hr)	87	567	190	409	3024		569	484		112	396	
NOx Emissions (g/hr)	17	110	37	80	588		111	94		22	77	
VOC Emissions (g/hr)	20	131	44	95	701		132	112		26	92	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	35	229	126	42	293		195	100		51	78	
Queue Length 95th (ft)	m96	m305	m168	85	372		#263	136		83	121	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

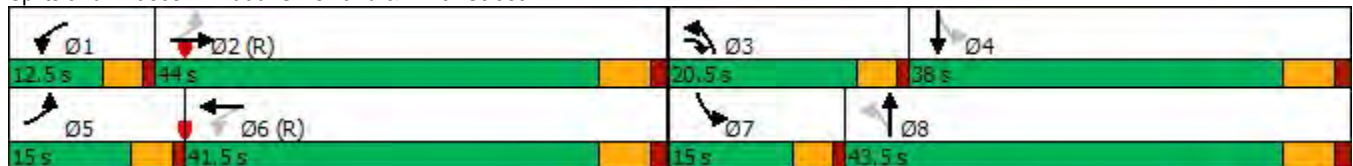
PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		256			5299			1475			845	
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	391	1419	909	334	1018		330	1082		306	938	
Starvation Cap Reductn	0	389	72	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	5		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.75	0.59	0.38	0.81		0.92	0.30		0.33	0.41	

Intersection Summary





















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 15 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 29.3      Intersection LOS: C  
 Intersection Capacity Utilization 88.0%      ICU Level of Service E  
 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: 1066: S Ashland & 127th Street



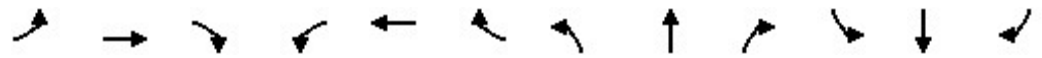
Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	245	465	70	205	110	460	430	100	260	515	70
Future Volume (vph)	60	245	465	70	205	110	460	430	100	260	515	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00	0.99		1.00				1.00	
Frt		0.902			0.948			0.972				0.982
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	2993	0	1710	3182	0	1621	3297	0	1693	3294	0
Flt Permitted	0.504			0.175			0.206			0.432		
Satd. Flow (perm)	900	2993	0	315	3182	0	351	3297	0	770	3294	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					85			29				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	12		3	3		12	5					5
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%	2%	2%	0%	1%	1%	2%	1%	0%	1%	2%	0%
Adj. Flow (vph)	66	269	511	77	225	121	505	473	110	286	566	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	780	0	77	346	0	505	583	0	286	643	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (%)	13.0%	28.3%		17.0%	32.2%		21.7%	43.9%		10.9%	33.0%	
Maximum Green (s)	11.0	26.5		15.5	31.0		21.0	44.5		8.5	32.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					6.0							4.0
Flash Dont Walk (s)					25.0							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	44.3	35.0		45.3	35.4		59.0	44.5		42.5	32.0	
Actuated g/C Ratio	0.39	0.30		0.39	0.31		0.51	0.39		0.37	0.28	
v/c Ratio	0.16	1.13dr		0.33	0.33		1.23	0.45		0.81	0.70	
Control Delay	21.6	49.6		24.5	24.9		147.1	26.1		42.0	41.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	49.6		24.5	24.9		147.1	26.1		42.0	41.9	
LOS	C	D		C	C		F	C		D	D	
Approach Delay		47.4			24.8			82.3			41.9	
Approach LOS		D			C			F			D	
90th %ile Green (s)	11.0	30.1		11.9	31.0		21.0	44.5		8.5	32.0	
90th %ile Term Code	Max	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	9.7	31.8		10.2	32.3		21.0	44.5		8.5	32.0	
70th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.6	32.9		9.1	33.4		21.0	44.5		8.5	32.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.6	34.0		8.0	34.4		21.0	44.5		8.5	32.0	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	0.0	46.0		0.0	46.0		21.0	44.5		8.5	32.0	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Max	Coord		Max	Coord	
Stops (vph)	36	606		42	182		263	363		205	496	
Fuel Used(gal)	1	15		3	16		19	9		7	15	
CO Emissions (g/hr)	54	1014		244	1098		1314	634		467	1068	
NOx Emissions (g/hr)	10	197		48	214		256	123		91	208	
VOC Emissions (g/hr)	12	235		57	255		305	147		108	248	
Dilemma Vehicles (#)	0	29		0	14		0	23		0	29	
Queue Length 50th (ft)	29	293		34	78		~371	157		106	208	
Queue Length 95th (ft)	58	#439		66	124		#585	209		#217	284	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

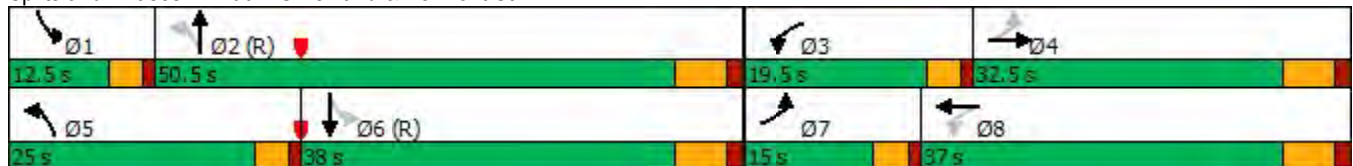
PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	435	909		319	1038		411	1293		352	916	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.86		0.24	0.33		1.23	0.45		0.81	0.70	

Intersection Summary

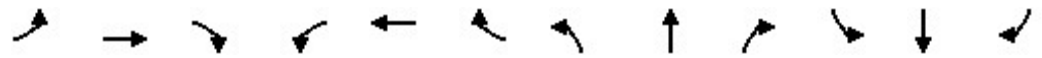
Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.23  
 Intersection Signal Delay: 54.5 Intersection LOS: D  
 Intersection Capacity Utilization 99.6% 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1067: S Ashland & Vermont St



Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↗	↕↔		↗	↕↔	
Traffic Volume (vph)	110	620	145	15	475	85	120	330	10	195	595	180
Future Volume (vph)	110	620	145	15	475	85	120	330	10	195	595	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		1.00	1.00		1.00	0.99	
Frt		0.975			0.978			0.995			0.965	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3138	0	0	3143	0	1559	3337	0	1637	3082	0
Flt Permitted		0.711			0.918		0.159			0.534		
Satd. Flow (perm)	0	2244	0	0	2888	0	261	3337	0	918	3082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			23			4			47	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	4		2	2		4	8		4	4		8
Confl. Bikes (#/hr)												2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	0%	2%	6%	6%	2%	0%	1%	3%	3%
Adj. Flow (vph)	118	667	156	16	511	91	129	355	11	210	640	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	941	0	0	618	0	129	366	0	210	834	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

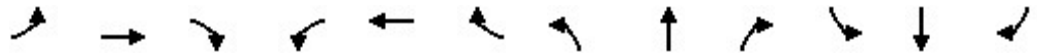
PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	8.0	37.0		21.0	21.0		8.0	31.0		8.0	21.0	
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0	
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%	
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		2						4				
Act Effct Green (s)		34.0			34.0		37.3	25.2		34.9	24.0	
Actuated g/C Ratio		0.41			0.41		0.45	0.30		0.42	0.29	
v/c Ratio		1.00			0.52		0.48	0.36		0.46	0.90	
Control Delay		56.5			19.8		18.8	23.5		17.3	42.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		56.5			19.8		18.8	23.5		17.3	42.1	
LOS		E			B		B	C		B	D	
Approach Delay		56.5			19.8			22.3			37.1	
Approach LOS		E			B			C			D	
90th %ile Green (s)	0.0	34.0		34.0	34.0		11.5	27.0		8.5	24.0	
90th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
70th %ile Green (s)	0.0	34.0		34.0	34.0		11.4	26.9		8.5	24.0	
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
50th %ile Green (s)	0.0	34.0		34.0	34.0		10.0	25.5		8.5	24.0	
50th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
30th %ile Green (s)	0.0	34.0		34.0	34.0		8.6	24.1		8.5	24.0	
30th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
10th %ile Green (s)	0.0	34.0		34.0	34.0		6.6	22.6		8.0	24.0	
10th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Gap	Max	
Stops (vph)		710			399		65	251		124	643	
Fuel Used(gal)		51			10		1	4		9	43	
CO Emissions (g/hr)		3542			731		87	294		663	2971	
NOx Emissions (g/hr)		689			142		17	57		129	578	
VOC Emissions (g/hr)		821			169		20	68		154	689	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		~252			120		37	77		63	209	
Queue Length 95th (ft)		#402			175		69	114		107	#333	
Internal Link Dist (ft)		5299			1243			370			5258	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)							135			130		
Base Capacity (vph)		937			1195		302	1087		460	923	
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		1.00			0.52		0.43	0.34		0.46	0.90	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	83.1
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	37.2
Intersection LOS:	D
Intersection Capacity Utilization	92.6%
ICU Level of Service	F
Analysis Period (min)	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	84.9
50th %ile Actuated Cycle:	83.5
30th %ile Actuated Cycle:	82.1
10th %ile Actuated Cycle:	80.1
~ 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: 1068: Halsted Street & 127th Street





Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
No Build Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	250	170	105	165	30	80	515	90	35	680	70
Future Volume (vph)	85	250	170	105	165	30	80	515	90	35	680	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.939			0.977			0.978			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	1886	0	1613	1989	0	1676	3221	0	1437	3270	0
Flt Permitted	0.613			0.313			0.282			0.362		
Satd. Flow (perm)	1101	1886	0	528	1989	0	497	3221	0	547	3270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			16			42			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	3		20	20		3	2		3	3		2
Confl. Bikes (#/hr)			1	4					2			2
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%	1%	6%	0%	0%	2%	3%	6%	19%	3%	2%
Adj. Flow (vph)	92	272	185	114	179	33	87	560	98	38	739	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	457	0	114	212	0	87	658	0	38	815	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
No Build Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.23	0.62		0.59	0.28		0.37	0.42		0.15	0.52	
Control Delay	16.0	18.9		26.4	18.0		16.5	11.4		11.4	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.0	18.9		26.4	18.0		16.5	11.4		11.4	12.9	
LOS	B	B		C	B		B	B		B	B	
Approach Delay		18.4			20.9			12.0			12.8	
Approach LOS		B			C			B			B	
Stops (vph)	57	293		99	177		52	346		21	475	
Fuel Used(gal)	4	21		2	4		2	12		0	7	
CO Emissions (g/hr)	297	1487		157	266		120	844		22	505	
NOx Emissions (g/hr)	58	289		31	52		23	164		4	98	
VOC Emissions (g/hr)	69	345		36	62		28	196		5	117	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	24	124		50	84		21	77		8	107	
Queue Length 95th (ft)	55	214		m50	m80		55	115		24	153	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	406	734		194	744		237	1558		260	1571	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.62		0.59	0.28		0.37	0.42		0.15	0.52	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 57 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 14.9 Intersection LOS: B  
 Intersection Capacity Utilization 78.9% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1069: Halsted Street & Vermont St



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↕↕				↕↕			↕↕	
Traffic Volume (vph)	5	795	250	605	20	5	10	10	50	10	0	5
Future Volume (vph)	5	795	250	605	20	5	10	10	50	10	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	10	10	12	12	16	12	12	16	12
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00				0.99			0.98	
Flt				0.997				0.910			0.930	
Flt Protected				0.986				0.990			0.977	
Satd. Flow (prot)	0	3161	0	3093	0	0	0	1817	0	0	1816	0
Flt Permitted		0.947		0.563				0.952			0.893	
Satd. Flow (perm)	0	2993	0	1765	0	0	0	1744	0	0	1658	0
Right Turn on Red					No				No			
Satd. Flow (RTOR)												
Link Speed (mph)		30		30				30			30	
Link Distance (ft)		1323		3930				1256			658	
Travel Time (s)		30.1		89.3				28.5			15.0	
Confl. Peds. (#/hr)	7		4		7		7		2	2		7
Confl. Bikes (#/hr)			1						2			2
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%	1%	2%	1%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	883	278	672	22	6	11	11	56	11	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	889	0	972	0	0	0	84	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		0		0				0			0	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		16		16				16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		15		9	15	15		9	15		9
Turn Type	Perm	NA	custom	NA		Perm	Perm	NA		Perm	NA	
Protected Phases		8	7	4				2			6	
Permitted Phases	8		4	7		2	2			6		
Minimum Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (%)	35.4%	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	18.0	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0	
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0				0.0			0.0	
Total Lost Time (s)		5.0		5.0				4.0			4.0	
Lead/Lag	Lag	Lag	Lead									
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		18.0		5.0	5.0	5.0				
Flash Dont Walk (s)	9.0	9.0		9.0		9.0	9.0	9.0				
Pedestrian Calls (#/hr)	0	0		0		0	0	0				
Act Effect Green (s)		18.0		27.0				14.0			14.0	

Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
No Build Conditions



Lane Group	SBR2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	5	5	305
Future Volume (vph)	5	5	305
Ideal Flow (vphpl)	1800	1800	1800
Lane Width (ft)	12	12	12
Lane Util. Factor	1.00	1.00	1.00
Ped Bike Factor			
Frt		0.867	
Flt Protected		0.999	
Satd. Flow (prot)	0	1559	0
Flt Permitted		0.999	
Satd. Flow (perm)	0	1559	0
Right Turn on Red	No		
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		1385	
Travel Time (s)		31.5	
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%
Adj. Flow (vph)	6	6	339
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	345	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Right
Median Width(ft)		24	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	9	15	9
Turn Type		Prot	
Protected Phases		3	
Permitted Phases			
Minimum Split (s)		15.0	
Total Split (s)		15.0	
Total Split (%)		23.1%	
Maximum Green (s)		10.0	
Yellow Time (s)		3.0	
All-Red Time (s)		2.0	
Lost Time Adjust (s)		0.0	
Total Lost Time (s)		5.0	
Lead/Lag			
Lead-Lag Optimize?			
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effect Green (s)		10.0	

Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
No Build Conditions

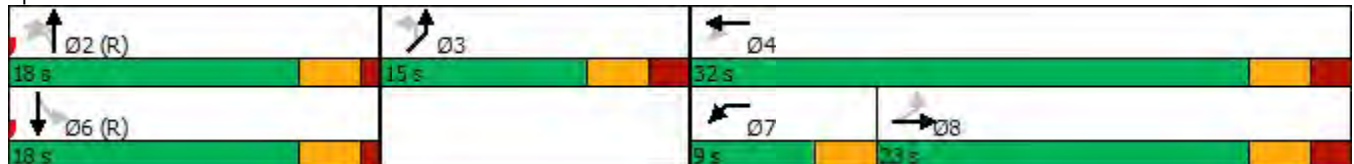


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28		0.42				0.22				0.22
v/c Ratio		1.07		1.34dl				0.22				0.06
Control Delay		78.9		116.0				22.9				21.0
Queue Delay		0.0		0.0				0.0				0.0
Total Delay		78.9		116.0				22.9				21.0
LOS		E		F				C				C
Approach Delay		78.9		116.0				22.9				21.0
Approach LOS		E		F				C				C
Stops (vph)		670		595				61				19
Fuel Used(gal)		25		51				1				0
CO Emissions (g/hr)		1734		3549				100				21
NOx Emissions (g/hr)		337		690				20				4
VOC Emissions (g/hr)		402		822				23				5
Dilemma Vehicles (#)		0		0				0				0
Queue Length 50th (ft)		~211		~178				28				7
Queue Length 95th (ft)		#318		#366				61				24
Internal Link Dist (ft)		1243		3850				1176				578
Turn Bay Length (ft)												
Base Capacity (vph)		828		814				375				357
Starvation Cap Reductn		0		0				0				0
Spillback Cap Reductn		0		0				0				0
Storage Cap Reductn		0		0				0				0
Reduced v/c Ratio		1.07		1.19				0.22				0.06

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.44  
 Intersection Signal Delay: 116.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 97.1%  
 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.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1070: S Wallace St & 127th Street



Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

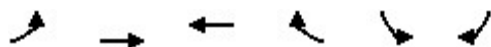
PM Peak  
 No Build Conditions



Lane Group	SBR2	NEL	NER
Actuated g/C Ratio		0.15	
v/c Ratio		1.44	
Control Delay		243.8	
Queue Delay		0.0	
Total Delay		243.8	
LOS		F	
Approach Delay		243.8	
Approach LOS		F	
Stops (vph)		231	
Fuel Used(gal)		20	
CO Emissions (g/hr)		1399	
NOx Emissions (g/hr)		272	
VOC Emissions (g/hr)		324	
Dilemma Vehicles (#)		0	
Queue Length 50th (ft)		~184	
Queue Length 95th (ft)		#337	
Internal Link Dist (ft)		1305	
Turn Bay Length (ft)			
Base Capacity (vph)		239	
Starvation Cap Reductn		0	
Spillback Cap Reductn		0	
Storage Cap Reductn		0	
Reduced v/c Ratio		1.44	
Intersection Summary			

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕	↕
Traffic Volume (vph)	290	875	650	70	95	230
Future Volume (vph)	290	875	650	70	95	230
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3062	3053	0	1550	1386
Flt Permitted		0.616			0.950	
Satd. Flow (perm)	0	1909	3053	0	1550	1386
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			33			247
Link Speed (mph)		30	20		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	21.7		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	312	941	699	75	102	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1253	774	0	102	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effect Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
No Build Conditions

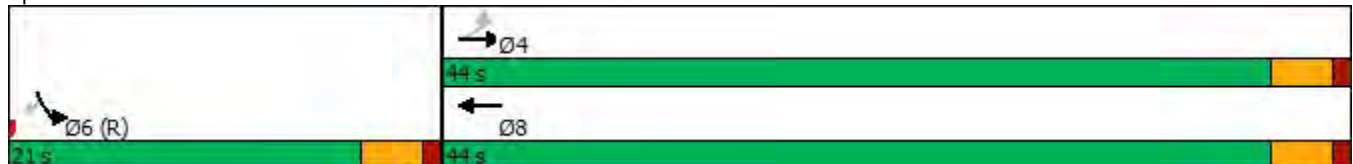


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		1.07	0.41		0.25	0.45
Control Delay		51.2	8.7		24.2	9.3
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		51.2	8.7		24.2	9.3
LOS		D	A		C	A
Approach Delay		51.2	8.7		13.7	
Approach LOS		D	A		B	
Stops (vph)		1052	329		68	96
Fuel Used(gal)		54	6		5	11
CO Emissions (g/hr)		3751	446		336	739
NOx Emissions (g/hr)		730	87		65	144
VOC Emissions (g/hr)		869	103		78	171
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		~316	87		38	22
Queue Length 95th (ft)		m262	95		71	71
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1174	1891		405	544
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		1.07	0.41		0.25	0.45

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.07  
 Intersection Signal Delay: 31.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 91.9%  
 ICU Level of Service F  
 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.

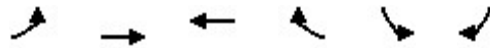
Splits and Phases: 1071: 127th Street & State Street





Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

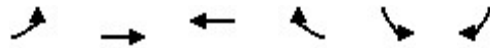
PM Peak  
No Build Conditions



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↘	↘
Traffic Volume (vph)	90	880	620	170	305	100
Future Volume (vph)	90	880	620	170	305	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	1.00			0.99
Frt			0.968			0.850
Flt Protected		0.995			0.950	
Satd. Flow (prot)	0	3117	2965	0	1506	1360
Flt Permitted		0.773			0.950	
Satd. Flow (perm)	0	2421	2965	0	1506	1343
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			80			62
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	2			2		1
Confl. Bikes (#/hr)	1					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	10%	6%	5%
Adj. Flow (vph)	98	957	674	185	332	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1055	859	0	332	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (%)	58.5%	58.5%	58.5%		41.5%	41.5%
Maximum Green (s)	34.0	34.0	34.0		23.0	23.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			21.0			

Lanes, Volumes, Timings  
 1072: 127th Street & Michigan Avenue

PM Peak  
 No Build Conditions

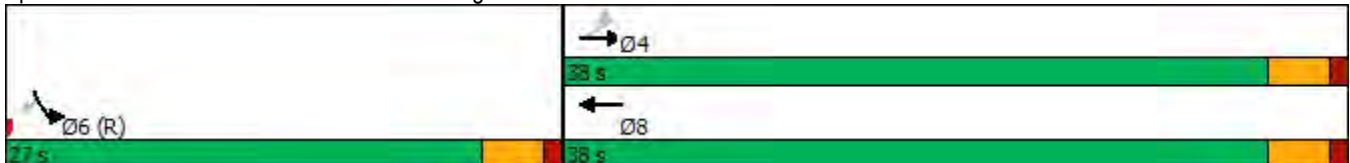


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		34.0	34.0		23.0	23.0
Actuated g/C Ratio		0.52	0.52		0.35	0.35
v/c Ratio		0.83	0.54		0.62	0.21
Control Delay		17.9	10.3		25.5	13.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		17.9	10.3		25.5	13.5
LOS		B	B		C	B
Approach Delay		17.9	10.3		22.6	
Approach LOS		B	B		C	
Stops (vph)		604	406		254	70
Fuel Used(gal)		12	20		22	7
CO Emissions (g/hr)		818	1393		1543	484
NOx Emissions (g/hr)		159	271		300	94
VOC Emissions (g/hr)		189	323		358	112
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		149	78		129	10
Queue Length 95th (ft)		m145	101		m123	m10
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1266	1589		532	515
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.83	0.54		0.62	0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 35 (54%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 16.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 85.9%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1072: 127th Street & Michigan Avenue



Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

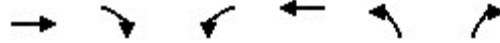
PM Peak  
No Build Conditions



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↘	↑↑	↘	↗
Traffic Volume (vph)	705	275	130	635	200	55
Future Volume (vph)	705	275	130	635	200	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						0.99
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1706	1450	1676	3288	1492	1428
Flt Permitted			0.129		0.950	
Satd. Flow (perm)	1706	1450	228	3288	1492	1410
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						60
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5343	2671	
Travel Time (s)	3.7			104.1	60.7	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	4%	7%	0%
Adj. Flow (vph)	775	302	143	698	220	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	775	302	143	698	220	60
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
No Build Conditions

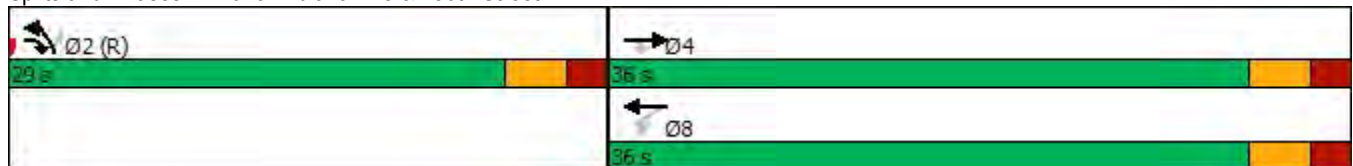


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	65.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	1.00	0.48	0.48	0.37	0.37
v/c Ratio	0.95	0.21	1.32	0.45	0.40	0.11
Control Delay	40.3	0.2	220.9	12.4	17.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	0.2	220.9	12.4	17.9	4.9
LOS	D	A	F	B	B	A
Approach Delay	29.1			47.9	15.1	
Approach LOS	C			D	B	
Stops (vph)	592	0	89	394	143	12
Fuel Used(gal)	23	6	12	29	6	1
CO Emissions (g/hr)	1633	391	806	2032	397	89
NOx Emissions (g/hr)	318	76	157	395	77	17
VOC Emissions (g/hr)	379	91	187	471	92	21
Dilemma Vehicles (#)	0	0	0	49	0	0
Queue Length 50th (ft)	306	0	~75	90	63	0
Queue Length 95th (ft)	m#453	m0	#136	130	116	21
Internal Link Dist (ft)	83			5263	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	813	1450	108	1568	550	558
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	0.95	0.21	1.32	0.45	0.40	0.11

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.32  
 Intersection Signal Delay: 34.5 Intersection LOS: C  
 Intersection Capacity Utilization 97.5% 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: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	45	585	0	0	630	45	5	5	35	200	0	130
Future Volume (vph)	45	585	0	0	630	45	5	5	35	200	0	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.80		0.97			0.98	
Frt						0.850		0.897			0.947	
Flt Protected		0.996						0.994			0.971	
Satd. Flow (prot)	0	3150	0	0	1663	1337	0	1520	0	0	1733	0
Flt Permitted		0.862						0.970			0.819	
Satd. Flow (perm)	0	2713	0	0	1663	1071	0	1482	0	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						64		39			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	60		44	44		60	14		10	10		14
Confl. Bikes (#/hr)	1			1		1						
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%	1%	0%	0%	1%	3%	20%	0%	0%	1%	0%	7%
Adj. Flow (vph)	50	650	0	0	700	50	6	6	39	222	0	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	700	0	0	700	50	0	51	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4		3	3			2		1	6	
Permitted Phases	4				3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0							14.0	

Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
No Build Conditions

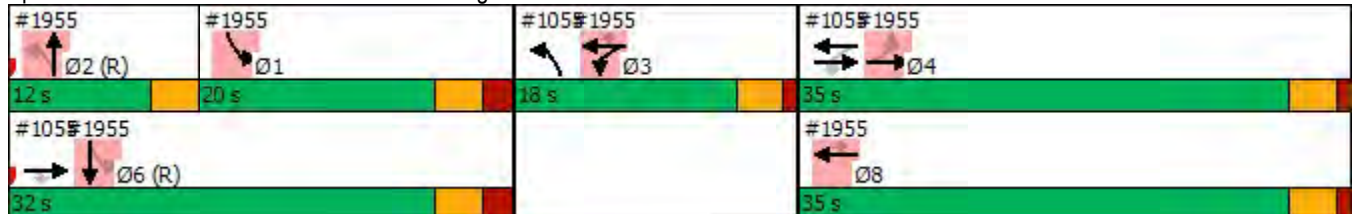


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			49.0	49.0		9.0				27.0
Actuated g/C Ratio		0.36			0.58	0.58		0.11				0.32
v/c Ratio		0.71			0.73	0.08		0.27				0.66
Control Delay		27.9			12.4	0.2		19.5				27.7
Queue Delay		1.3			53.2	8.6		0.0				0.0
Total Delay		29.2			65.5	8.8		19.5				27.7
LOS		C			E	A		B				C
Approach Delay		29.2			61.8			19.5				27.7
Approach LOS		C			E			B				C
Stops (vph)		524			146	0		19				229
Fuel Used(gal)		9			3	0		0				7
CO Emissions (g/hr)		621			203	3		24				465
NOx Emissions (g/hr)		121			40	1		5				91
VOC Emissions (g/hr)		144			47	1		6				108
Dilemma Vehicles (#)		0			0	0		0				0
Queue Length 50th (ft)		165			83	0		6				135
Queue Length 95th (ft)		230			m23	m1		38				227
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		989			958	644		191				554
Starvation Cap Reductn		0			454	559		0				0
Spillback Cap Reductn		128			0	0		1				2
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.81			1.39	0.59		0.27				0.66

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 41.7 Intersection LOS: D  
 Intersection Capacity Utilization 88.1% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	750	310
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	5.50	7.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.948	0.929
Flow Rate (vi),pc/h	879	371
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.20	0.19

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.396
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	879	Ramp Junction Speed (S), mi/h	43.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.0
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.0

**B-217**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	150	365	0	290
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	5.50	15.40	0.00	7.10
Heavy Vehicle Adjustment Factor (fhv)	0.948	0.867	1.000	0.934
Flow Rate (vi), pc/h	176	468	0	345
Weaving Flow Rate (vw), pc/h	813	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	176	Density-Based Capacity (ciWL), pc/h/ln		1353
Total Flow Rate (v), pc/h	989	Demand Flow-Based Capacity (ciW), pc/h		2920
Volume Ratio (VR)	0.822	Weaving Segment Capacity (cw), veh/h		2448
Minimum Lane Change Rate (LCMIN), lc/h	813	Adjusted Weaving Area Capacity, pc/h		2706
Maximum Weaving Length (LMAX), ft	11826	Volume-to-Capacity Ratio (v/c)		0.37

## Speed and Density

Non-Weaving Vehicle Index (INW)	9	Average Weaving Speed (SW), mi/h	38.7
Non-Weaving Lane Change Rate (LCNW), lc/h	58	Average Non-Weaving Speed (SNW), mi/h	36.8
Weaving Lane Change Rate (LCW), lc/h	863	Average Speed (S), mi/h	38.3
Weaving Lane Change Rate (LCAII), lc/h	921	Density (D), pc/mi/ln	12.9
Weaving Intensity Factor (W)	0.266	Level of Service (LOS)	B

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	510	535
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	14.00	40.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.877	0.713
Flow Rate (vi),pc/h	646	834
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.33	0.42

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	646	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1480	Average Density (D), pc/mi/ln	16.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.7

**B-219**

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1020	380
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	30.20	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.768	0.901
Flow Rate (vi),pc/h	1398	469
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.31	0.22

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.340
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1398	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.5

**B-220**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	240	420	0	400
Peak Hour Factor (PHF)	0.95	0.90	0.90	0.90
Total Trucks, %	30.20	11.70	0.00	43.60
Heavy Vehicle Adjustment Factor (fhv)	0.768	0.895	1.000	0.696
Flow Rate (vi), pc/h	329	521	0	639
Weaving Flow Rate (vw), pc/h	1160	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	329	Density-Based Capacity (ciWL), pc/h/ln		1382
Total Flow Rate (v), pc/h	1489	Demand Flow-Based Capacity (ciW), pc/h		3081
Volume Ratio (VR)	0.779	Weaving Segment Capacity (cw), veh/h		2160
Minimum Lane Change Rate (LCMIN), lc/h	1160	Adjusted Weaving Area Capacity, pc/h		2764
Maximum Weaving Length (LMAX), ft	11265	Volume-to-Capacity Ratio (v/c)		0.54

## Speed and Density

Non-Weaving Vehicle Index (INW)	13	Average Weaving Speed (Sw), mi/h	36.3
Non-Weaving Lane Change Rate (LCNW), lc/h	0	Average Non-Weaving Speed (SNW), mi/h	33.1
Weaving Lane Change Rate (LCW), lc/h	1199	Average Speed (S), mi/h	35.5
Weaving Lane Change Rate (LCAII), lc/h	1199	Density (D), pc/mi/ln	21.0
Weaving Intensity Factor (W)	0.406	Level of Service (LOS)	C

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	660	330
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	7.90	4.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.927	0.955
Flow Rate (vi),pc/h	749	384
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.25	0.19

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.306
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	749	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1133	Average Density (D), pc/mi/ln	12.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.1

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# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1190	570
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.971
Flow Rate (vi),pc/h	1344	652
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.30	0.33

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.422
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1344	Ramp Junction Speed (S), mi/h	43.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	15.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.0

**B-223**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	280	475	0	340
Peak Hour Factor (PHF)	0.90	0.95	0.90	0.90
Total Trucks, %	1.60	2.70	0.00	3.20
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.974	1.000	0.969
Flow Rate (vi), pc/h	316	513	0	390
Weaving Flow Rate (vw), pc/h	903	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	316	Density-Based Capacity (ciWL), pc/h/ln		1433
Total Flow Rate (v), pc/h	1219	Demand Flow-Based Capacity (ciW), pc/h		3239
Volume Ratio (VR)	0.741	Weaving Segment Capacity (cw), veh/h		2794
Minimum Lane Change Rate (LCMIN), lc/h	903	Adjusted Weaving Area Capacity, pc/h		2866
Maximum Weaving Length (LMAX), ft	10777	Volume-to-Capacity Ratio (v/c)		0.43

## Speed and Density

Non-Weaving Vehicle Index (INW)	16	Average Weaving Speed (SW), mi/h	38.2
Non-Weaving Lane Change Rate (LCNW), lc/h	86	Average Non-Weaving Speed (SNW), mi/h	35.6
Weaving Lane Change Rate (LCW), lc/h	953	Average Speed (S), mi/h	37.5
Weaving Lane Change Rate (LCAII), lc/h	1039	Density (D), pc/mi/ln	16.3
Weaving Intensity Factor (W)	0.292	Level of Service (LOS)	B



# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	755	755
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.30	6.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.987	0.942
Flow Rate (vi),pc/h	850	891
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.39	0.45

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	850	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	1741	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.7

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# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1440	495
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	9.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.976
Flow Rate (vi),pc/h	1754	564
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.39	0.27

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.349
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1754	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	19.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.6

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# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	160	375	0	785
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	9.60	5.00	0.00	6.70
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.952	1.000	0.937
Flow Rate (vi), pc/h	195	438	0	931
Weaving Flow Rate (vw), pc/h	1369	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	195	Density-Based Capacity (ciWL), pc/h/ln		1285
Total Flow Rate (v), pc/h	1564	Demand Flow-Based Capacity (ciW), pc/h		2743
Volume Ratio (VR)	0.875	Weaving Segment Capacity (cw), veh/h		2411
Minimum Lane Change Rate (LCMIN), lc/h	1369	Adjusted Weaving Area Capacity, pc/h		2570
Maximum Weaving Length (LMAX), ft	12528	Volume-to-Capacity Ratio (v/c)		0.61

## Speed and Density

Non-Weaving Vehicle Index (INW)	7	Average Weaving Speed (Sw), mi/h	35.5
Non-Weaving Lane Change Rate (LCNW), lc/h	0	Average Non-Weaving Speed (SNW), mi/h	31.4
Weaving Lane Change Rate (LCW), lc/h	1408	Average Speed (S), mi/h	34.9
Weaving Lane Change Rate (LCAII), lc/h	1408	Density (D), pc/mi/ln	22.4
Weaving Intensity Factor (W)	0.461	Level of Service (LOS)	C

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	No-Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	535	325
Peak Hour Factor (PHF)	0.90	0.95
Total Trucks, %	1.80	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.982	0.974
Flow Rate (vi),pc/h	605	351
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.21	0.18

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	605	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	956	Average Density (D), pc/mi/ln	10.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.7

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**Attachment C**  
**2050 Build Condition (Unmitigated)**

<p>460/(620) 10/(120) 665/(795)</p> <p>70/(50) 730/(800) 35/(40)</p> <p>35/(35) 1270/(1120) 10/(5)</p>	<p>40/(40) 60/(55)</p> <p>630/(475) 1130/(1135) 170/(305)</p> <p>85/(75) 705/(335) 180/(130)</p> <p>365/(370) 615/(720) 30/(70)</p>	<p>105/(100) 505/(820) 85/(155)</p> <p>130/(85) 414/(411) 130/(185)</p> <p>151/(159) 366/(391) 94/(153)</p> <p>139/(92) 1630/(655) 140/(110)</p>	<p>55/(105) 440/(500) 94/(123)</p> <p>65/(100) 500/(475) 118/(125)</p> <p>84/(113) 68/(74) 104/(103)</p>	<p>45/(65) 260/(305) 65/(70)</p> <p>31/(34) 535/(540) 73/(89)</p> <p>105/(100) 180/(105) 60/(52)</p> <p>45/(45) 484/(611) 35/(90)</p>
<b>2</b> 95TH STREET LAFAYETTE AVENUE	<b>3</b> 95TH STREET STATE STREET	<b>16</b> 103RD STREET HALSTED STREET	<b>17</b> 103RD STREET NORMAL AVENUE	<b>18</b> 103RD STREET WENTWORTH AVENUE
<p>50/(70) 540/(955) 108/(114)</p> <p>125/(131) 205/(283) 75/(144)</p> <p>170/(105) 290/(288) 75/(135)</p>	<p>85/(95) 386/(431)</p> <p>45/(105) 466/(439)</p> <p>120/(48) 65/(55) 30/(65)</p>	<p>33/(59) 135/(191) 65/(70)</p> <p>55/(31) 466/(452) 45/(48)</p> <p>50/(55) 429/(426) 20/(45)</p> <p>40/(40) 190/(125) 35/(38)</p>	<p>28/(69) 100/(235) 58/(80)</p> <p>60/(61) 311/(388) 30/(68)</p> <p>85/(95) 431/(519) 40/(90)</p> <p>95/(130) 335/(285) 65/(63)</p>	<p>58/(85) 150/(350) 50/(60)</p> <p>90/(81) 416/(409) 35/(108)</p> <p>55/(65) 380/(260) 30/(58)</p> <p>110/(55) 453/(442) 50/(95)</p>
<b>34</b> 111TH STREET HALSTED STREET	<b>35</b> 111TH STREET NORMAL AVENUE	<b>36</b> 111TH STREET WENTWORTH AVENUE	<b>37</b> 111TH STREET STATE STREET	<b>38</b> 111TH STREET MICHIGAN AVENUE
<p>85/(141) 425/(655) 84/(86)</p> <p>82/(86) 236/(440) 67/(206)</p> <p>223/(139) 301/(262) 50/(110)</p>	<p>55/(85) 75/(160) 25/(45)</p> <p>50/(60) 388/(384) 25/(40)</p> <p>10/(30) 290/(533) 25/(59)</p> <p>56/(48) 115/(105) 45/(35)</p>	<p>40/(70) 95/(225) 111/(115)</p> <p>80/(95) 300/(385) 99/(37)</p> <p>40/(40) 255/(305) 86/(59)</p> <p>41/(83) 215/(135) 35/(92)</p>	<p>34/(66) 145/(340) 99</p> <p>47/(81) 310/(354) 24/(93)</p> <p>50/(70) 297/(366) 115/(220)</p> <p>21/(25) 345/(310) 45/(32)</p>	<p>80/(80) 420/(664) 80/(80)</p> <p>20/(20) 322/(396) 23/(33)</p> <p>195/(195) 110/(130) 42/(62)</p>
<b>49</b> 115TH STREET HALSTED STREET	<b>50</b> 115TH STREET WENTWORTH AVENUE	<b>51</b> 115TH STREET STATE STREET	<b>52</b> 115TH STREET MICHIGAN AVENUE	<b>53</b> 115TH STREET INDIANA AVENUE
<p>91/(191) 75/(147)</p> <p>96/(97) 416/(490)</p>	<p>89/(131) 50/(200) 10/(5)</p> <p>87/(52) 494/(598) 0/(0) 0/(0)</p> <p>0/(35) 0/(5) 0/(5) 0/(35)</p>	<p>250/(280) 101/(0) 0/(0)</p> <p>225/(255) 234/(698)</p> <p>665/(397) 30/(30)</p>	<p>225/(275)</p> <p>685/(427)</p>	<p>100/(150) 1021/(1021) 444</p> <p>245/(165) 392/(313) 85/(160)</p> <p>55/(75) 192/(324) 47/(106)</p> <p>78/(76) 933/(561) 100/(115)</p>
<b>54</b> 115TH STREET MARTIN LUTHER KING JR. DRIVE	<b>55</b> 115TH STREET COTTAGE GROVE AVENUE	<b>56</b> 115TH STREET I-94 EASTBOUND RAMP	<b>57</b> 115TH STREET I-94 WESTBOUND RAMP	<b>60</b> 119TH STREET HALSTED STREET
<p>45/(60) 53/(118) 15/(25)</p> <p>25/(25) 271/(435) 8/(28)</p> <p>55/(45) 439/(390) 20/(75)</p>	<p>66/(210) 10/(15) 10/(15)</p> <p>210/(88) 215/(235) 25/(50)</p> <p>10/(10) 180/(245) 10/(15)</p> <p>25/(20) 264/(123) 45/(40)</p>	<p>465/(425) 250/(360) 64/(65)</p> <p>1004/(1099) 270/(365)</p> <p>1277/(1100) 302/(379)</p>	<p>297/(339) 1039/(1068)</p> <p>380/(430) 973/(1320)</p> <p>384/(301) 355/(340) 540/(410)</p>	<p>115/(155) 140/(205) 141</p> <p>120/(155) 567/(731) 260/(465)</p> <p>52/(68) 876/(766) 90/(120)</p> <p>50/(85) 225/(225) 285/(285)</p>
<b>61</b> 119TH STREET WENTWORTH AVENUE	<b>62</b> 119TH STREET STATE STREET	<b>64</b> 127TH STREET PAULINA STREET	<b>65</b> 127TH STREET MARSHALL AVENUE	<b>66</b> 127TH STREET ASHLAND AVENUE























**BUILD (2050) INTERSECTION TRAFFIC VOLUMES (UNMITIGATED)**  
PAGE 1 OF 2

<p>70/(70) 325/(615) 115/(260)</p> <p>105/(110) 182/(240) 62/(79)</p> <p>65/(60) 169/(249) 290/(465)</p> <p>89/(101) 475/(430) 410/(460)</p>	<p>100/(180) 320/(695) 84/(195)</p> <p>126/(85) 490/(574) 10/(15)</p> <p>190/(110) 559/(632) 90/(145)</p> <p>10/(10) 620/(330) 70/(120)</p>	<p>45/(70) 370/(680) 10/(35)</p> <p>15/(30) 152/(224) 77/(113)</p> <p>50/(85) 175/(257) 45/(170)</p> <p>89/(91) 670/(515) 40/(80)</p>	<p>0/(0) 0/(0) 0/(0) 0/(0) 5/(5)</p> <p>15/(20) 660/(704) 198/(316) 0/(0)</p> <p>50/(50) 5/(10) 15/(10) 5/(5)</p> <p>0/(5) 618/(807) 0/(0) 0/(0) 0/(0)</p> <p>289/(313) 0/(0) 0/(0)</p>	<p>200/(230) 54/(99)</p> <p>71/(70) 681/(831)</p> <p>200/(290) 789/(897)</p>
<p><b>67</b> VERMONT STREET ASHLAND AVENUE</p>	<p><b>68</b> 127TH STREET HALSTED STREET</p>	<p><b>69</b> VERMONT STREET HALSTED STREET</p>	<p><b>70</b> 127TH STREET/VERMONT STREET/WALLACE STREET</p>	<p><b>71</b> 127TH STREET STATE STREET</p>
<p>60/(100) 159/(306)</p> <p>217/(178) 692/(801)</p> <p>60/(90) 788/(902)</p>	<p>343/(823) 32/(187)</p> <p>144/(62) 410/(200)</p> <p>737/(728) 160/(275)</p>	<p>10/(0) 695/(755) 435/(137)</p> <p>207/(290) 0/(0) 122/(314)</p> <p>0/(0) 570/(1035) 356/(70)</p>	<p>25/(374)</p> <p>102/(2) 241/(191)</p>	<p>106/(64) 6/(2) 2/(2)</p> <p>8/(2) 127/(154) 4/(2) 0/(1)</p> <p>6/(9) 11/(2) 2/(4)</p>
<p><b>72</b> 127TH STREET MICHIGAN AVENUE</p>	<p><b>73</b> 130TH STREET INDIANA AVENUE</p>	<p><b>74</b> 130TH STREET ELLIS AVENUE</p>	<p><b>75</b> OLD 130TH STREET ELLIS AVENUE</p>	<p><b>76</b> GREENWOOD AVENUE ELLIS AVENUE</p>
<p>465/(77) 6/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 116/(66)</p>	<p>17/(20) 430/(48) 0/(1)</p> <p>77/(48) 0/(0)</p> <p>0/(0) 14/(12)</p>	<p>12/(1) 8/(14) 10/(0) 0/(1) 2/(1)</p> <p>4/(0) 4/(0) 0/(0) 2/(0)</p> <p>2/(0) 15/(7) 6/(1) 2/(0)</p> <p>8/(2) 0/(0) 14/(5)</p>	<p>0/(1) 0/(14) 0/(0) 0/(1) 0/(1)</p> <p>0/(0) 2/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0)</p> <p>0/(2) 15/(0) 0/(5)</p>	<p>0/(0) 0/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0)</p> <p>0/(1) 10/(2) 4/(0) 4/(1)</p> <p>0/(0) 0/(3) 4/(1)</p>
<p><b>77</b> 130TH PLACE GREENWOOD AVENUE</p>	<p><b>78</b> 131ST STREET GREENWOOD AVENUE</p>	<p><b>79</b> 132ND STREET GREENWOOD AVENUE</p>	<p><b>80</b> 132ND STREET BEAUBIEN WOODS</p>	<p><b>81</b> 132ND STREET DOTY AVENUE</p>
<p>330/(325)</p> <p>801/(552)</p> <p>459/(719) 318/(611)</p>	<p>400/(785) 810/(552)</p> <p>459/(719)</p> <p>365/(475)</p>	<p>463/(380)</p> <p>747/(957)</p> <p>529/(854) 290/(340)</p>	<p>380/(495) 747/(957)</p> <p>529/(854)</p> <p>535/(755)</p>	
<p><b>82</b> 130TH STREET EB: I-94 EB ON-RAMP WB: I-94 EB OFF-RAMP (1 OF 4)</p>	<p><b>83</b> 130TH STREET EB: I-94 EB OFF-RAMP WB: I-94 EB ON-RAMP (2 OF 4)</p>	<p><b>84</b> 130TH STREET EB: I-94 WB ON-RAMP WB: I-94 WB OFF-RAMP (3 OF 4)</p>	<p><b>85</b> 130TH STREET EB: I-94 WB OFF-RAMP WB: I-94 WB ON-RAMP (4 OF 4)</p>	

**BUILD (2050) INTERSECTION TRAFFIC VOLUMES (UNMITIGATED)**  
PAGE 2 OF 2

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	570	356	435	695	10	122	0	207	0	0	0
Future Volume (vph)	0	570	356	435	695	10	122	0	207	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1800	3109	1471	1644	3138	1366	0	1449	1443	0	2040	0
Flt Permitted				0.356				0.757				
Satd. Flow (perm)	1800	3109	1471	616	3138	1366	0	1155	1443	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		5340			1172			141			331	
Travel Time (s)		104.0			22.8			3.2			7.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	10%	4%	4%	9%	12%	18%	0%	6%	100%	0%	0%
Adj. Flow (vph)	0	594	371	453	724	10	127	0	216	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	371	453	724	10	0	127	216	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	



Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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	0.0
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)		43.4	43.4	58.1	57.1	57.1		19.9	19.9			
Actuated g/C Ratio		0.51	0.51	0.68	0.67	0.67		0.23	0.23			
v/c Ratio		0.37	0.49	0.82	0.34	0.01		0.47	0.64			
Control Delay		13.5	16.6	25.6	7.0	5.9		32.9	37.6			
Queue Delay		0.0	0.0	0.0	0.0	0.0		0.0	0.0			
Total Delay		13.5	16.6	25.6	7.0	5.9		32.9	37.6			
LOS		B	B	C	A	A		C	D			
Approach Delay		14.7			14.1			35.9				
Approach LOS		B			B			D				
90th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	43.0	43.0	43.0	7.2	53.2	53.2	23.8	23.8	23.8	23.8	23.8	23.8
70th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	43.0	43.0	43.0	10.6	56.6	56.6	20.4	20.4	20.4	20.4	20.4	20.4
50th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	43.0	43.0	43.0	13.3	59.3	59.3	17.7	17.7	17.7	17.7	17.7	17.7
30th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	45.0	45.0	45.0	15.4	63.4	63.4	13.6	13.6	13.6	13.6	13.6	13.6
10th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)		327	226	160	280	5		104	184			
Fuel Used(gal)		26	17	8	10	0		2	3			
CO Emissions (g/hr)		1818	1162	551	710	11		107	198			
NOx Emissions (g/hr)		354	226	107	138	2		21	38			
VOC Emissions (g/hr)		421	269	128	165	2		25	46			
Dilemma Vehicles (#)		34	0	0	41	0		0	0			
Queue Length 50th (ft)		96	124	93	77	2		60	107			
Queue Length 95th (ft)		134	200	#274	122	7		m106	m170			
Internal Link Dist (ft)		5260			1092			61				251
Turn Bay Length (ft)			165	165		165						
Base Capacity (vph)		1587	751	550	2108	917		326	407			
Starvation Cap Reductn		0	0	0	0	0		0	0			
Spillback Cap Reductn		0	0	0	0	0		0	0			
Storage Cap Reductn		0	0	0	0	0		0	0			
Reduced v/c Ratio		0.37	0.49	0.82	0.34	0.01		0.39	0.53			

Intersection Summary

Area Type: Other

# Lanes, Volumes, Timings

## 1: Ellis Avenue & 130th Street

AM Peak  
Build Condition - Unmitigated












Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 88.8%	ICU Level of Service E
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: 1: Ellis Avenue & 130th Street



Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

AM Peak  
Build Condition - Unmitigated

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	25	241	102	0	717
Future Volume (vph)	0	25	241	102	0	717
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.956			
Flt Protected						
Satd. Flow (prot)	0	1557	3270	0	0	3420
Flt Permitted						
Satd. Flow (perm)	0	1557	3270	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	642		174			141
Travel Time (s)	14.6		4.0			3.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	28	268	113	0	797
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	28	381	0	0	797
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.3%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 2: Ellis Avenue & Old 130th Street

AM Peak  
Build Condition - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕	↘		↕
Traffic Volume (veh/h)	0	25	241	102	0	717
Future Volume (Veh/h)	0	25	241	102	0	717
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	28	268	113	0	797
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	141					
pX, platoon unblocked						
vC, conflicting volume	723	190			381	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	723	190			381	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	365	825			1189	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	28	179	202	398	398	
Volume Left	0	0	0	0	0	
Volume Right	28	0	113	0	0	
cSH	825	1700	1700	1700	1700	
Volume to Capacity	0.03	0.11	0.12	0.23	0.23	
Queue Length 95th (ft)	3	0	0	0	0	
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.5	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			24.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	6	11	2	2	6	106	4	127	8	87	446	135
Future Volume (vph)	6	11	2	2	6	106	4	127	8	87	446	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.987			0.875			0.992				
Flt Protected		0.984			0.999			0.999				0.962
Satd. Flow (prot)	0	1748	0	0	1573	0	0	1727	0	0	0	1641
Flt Permitted		0.984			0.999			0.999				0.962
Satd. Flow (perm)	0	1748	0	0	1573	0	0	1727	0	0	0	1641
Link Speed (mph)		30			30			30				30
Link Distance (ft)		472			392			265				174
Travel Time (s)		10.7			8.9			6.0				4.0
Confl. Peds. (#/hr)			4	4		1			1	4	1	
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%	0%	0%	0%	0%	0%	0%	2%	25%	0%	8%	1%
Adj. Flow (vph)	7	12	2	2	7	118	4	141	9	97	496	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	127	0	0	154	0	0	0	743
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 64.4% ICU Level of Service C

Analysis Period (min) 15

Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

AM Peak  
 Build Condition - Unmitigated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	1800
Flt Permitted	
Satd. Flow (perm)	1800
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	4
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

AM Peak  
Build Condition - Unmitigated



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↔			↔			↔				↔
Traffic Volume (veh/h)	6	11	2	2	6	106	4	127	8	87	446	135
Future Volume (Veh/h)	6	11	2	2	6	106	4	127	8	87	446	135
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	7	12	2	2	7	118	4	141	9	0	496	150
Pedestrians		4			1			4				1
Lane Width (ft)		12.0			12.0			12.0				12.0
Walking Speed (ft/s)		4.0			4.0			4.0				4.0
Percent Blockage		0			0			0				0
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												315
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89		0.00			
vC, conflicting volume	1422	1305	158	1308	1300	148	154		0	151		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1412	1281	0	1285	1276	148	0		0	151		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1		0.0	4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2		0.0	2.3		
p0 queue free %	89	87	100	98	93	87	100		0	64		
cM capacity (veh/h)	61	95	966	83	96	903	1454		0	1393		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	21	127	154	646	0							
Volume Left	7	2	4	496	0							
Volume Right	2	118	9	0	0							
cSH	87	557	1454	1393	1700							
Volume to Capacity	0.24	0.23	0.00	0.36	0.00							
Queue Length 95th (ft)	22	22	0	41	0							
Control Delay (s)	59.3	13.4	0.2	7.7	0.0							
Lane LOS	F	B	A	A								
Approach Delay (s)	59.3	13.4	0.2	7.7								
Approach LOS	F	B										
<b>Intersection Summary</b>												
Average Delay			8.4									
Intersection Capacity Utilization			64.4%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue










AM Peak  
 Build Condition - Unmitigated

Movement	SBR
Lane Configurations	↗
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	



Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

AM Peak  
Build Condition - Unmitigated

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	116	0	6	465
Future Volume (vph)	0	0	116	0	6	465
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.999
Satd. Flow (prot)	1765	0	1765	0	0	1763
Flt Permitted						0.999
Satd. Flow (perm)	1765	0	1765	0	0	1763
Link Speed (mph)	30		30			30
Link Distance (ft)	356		300			278
Travel Time (s)	8.1		6.8			6.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	126	0	7	505
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	126	0	0	512
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.2%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 4: Greenwood Avenue & 130th Place

AM Peak  
Build Condition - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	116	0	6	465
Future Volume (Veh/h)	0	0	116	0	6	465
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	126	0	7	505
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	645	126			126	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	645	126			126	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	435	924			1460	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	126	512			
Volume Left	0	0	7			
Volume Right	0	0	0			
cSH	1700	1700	1460			
Volume to Capacity	0.00	0.07	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.2			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.2			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.1			
Intersection Capacity Utilization			34.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street

AM Peak  
Build Condition - Unmitigated



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	77	14	0	430	17
Future Volume (vph)	0	77	14	0	430	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected						0.954
Satd. Flow (prot)	1557	0	1800	0	0	1710
Flt Permitted						0.954
Satd. Flow (perm)	1557	0	1800	0	0	1710
Link Speed (mph)	30		30		30	
Link Distance (ft)	383		252		706	
Travel Time (s)	8.7		5.7		16.0	
Confl. Peds. (#/hr)	3			3		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	11%
Adj. Flow (vph)	0	86	16	0	478	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	16	0	0	497
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0		0	
Link Offset(ft)	0		0		0	
Crosswalk Width(ft)	16		16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.5%
	ICU Level of Service A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 5: Greenwood Avenue & 131st Street

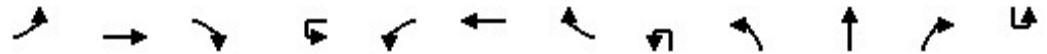
AM Peak  
Build Condition - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	77	14	0	430	17
Future Volume (Veh/h)	0	77	14	0	430	17
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	86	16	0	478	19
Pedestrians	3		3			
Lane Width (ft)	12.0		12.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	997	19			19	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	997	19			19	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			70	
cM capacity (veh/h)	191	1062			1607	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	86	16	497			
Volume Left	0	0	478			
Volume Right	86	0	0			
cSH	1062	1700	1607			
Volume to Capacity	0.08	0.01	0.30			
Queue Length 95th (ft)	7	0	31			
Control Delay (s)	8.7	0.0	8.0			
Lane LOS	A		A			
Approach Delay (s)	8.7	0.0	8.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			7.9			
Intersection Capacity Utilization			44.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations		↕				↕				↕		
Traffic Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (vph)	8	0	14	2	0	4	4	2	6	15	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.914				0.946				0.990		
Fl <sub>t</sub> Protected		0.982				0.990				0.984		
Satd. Flow (prot)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Fl <sub>t</sub> Permitted		0.982				0.990				0.984		
Satd. Flow (perm)	0	1616	0	0	0	1686	0	0	0	1637	0	0
Link Speed (mph)		30				30				30		
Link Distance (ft)		336				1025				274		
Travel Time (s)		7.6				23.3				6.2		
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Adj. Flow (vph)	9	0	16	2	0	4	4	2	7	17	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	0	10	0	0	0	28	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	R NA	Left	Left	Right	R NA
Median Width(ft)		0				0				0		
Link Offset(ft)		0				0				0		
Crosswalk Width(ft)		16				16				16		
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	9	15		9	9	15		9	9
Sign Control		Stop				Stop				Free		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

AM Peak  
Build Condition - Unmitigated

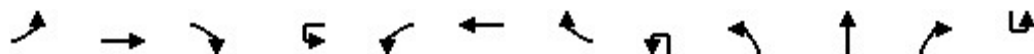


Lane Group	SBL	SBT	SBR
Lane Configurations		↕	
Traffic Volume (vph)	10	8	12
Future Volume (vph)	10	8	12
Ideal Flow (vphpl)	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00
Fr <sub>t</sub>		0.950	
Fl <sub>t</sub> Protected		0.982	
Satd. Flow (prot)	0	1578	0
Fl <sub>t</sub> Permitted		0.982	
Satd. Flow (perm)	0	1578	0
Link Speed (mph)		30	
Link Distance (ft)		252	
Travel Time (s)		5.7	
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	25%	0%
Adj. Flow (vph)	11	9	13
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	35	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Left	Left	Right
Median Width(ft)		0	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	15		9
Sign Control		Free	
<b>Intersection Summary</b>			

# HCM Unsignalized Intersection Capacity Analysis

## 6: Greenwood Avenue & 132nd Street

AM Peak  
Build Condition - Unmitigated



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations		↕				↕				↕		
Traffic Volume (veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Future Volume (Veh/h)	8	0	14	2	0	4	4	2	6	15	2	2
Sign Control		Stop					Stop			Free		
Grade		0%					0%			0%		
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
Hourly flow rate (vph)	9	0	16	0	0	4	4	0	7	17	2	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked				0.00					0.00			0.00
vC, conflicting volume	76	70	16	0	86	76	18	0	22			0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	76	70	16	0	86	76	18	0	22			0
tC, single (s)	7.1	6.5	6.2	0.0	7.1	6.5	6.2	0.0	4.1			0.0
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	0.0	3.5	4.0	3.3	0.0	2.2			0.0
p0 queue free %	99	100	99	0	100	100	100	0	100			0
cM capacity (veh/h)	905	815	1070	0	884	809	1066	0	1607			0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	25	8	26	33								
Volume Left	9	0	7	11								
Volume Right	16	4	2	13								
cSH	1004	920	1607	1611								
Volume to Capacity	0.02	0.01	0.00	0.01								
Queue Length 95th (ft)	2	1	0	1								
Control Delay (s)	8.7	8.9	2.0	2.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	8.9	2.0	2.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			13.3%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
6: Greenwood Avenue & 132nd Street

AM Peak  
Build Condition - Unmitigated

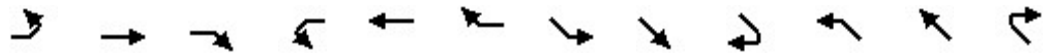


Movement	SBL	SBT	SBR
Lane Configurations		↔	
Traffic Volume (veh/h)	10	8	12
Future Volume (Veh/h)	10	8	12
Sign Control		Free	
Grade		0%	
Peak Hour Factor	0.90	0.90	0.90
Hourly flow rate (vph)	11	9	13
Pedestrians			
Lane Width (ft)			
Walking Speed (ft/s)			
Percent Blockage			
Right turn flare (veh)			
Median type		None	
Median storage (veh)			
Upstream signal (ft)			
pX, platoon unblocked			
vC, conflicting volume	19		
vC1, stage 1 conf vol			
vC2, stage 2 conf vol			
vCu, unblocked vol	19		
tC, single (s)	4.1		
tC, 2 stage (s)			
tF (s)	2.2		
p0 queue free %	99		
cM capacity (veh/h)	1611		
Direction, Lane #			



Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

AM Peak  
Build Condition - Unmitigated



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (vph)	0	15	0	0	2	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Frt												
Flt Protected												
Satd. Flow (prot)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
Flt Permitted												
Satd. Flow (perm)	0	1104	0	0	1800	0	0	1800	0	0	1800	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1025			255			543			489	
Travel Time (s)		23.3			5.8			12.3			11.1	
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%	63%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	6.7%
ICU Level of Service	A
Analysis Period (min)	15

















HCM Unsignalized Intersection Capacity Analysis  
7: Beaubien Woods Driveway & 132nd Street

AM Peak  
Build Condition - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	15	0	0	2	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	0	17	0	0	2	0	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2			17			19	19	2	19	19	17
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2			17			19	19	2	19	19	17
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1634			1613			1000	879	1088	1000	879	1068
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	17	2	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1634	1613	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			6.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

















AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (vph)	10	4	4	0	0	0	4	0	0	0	2	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.972									0.932	
Fl <sub>t</sub> Protected		0.972						0.950				
Satd. Flow (prot)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Fl <sub>t</sub> Permitted		0.972						0.950				
Satd. Flow (perm)	0	1667	0	0	1765	0	0	1676	0	0	1645	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		328			319			317			301	
Travel Time (s)		7.5			7.3			7.2			6.8	
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)	11	4	4	0	0	0	4	0	0	0	2	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	0	0	0	4	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	13.5%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

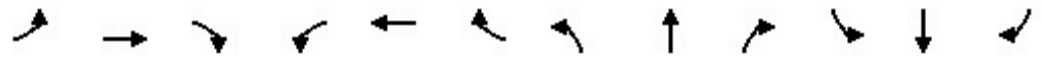
## 8: Doty Avenue & 132nd Street/School Driveway

AM Peak  
Build Condition - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	4	0	0	0	4	0	0	0	2	2
Future Volume (Veh/h)	10	4	4	0	0	0	4	0	0	0	2	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	11	4	4	0	0	0	4	0	0	0	2	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	11	11	3	17	12	0	4			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11	11	3	17	12	0	4			0		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	1005	882	1081	989	880	1085	1618			1623		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	0	4	4								
Volume Left	11	0	4	0								
Volume Right	4	0	0	2								
cSH	990	1700	1618	1700								
Volume to Capacity	0.02	0.00	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	8.7	0.0	7.2	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.7	0.0	7.2	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			13.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

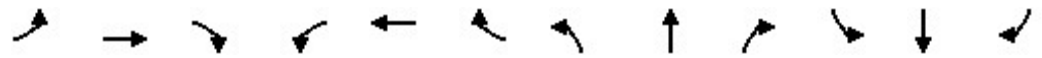
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1270	10	35	730	70	0	0	0	665	10	460
Future Volume (vph)	35	1270	10	35	730	70	0	0	0	665	10	460
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.83	1.00		1.00		0.49				0.98		0.97
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4720	0	1710	3138	765	0	1800	0	3100	1392	1409
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	711	4720	0	1706	3138	373	0	1800	0	3032	1392	1361
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		808			328			758				669
Travel Time (s)		18.4			7.5			17.2				15.2
Confl. Peds. (#/hr)	354		13	13		354	22		22	22		22
Confl. Bikes (#/hr)	4					4			1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	4%	0%	0%	9%	100%	0%	0%	0%	7%	25%	5%
Adj. Flow (vph)	38	1366	11	38	785	75	0	0	0	715	11	495
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1377	0	38	785	75	0	0	0	715	11	495
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

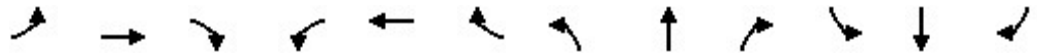
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	71.1		7.9	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.55		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.58	0.53		0.37	0.49	0.31				0.77	0.03	0.96
Control Delay	92.1	20.3		53.0	46.9	20.8				47.9	32.5	69.5
Queue Delay	0.0	0.1		0.0	52.7	0.0				5.7	0.0	0.0
Total Delay	92.1	20.4		53.0	99.6	20.8				53.7	32.5	69.5
LOS	F	C		D	F	C				D	C	E
Approach Delay		22.3			91.0						59.9	
Approach LOS		C			F						E	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	68.7		8.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	70.0		7.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	32	794		35	614	44				595	9	513
Fuel Used(gal)	1	18		1	12	1				13	0	12
CO Emissions (g/hr)	74	1241		46	855	50				926	12	821
NOx Emissions (g/hr)	14	241		9	166	10				180	2	160
VOC Emissions (g/hr)	17	288		11	198	12				215	3	190
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	32	273		33	314	25				282	7	371

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

AM Peak  
 Build Condition - Unmitigated

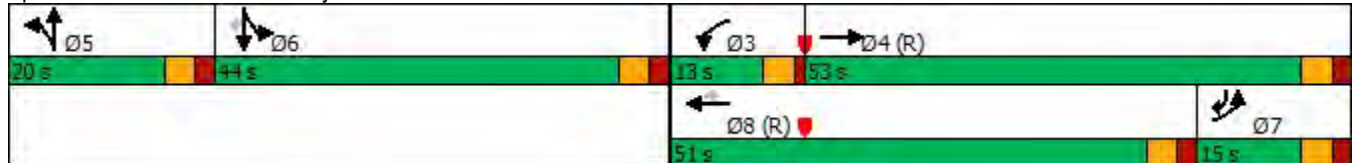


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#86	321		m37	m341	m27				356	22	#631
Internal Link Dist (ft)		728			248			678			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2583		118	1593	239				930	417	516
Starvation Cap Reductn	0	0		0	963	0				0	0	0
Spillback Cap Reductn	0	240		0	0	0				162	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.58	0.59		0.32	1.25	0.31				0.93	0.03	0.96

Intersection Summary























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 110 (85%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 52.8 Intersection LOS: D  
 Intersection Capacity Utilization 80.8% 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: 1002: Lafayette Avenue & 95th Street



Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	630	1130	170	30	615	365	180	705	85	60	0	40
Future Volume (vph)	630	1130	170	30	615	365	180	705	85	60	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.77	0.99		1.00		0.65		1.00	0.95	0.99		
Frt		0.980				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.990		0.950		
Satd. Flow (prot)	3190	3103	0	1503	2923	1409	0	3190	1600	855	0	765
Flt Permitted	0.950			0.950				0.990		0.950		
Satd. Flow (perm)	2453	3103	0	1497	2923	917	0	3186	1523	846	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				50			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		328			972			10386				681
Travel Time (s)		7.5			18.9			236.0				15.5
Confl. Peds. (#/hr)	425		21	21		425	6		34	34		6
Confl. Bikes (#/hr)	1					1						
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 (%)	4%	8%	3%	10%	17%	5%	1%	3%	2%	100%	0%	100%
Adj. Flow (vph)	670	1202	181	32	654	388	191	750	90	64	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	670	1383	0	32	654	388	0	941	90	64	0	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			



Lanes, Volumes, Timings  
1003: State Street & 95th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	54.0		11.0	37.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	32.0	54.0		15.0	37.0	20.0	41.0	41.0	15.0	20.0		20.0
Total Split (%)	24.6%	41.5%		11.5%	28.5%	15.4%	31.5%	31.5%	11.5%	15.4%		15.4%
Maximum Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		21.0			7.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	28.0	49.0		10.0	32.0	47.0		36.0	46.0	15.0		15.0
Actuated g/C Ratio	0.22	0.38		0.08	0.25	0.36		0.28	0.35	0.12		0.12
v/c Ratio	0.98	1.17		0.28	0.91	0.92		1.07	0.15	0.65		0.21
Control Delay	66.3	119.7		63.2	65.5	49.0		94.5	5.9	85.3		2.3
Queue Delay	39.7	0.0		0.0	1.6	0.0		17.7	0.0	0.0		0.8
Total Delay	106.0	119.7		63.2	67.1	49.0		112.2	5.9	85.3		3.0
LOS	F	F		E	E	D		F	A	F		A
Approach Delay		115.2			60.4			102.9				52.2
Approach LOS		F			E			F				D
90th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
90th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
70th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
50th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
50th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
30th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
30th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
10th %ile Green (s)	28.0	49.0		10.0	32.0	15.0	36.0	36.0	10.0	15.0		15.0
10th %ile Term Code	Max	Coord		Hold	Coord	Max	MaxR	MaxR	Hold	Max		Max
Stops (vph)	572	848		29	561	250		792	24	54		0
Fuel Used(gal)	13	40		1	17	8		95	7	2		0
CO Emissions (g/hr)	928	2774		57	1169	565		6649	511	116		16
NOx Emissions (g/hr)	181	540		11	228	110		1294	99	23		3
VOC Emissions (g/hr)	215	643		13	271	131		1541	119	27		4
Dilemma Vehicles (#)	0	0		0	23	0		0	0	0		0
Queue Length 50th (ft)	272	~717		26	283	127		~466	2	52		0
Queue Length 95th (ft)	#407	#881		61	#394	#339		#603	0	#124		0
Internal Link Dist (ft)		248			892			10306				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	687	1178		115	719	420		883	604	98		206
Starvation Cap Reductn	97	3		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
 1003: State Street & 95th Street

AM Peak  
 Build Condition - Unmitigated

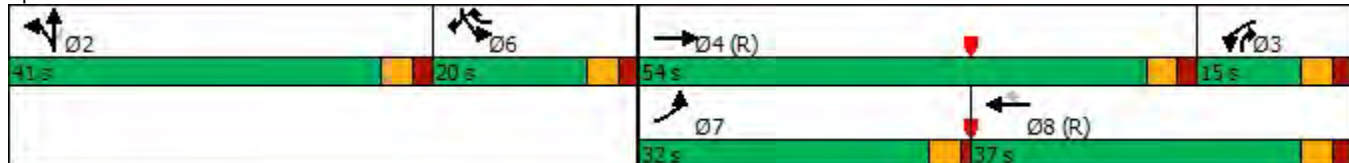


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	16	0		403	0	0		56
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	1.14	1.18		0.28	0.93	0.92		1.96	0.15	0.65		0.29

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 96.9 Intersection LOS: F  
 Intersection Capacity Utilization 97.0% 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.

Splits and Phases: 1003: State Street & 95th Street



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	414	130	94	366	151	140	1630	139	85	505	105
Future Volume (vph)	130	414	130	94	366	151	140	1630	139	85	505	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99	0.98		0.99		0.97	1.00		0.96
Frt		0.964			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1613	1877	0	1710	1814	0	1506	3099	1324	1425	2956	1324
Flt Permitted	0.125			0.255			0.351			0.095		
Satd. Flow (perm)	212	1877	0	454	1814	0	550	3099	1283	142	2956	1265
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			19				83			113
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304			1099	
Travel Time (s)		15.1			46.3			120.5			25.0	
Confl. Peds. (#/hr)	42		39	39		42	20		8	8		20
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	4%	3%	0%	6%	5%	6%	3%	4%	8%	8%	4%
Adj. Flow (vph)	140	445	140	101	394	162	151	1753	149	91	543	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	585	0	101	556	0	151	1753	149	91	543	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		52.9	44.7	44.7	51.4	42.3	42.3
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.50	0.43	0.43	0.49	0.40	0.40
v/c Ratio	0.63	0.77		0.81	1.08		0.42	1.33	0.25	0.54	0.46	0.20
Control Delay	33.4	34.5		79.8	99.7		17.3	182.1	11.0	27.5	24.6	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	34.5		79.8	99.7		17.3	182.1	11.0	27.5	24.6	4.8
LOS	C	C		E	F		B	F	B	C	C	A
Approach Delay		34.3			96.6			157.5			21.9	
Approach LOS		C			F			F			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.1	42.1	8.9	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	43.3	43.3	7.7	42.0	42.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		7.5	54.0	54.0	0.0	43.5	43.5
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Skip	Coord	Coord
Stops (vph)	81	451		78	422		73	1226	43	45	358	13
Fuel Used(gal)	2	9		3	21		7	135	6	1	9	1
CO Emissions (g/hr)	140	638		241	1470		467	9409	440	102	617	75
NOx Emissions (g/hr)	27	124		47	286		91	1831	86	20	120	15
VOC Emissions (g/hr)	32	148		56	341		108	2181	102	24	143	17
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	59	325		63	~410		51	~835	27	30	138	0
Queue Length 95th (ft)	#116	467		#162	#623		88	#975	72	69	187	34
Internal Link Dist (ft)		583			1956			5224			1019	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	222	761		125	514		359	1318	593	180	1190	576
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

AM Peak  
 Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.63	0.77		0.81	1.08		0.42	1.33	0.25	0.51	0.46	0.20

Intersection Summary




















Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 86 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.33  
 Intersection Signal Delay: 102.4      Intersection LOS: F  
 Intersection Capacity Utilization 111.7%      ICU Level of Service H  
 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.

Splits and Phases: 1016: Halsted Street & 103rd Street



Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	500	118	94	440	55	101	68	84	0	0	0
Future Volume (vph)	65	500	118	94	440	55	101	68	84	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.955				
Fl <sub>t</sub> Protected	0.950			0.950				0.980				
Satd. Flow (prot)	1520	1543	1311	1520	1543	1311	0	1765	0	0	0	0
Fl <sub>t</sub> Permitted	0.438			0.393				0.980				
Satd. Flow (perm)	701	1543	1311	629	1543	1311	0	1765	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			59		36				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2036			1955			343				764
Travel Time (s)		46.3			44.4			7.8				17.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	70	538	127	101	473	59	109	73	90	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	538	127	101	473	59	0	272	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

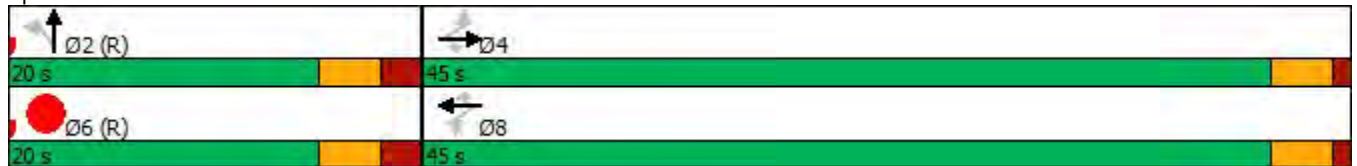
AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.16	0.55	0.15	0.26	0.49	0.07		0.63				
Control Delay	6.0	9.5	1.5	7.3	8.5	1.7		26.7				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	6.0	9.5	1.5	7.3	8.5	1.7		26.7				
LOS	A	A	A	A	A	A		C				
Approach Delay		7.8			7.7			26.7				
Approach LOS		A			A			C				
Stops (vph)	26	268	10	40	220	7		194				
Fuel Used(gal)	1	10	2	2	9	1		3				
CO Emissions (g/hr)	88	726	137	125	607	63		218				
NOx Emissions (g/hr)	17	141	27	24	118	12		42				
VOC Emissions (g/hr)	20	168	32	29	141	15		51				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	10	103	0	15	86	0		84				
Queue Length 95th (ft)	25	179	15	37	146	11		156				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	442	973	873	396	973	848		435				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.16	0.55	0.15	0.26	0.49	0.07		0.63				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 10.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 59.2%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1017: Normal Avenue & 103rd Street





Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	535	73	35	484	45	60	180	105	65	260	45
Future Volume (vph)	31	535	73	35	484	45	60	180	105	65	260	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.99	1.00		1.00	1.00			0.99	0.97		0.98	
Frt		0.982			0.987				0.850		0.984	
Flt Protected	0.950			0.950				0.988			0.991	
Satd. Flow (prot)	1596	1604	0	1341	1623	0	0	1685	1515	0	1767	0
Flt Permitted	0.347			0.288				0.794			0.897	
Satd. Flow (perm)	576	1604	0	405	1623	0	0	1339	1473	0	1598	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			10				111			10
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1955			4661			5190				1320
Travel Time (s)		44.4			105.9			118.0				30.0
Confl. Peds. (#/hr)	33		15	15		33	68		5	5		68
Confl. Bikes (#/hr)	4					4						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	14%	19%	5%	9%	2%	2%	1%	10%	7%	8%
Adj. Flow (vph)	33	563	77	37	509	47	63	189	111	68	274	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	640	0	37	556	0	0	252	111	0	389	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	37.3%
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

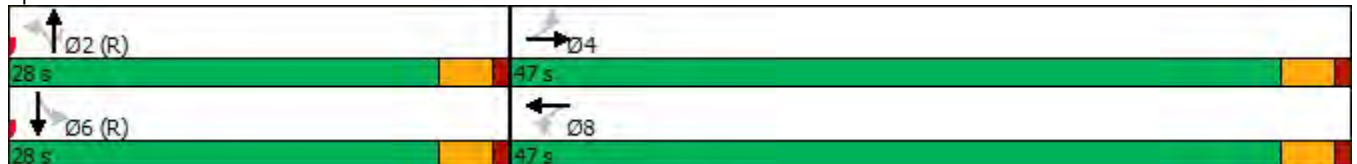
AM Peak  
Build Condition - Unmitigated

	↗		→		↘		←		↙		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0		24.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32		0.32	
v/c Ratio	0.10	0.69		0.16	0.60			0.59	0.20		0.75	
Control Delay	8.3	16.0		9.7	13.5			28.1	5.2		33.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	8.3	16.0		9.7	13.5			28.1	5.2		33.2	
LOS	A	B		A	B			C	A		C	
Approach Delay		15.6			13.2			21.1			33.2	
Approach LOS		B			B			C			C	
Stops (vph)	16	410		17	323			198	17		306	
Fuel Used(gal)	1	14		1	22			12	5		8	
CO Emissions (g/hr)	43	944		100	1567			871	322		559	
NOx Emissions (g/hr)	8	184		20	305			170	63		109	
VOC Emissions (g/hr)	10	219		23	363			202	75		130	
Dilemma Vehicles (#)	0	0		0	0			0	0		0	
Queue Length 50th (ft)	6	187		7	149			97	0		156	
Queue Length 95th (ft)	19	308		23	244			172	33		#287	
Internal Link Dist (ft)		1875			4581			5110			1240	
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	330	926		232	934			428	546		518	
Starvation Cap Reductn	0	0		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	
Storage Cap Reductn	0	0		0	0			0	0		0	
Reduced v/c Ratio	0.10	0.69		0.16	0.60			0.59	0.20		0.75	

Intersection Summary





















Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 19.3      Intersection LOS: B  
 Intersection Capacity Utilization 87.5%      ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1018: Wentworth Avenue & 103rd Street



Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	290	75	75	205	125	40	1050	78	108	540	50
Future Volume (vph)	170	290	75	75	205	125	40	1050	78	108	540	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.98		0.99		0.98	1.00		0.97
Frt		0.979			0.954				0.850			0.850
Flt Protected		0.984			0.991		0.950			0.950		
Satd. Flow (prot)	0	2849	0	0	2776	0	1506	3069	1377	1550	2956	1311
Flt Permitted		0.647			0.768		0.353			0.125		
Satd. Flow (perm)	0	1860	0	0	2148	0	555	3069	1352	204	2956	1270
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			91				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1044			375			2662			5304	
Travel Time (s)		23.7			8.5			60.5			120.5	
Confl. Peds. (#/hr)	49		20	20		49	26		8	8		26
Confl. Bikes (#/hr)	2					2						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	7%	4%	9%	7%	5%	6%	4%	0%	3%	8%	5%
Adj. Flow (vph)	175	299	77	77	211	129	41	1082	80	111	557	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	551	0	0	417	0	41	1082	80	111	557	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

AM Peak  
Build Condition - Unmitigated

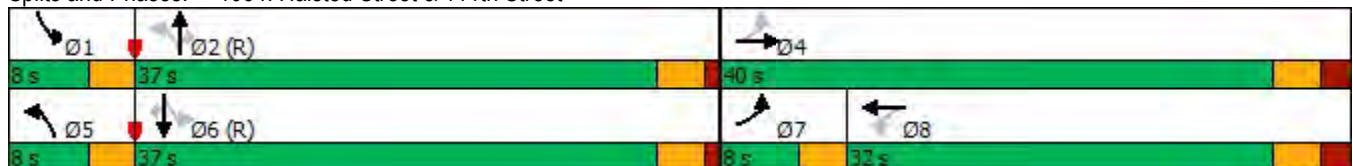


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.65			0.54		0.14	0.89	0.14	0.73	0.48	0.09
Control Delay		21.9			21.0		16.1	28.5	5.4	44.0	20.9	0.9
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.9			21.0		16.1	28.5	5.4	44.0	20.9	0.9
LOS		C			C		B	C	A	D	C	A
Approach Delay		21.9			21.0			26.6			23.0	
Approach LOS		C			C			C			C	
Stops (vph)		346			254		22	593	20	57	387	1
Fuel Used(gal)		9			9		1	31	2	6	27	2
CO Emissions (g/hr)		604			652		76	2179	127	402	1871	146
NOx Emissions (g/hr)		118			127		15	424	25	78	364	28
VOC Emissions (g/hr)		140			151		18	505	29	93	434	34
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		101			73		12	175	2	32	114	0
Queue Length 95th (ft)		145			119		m15	m#230	m7	#91	161	4
Internal Link Dist (ft)		964			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		849			768		286	1209	587	152	1165	556
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.65			0.54		0.14	0.89	0.14	0.73	0.48	0.09

Intersection Summary
















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 58 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 24.0 Intersection LOS: C  
 Intersection Capacity Utilization 102.0% ICU Level of Service G  
 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: 1034: Halsted Street & 111th Street



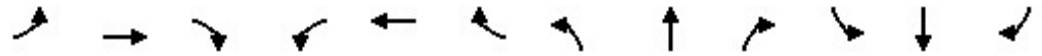
Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	466	0	0	386	85	30	65	120	0	0	0
Future Volume (vph)	45	466	0	0	386	85	30	65	120	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.976			0.925				
Fl <sub>t</sub> Protected		0.996						0.993				
Satd. Flow (prot)	0	1707	0	0	1673	0	0	1575	0	0	0	0
Fl <sub>t</sub> Permitted		0.933						0.993				
Satd. Flow (perm)	0	1599	0	0	1673	0	0	1575	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					30			97				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	48	501	0	0	415	91	32	70	129	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	549	0	0	506	0	0	231	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.57			0.50			0.46				
Control Delay		10.9			3.8			14.6				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

AM Peak  
Build Condition - Unmitigated

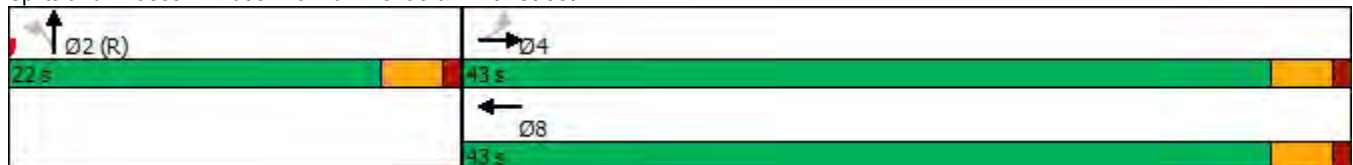


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		10.9			3.8			14.6				
LOS		B			A			B				
Approach Delay		10.9			3.8			14.6				
Approach LOS		B			A			B				
Stops (vph)		294			53			103				
Fuel Used(gal)		11			8			3				
CO Emissions (g/hr)		740			560			177				
NOx Emissions (g/hr)		144			109			35				
VOC Emissions (g/hr)		172			130			41				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		116			24			42				
Queue Length 95th (ft)		198			32			99				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		959			1015			506				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.57			0.50			0.46				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	8.8
Intersection LOS:	A
Intersection Capacity Utilization	78.5%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	55	466	45	20	429	50	35	190	40	65	135	33
Future Volume (vph)	55	466	45	20	429	50	35	190	40	65	135	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.99			0.99	
Frt		0.989			0.986			0.977			0.979	
Flt Protected		0.995			0.998			0.993			0.986	
Satd. Flow (prot)	0	1884	0	0	1842	0	0	3082	0	0	3037	0
Flt Permitted		0.922			0.971			0.897			0.814	
Satd. Flow (perm)	0	1744	0	0	1792	0	0	2776	0	0	2499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			11			39			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			181			180	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	29		16	16		29	28		14	14		28
Confl. Bikes (#/hr)	1					1	1					1
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 (%)	3%	7%	4%	12%	8%	13%	0%	4%	4%	4%	4%	6%
Adj. Flow (vph)	59	496	48	21	456	53	37	202	43	69	144	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	603	0	0	530	0	0	282	0	0	248	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

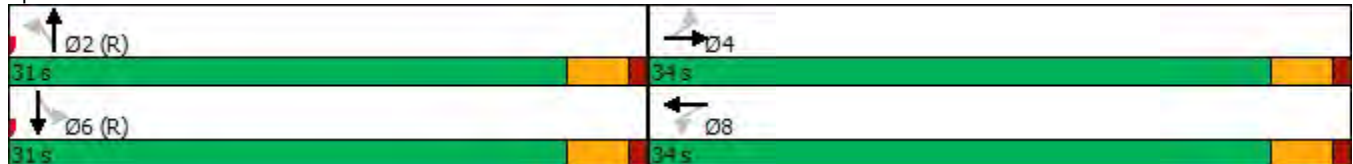
AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.75			0.64			0.24			0.23	
Control Delay		21.8			9.0			8.5			11.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		21.8			9.0			8.5			11.2	
LOS		C			A			A			B	
Approach Delay		21.8			9.0			8.5			11.2	
Approach LOS		C			A			A			B	
Stops (vph)		365			168			148			121	
Fuel Used(gal)		13			7			7			11	
CO Emissions (g/hr)		936			484			473			766	
NOx Emissions (g/hr)		182			94			92			149	
VOC Emissions (g/hr)		217			112			110			177	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		165			50			16			27	
Queue Length 95th (ft)		#275			60			30			49	
Internal Link Dist (ft)		1924			812			101			100	
Turn Bay Length (ft)												
Base Capacity (vph)		809			833			1175			1058	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.75			0.64			0.24			0.23	

Intersection Summary





















Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 13.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 107.3%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1036: Wentworth Avenue & 111th Street



Lanes, Volumes, Timings  
1037: State Street & 111th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	311	30	40	431	85	65	335	95	50	100	28
Future Volume (vph)	60	311	30	40	431	85	65	335	95	50	100	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		0.99	0.99		0.99	1.00		1.00	1.00	
Frt		0.987			0.975			0.967			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	2922	0	1596	2938	0	1506	3033	0	1596	2906	0
Flt Permitted	0.361			0.508			0.666			0.480		
Satd. Flow (perm)	572	2922	0	843	2938	0	1050	3033	0	805	2906	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			38			87			30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		418			546			2651			298	
Travel Time (s)		9.5			12.4			60.3			6.8	
Confl. Peds. (#/hr)	25		14	14		25	12		4	4		12
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	7%	12%	0%	6%	2%	6%	1%	3%	0%	4%	12%
Adj. Flow (vph)	64	331	32	43	459	90	69	356	101	53	106	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	363	0	43	549	0	69	457	0	53	136	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	

Lanes, Volumes, Timings  
1037: State Street & 111th Street

AM Peak  
Build Condition - Unmitigated

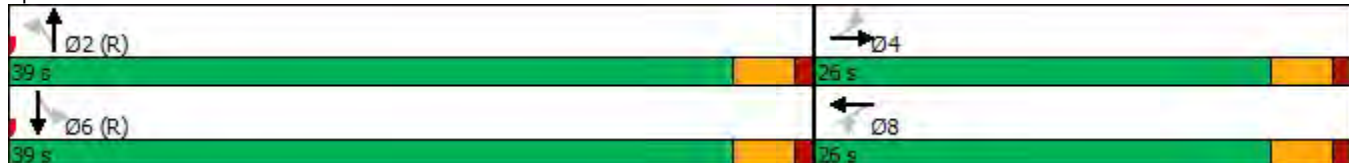


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.33	0.36		0.15	0.54		0.12	0.27		0.12	0.09	
Control Delay	14.2	10.1		13.5	15.5		5.7	4.9		9.6	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.2	10.1		13.5	15.5		5.7	4.9		9.6	7.8	
LOS	B	B		B	B		A	A		A	A	
Approach Delay		10.7			15.4			5.0			8.3	
Approach LOS		B			B			A			A	
Stops (vph)	38	245		33	416		32	203		26	57	
Fuel Used(gal)	1	6		0	6		2	10		4	11	
CO Emissions (g/hr)	70	387		32	428		112	730		308	782	
NOx Emissions (g/hr)	14	75		6	83		22	142		60	152	
VOC Emissions (g/hr)	16	90		7	99		26	169		71	181	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	15	37		14	96		5	10		23	26	
Queue Length 95th (ft)	m20	m47		m35	147		m14	28		m24	m25	
Internal Link Dist (ft)		338			466			2571			218	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	193	1000		285	1019		565	1673		433	1578	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.36		0.15	0.54		0.12	0.27		0.12	0.09	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.54  
 Intersection Signal Delay: 10.3      Intersection LOS: B  
 Intersection Capacity Utilization 68.1%      ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street



Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	416	35	50	453	110	30	380	55	50	150	58
Future Volume (vph)	90	416	35	50	453	110	30	380	55	50	150	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		0.98	0.99			0.99			0.98	
Frt		0.988			0.971			0.982			0.966	
Flt Protected	0.950			0.950				0.997			0.990	
Satd. Flow (prot)	1425	3002	0	1350	2925	0	0	2837	0	0	2717	0
Flt Permitted	0.381			0.454				0.923			0.817	
Satd. Flow (perm)	564	3002	0	634	2925	0	0	2621	0	0	2238	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			63			27			62	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			835			277			230	
Travel Time (s)		12.4			19.0			6.3			5.2	
Confl. Peds. (#/hr)	53		34	34		53	67		28	28		67
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 (%)	8%	5%	0%	14%	6%	1%	0%	9%	20%	5%	15%	5%
Adj. Flow (vph)	96	443	37	53	482	117	32	404	59	53	160	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	480	0	53	599	0	0	495	0	0	275	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
 1038: Michigan Avenue & 111th Street

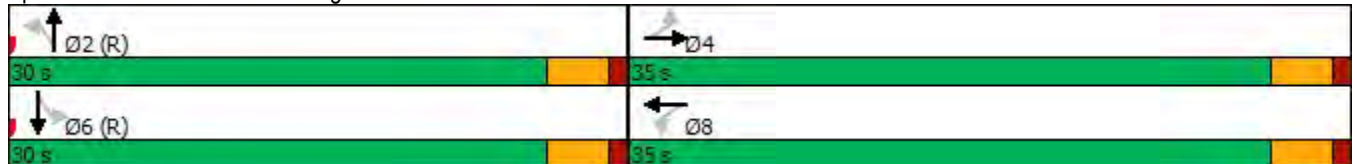
AM Peak  
 Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.36	0.33		0.18	0.42			0.47			0.30	
Control Delay	21.4	16.9		11.6	10.9			11.9			11.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	21.4	16.9		11.6	10.9			11.9			11.2	
LOS	C	B		B	B			B			B	
Approach Delay		17.7			11.0			11.9			11.2	
Approach LOS		B			B			B			B	
Stops (vph)	77	362		29	308			215			128	
Fuel Used(gal)	1	5		1	7			12			2	
CO Emissions (g/hr)	84	382		42	463			838			123	
NOx Emissions (g/hr)	16	74		8	90			163			24	
VOC Emissions (g/hr)	19	89		10	107			194			28	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	36	86		11	67			35			28	
Queue Length 95th (ft)	69	110		31	103			75			53	
Internal Link Dist (ft)		466			755			197			150	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	268	1441		302	1427			1064			932	
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	0.36	0.33		0.18	0.42			0.47			0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	13.1
Intersection LOS:	B
Intersection Capacity Utilization:	87.8%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1038: Michigan Avenue & 111th Street



Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	301	50	67	236	82	75	1050	83	84	425	85
Future Volume (vph)	223	301	50	67	236	82	75	1050	83	84	425	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99		0.99	1.00		1.00	0.99	
Frt		0.979			0.961			0.989			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3013	0	1596	2892	0	1494	3443	0	1494	3344	0
Flt Permitted	0.504			0.472			0.372			0.125		
Satd. Flow (perm)	815	3013	0	790	2892	0	578	3443	0	196	3344	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			60			11			32	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	31		7	7		31	37		12	12		37
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	0%	0%	6%	2%	3%	5%	0%	3%	6%	4%
Adj. Flow (vph)	235	317	53	71	248	86	79	1105	87	88	447	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	235	370	0	71	334	0	79	1192	0	88	536	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (s)	8.0	32.0		8.0	32.0		8.0	37.0		8.0	37.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		9.4%	43.5%		9.4%	43.5%	
Maximum Green (s)	5.0	27.0		5.0	27.0		5.0	33.0		5.0	33.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			21.0			21.0	

Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

AM Peak  
Build Condition - Unmitigated

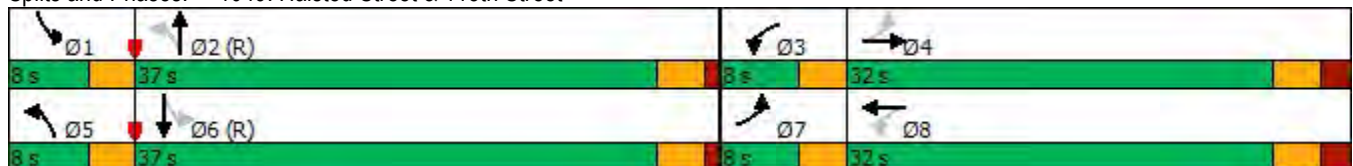


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	33.0		37.0	33.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.39		0.44	0.39	
v/c Ratio	0.69	0.37		0.21	0.34		0.27	0.89		0.60	0.41	
Control Delay	32.1	21.5		16.8	18.6		14.9	33.9		43.0	14.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.1	21.5		16.8	18.6		14.9	33.9		43.0	14.7	
LOS	C	C		B	B		B	C		D	B	
Approach Delay		25.6			18.3			32.7			18.7	
Approach LOS		C			B			C			B	
Stops (vph)	183	241		41	188		43	974		67	321	
Fuel Used(gal)	5	7		3	12		2	37		3	14	
CO Emissions (g/hr)	334	456		177	842		141	2560		199	969	
NOx Emissions (g/hr)	65	89		34	164		27	498		39	189	
VOC Emissions (g/hr)	77	106		41	195		33	593		46	225	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	83	73		22	56		22	303		31	56	
Queue Length 95th (ft)	#150	110		48	91		46	#433		m#85	109	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	342	1008		335	992		294	1343		146	1317	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.69	0.37		0.21	0.34		0.27	0.89		0.60	0.41	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 13 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 26.2 Intersection LOS: C  
 Intersection Capacity Utilization 87.3% ICU Level of Service E  
 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: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↖	↗
Traffic Volume (vph)	50	388	25	25	290	10	45	155	56	25	75	55
Future Volume (vph)	50	388	25	25	290	10	45	155	56	25	75	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.99		1.00	0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.994			0.996			0.989			0.988	
Satd. Flow (prot)	0	1647	1395	0	1663	1321	0	1627	1373	0	1588	1360
Flt Permitted		0.932			0.952			0.926			0.915	
Satd. Flow (perm)	0	1544	1336	0	1588	1287	0	1520	1356	0	1471	1318
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			24			17			59			58
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2476	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	5		21	21		5	9		1	1		9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	6%	7%	4%	12%	6%	1%	4%	0%	6%	5%
Adj. Flow (vph)	53	408	26	26	305	11	47	163	59	26	79	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	461	26	0	331	11	0	210	59	0	105	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

AM Peak  
Build Condition - Unmitigated

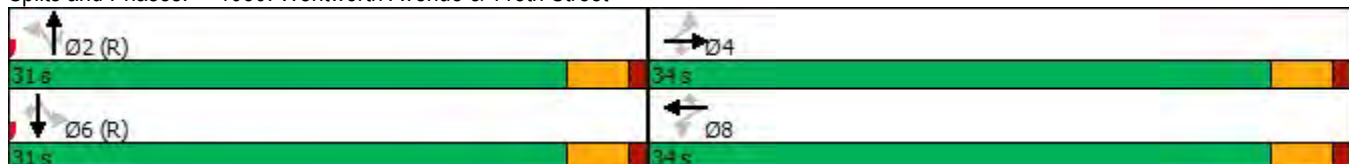


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.65	0.04		0.45	0.02		0.33	0.10		0.17	0.10
Control Delay		18.7	4.9		9.0	1.5		14.8	3.6		11.9	2.5
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		18.7	4.9		9.0	1.5		14.8	3.6		11.9	2.5
LOS		B	A		A	A		B	A		B	A
Approach Delay		18.0			8.7			12.3			8.6	
Approach LOS		B			A			B			A	
Stops (vph)		327	7		106	1		150	15		72	14
Fuel Used(gal)		17	1		4	0		6	1		3	1
CO Emissions (g/hr)		1190	59		310	8		391	90		190	87
NOx Emissions (g/hr)		232	11		60	2		76	18		37	17
VOC Emissions (g/hr)		276	14		72	2		91	21		44	20
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		132	0		39	1		68	0		20	0
Queue Length 95th (ft)		228	12		52	m1		m115	m9		m38	m3
Internal Link Dist (ft)		3325			1260			2589			2396	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		712	629		732	603		631	597		611	581
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.65	0.04		0.45	0.02		0.33	0.10		0.17	0.10

Intersection Summary























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 13.0 Intersection LOS: B  
 Intersection Capacity Utilization 87.2% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	300	99	86	255	40	35	255	41	40	95	40
Future Volume (vph)	80	300	99	86	255	40	35	255	41	40	95	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.980			0.979				0.956
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	1600	1360	1520	2979	0	1520	2976	0	1520	2906	0
Flt Permitted	0.950			0.565			0.660			0.559		
Satd. Flow (perm)	1520	1600	1360	904	2979	0	1056	2976	0	894	2906	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1340			559			516				2651
Travel Time (s)		30.5			12.7			11.7				60.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	86	323	106	92	274	43	38	274	44	43	102	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	323	106	92	317	0	38	318	0	43	145	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2				6
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Efect Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	

Lanes, Volumes, Timings  
1051: State Street & 115th Street

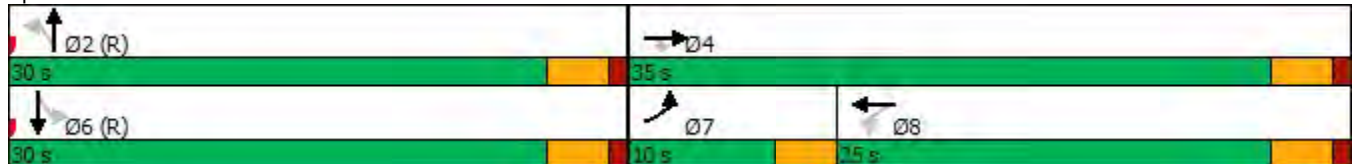
AM Peak  
Build Condition - Unmitigated

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.48	0.48	0.32	0.32		0.40	0.40		0.40	0.40	
v/c Ratio	0.53	0.42	0.16	0.32	0.33		0.09	0.27		0.12	0.12	
Control Delay	40.8	5.7	4.3	16.3	14.2		11.1	12.4		16.1	15.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	40.8	5.7	4.3	16.3	14.2		11.1	12.4		16.1	15.1	
LOS	D	A	A	B	B		B	B		B	B	
Approach Delay		11.3			14.7			12.2			15.3	
Approach LOS		B			B			B			B	
Stops (vph)	61	81	18	39	127		22	198		31	101	
Fuel Used(gal)	2	4	1	1	3		1	8		1	4	
CO Emissions (g/hr)	128	275	85	61	198		65	561		79	263	
NOx Emissions (g/hr)	25	53	17	12	39		13	109		15	51	
VOC Emissions (g/hr)	30	64	20	14	46		15	130		18	61	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	24	20	7	19	34		8	39		15	27	
Queue Length 95th (ft)	m46	31	m12	m28	m40		m14	m51		45	43	
Internal Link Dist (ft)		1260			479			436			2571	
Turn Bay Length (ft)	80			55			45			55		
Base Capacity (vph)	163	763	648	292	962		422	1190		357	1162	
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	
Reduced v/c Ratio	0.53	0.42	0.16	0.32	0.33		0.09	0.27		0.12	0.12	

Intersection Summary























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.53  
 Intersection Signal Delay: 13.0 Intersection LOS: B  
 Intersection Capacity Utilization 47.2% ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1051: State Street & 115th Street



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	310	24	115	297	50	45	345	25	25	145	34
Future Volume (vph)	47	310	24	115	297	50	45	345	25	25	145	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.994			0.993	
Satd. Flow (prot)	1520	1600	1360	1520	1600	1360	0	1590	1360	0	1589	1360
Fl <sub>t</sub> Permitted	0.567			0.950				0.946			0.911	
Satd. Flow (perm)	907	1600	1360	1520	1600	1360	0	1514	1360	0	1458	1360
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			67			101			101
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	51	333	26	124	319	54	48	371	27	27	156	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	333	26	124	319	54	0	419	27	0	183	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		6
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	24.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

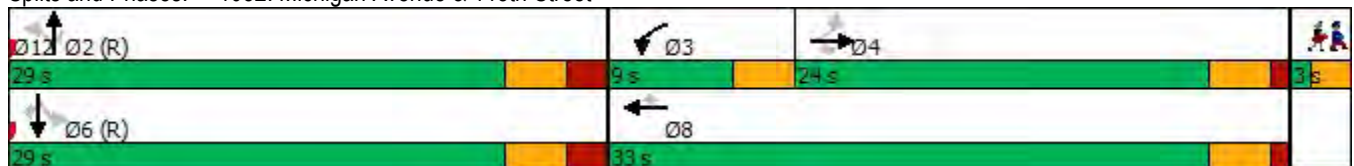
AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.37
v/c Ratio	0.18	0.68	0.05	0.89	0.45	0.08		0.75	0.05		0.34	0.07
Control Delay	14.2	20.3	0.2	82.9	14.5	5.1		21.9	0.4		15.1	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	14.2	20.3	0.2	82.9	14.5	5.1		21.9	0.4		15.1	2.3
LOS	B	C	A	F	B	A		C	A		B	A
Approach Delay	18.2			30.5				20.6			13.0	
Approach LOS	B			C				C			B	
Stops (vph)	19	168	0	97	140	10		305	1		111	5
Fuel Used(gal)	0	4	0	3	3	0		28	2		5	1
CO Emissions (g/hr)	31	249	7	221	240	28		1945	110		327	53
NOx Emissions (g/hr)	6	48	1	43	47	6		378	21		64	10
VOC Emissions (g/hr)	7	58	2	51	56	7		451	25		76	12
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	9	59	0	55	58	0		127	0		51	0
Queue Length 95th (ft)	23	101	m0	m#106	m125	m8		#278	m0		80	3
Internal Link Dist (ft)	479			306				1260			2314	
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	279	492	499	140	713	643		559	565		538	565
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
Reduced v/c Ratio	0.18	0.68	0.05	0.89	0.45	0.08		0.75	0.05		0.34	0.07

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 22.0 Intersection LOS: C  
 Intersection Capacity Utilization 70.3% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.



















Splits and Phases: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	322	23	80	420	80	42	110	195	0	0	0
Future Volume (vph)	20	322	23	80	420	80	42	110	195	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Frt			0.850			0.850		0.924				
Flt Protected		0.997			0.992			0.994				
Satd. Flow (prot)	0	1595	1360	0	1587	1360	0	1574	0	0	0	0
Flt Permitted		0.961			0.887			0.994				
Satd. Flow (perm)	0	1538	1360	0	1419	1360	0	1574	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			25			83		103				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	22	346	25	86	452	86	45	118	210	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	368	25	0	538	86	0	373	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				



Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

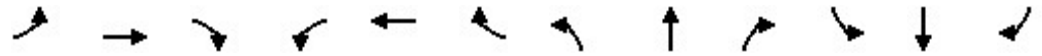
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		37.5	37.5		37.5	37.5		18.5				
Actuated g/C Ratio		0.58	0.58		0.58	0.58		0.28				
v/c Ratio		0.42	0.03		0.66	0.11		0.71				
Control Delay		17.7	9.5		14.9	2.4		23.1				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		17.7	9.5		14.9	2.4		23.1				
LOS		B	A		B	A		C				
Approach Delay		17.1			13.2			23.1				
Approach LOS		B			B			C				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
30th %ile Green (s)	37.1	37.1	37.1	37.1	37.1	37.1	18.9	18.9				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
10th %ile Green (s)	42.2	42.2	42.2	42.2	42.2	42.2	13.8	13.8				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		227	14		343	10		225				
Fuel Used(gal)		5	0		9	1		5				
CO Emissions (g/hr)		317	18		598	64		351				
NOx Emissions (g/hr)		62	4		116	12		68				
VOC Emissions (g/hr)		74	4		139	15		81				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		106	3		139	1		90				
Queue Length 95th (ft)		161	m6		247	17		178				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

AM Peak  
 Build Condition - Unmitigated



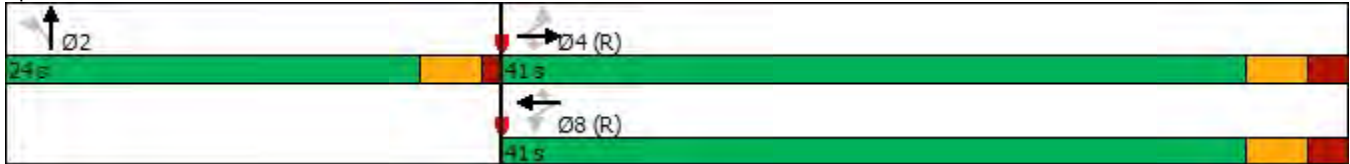
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		886	794		817	819		555				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.42	0.03		0.66	0.11		0.67				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 17.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 84.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

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

Splits and Phases: 1053: Indiana Avenue & 115th Street



Lanes, Volumes, Timings  
 1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
 Build Condition - Unmitigated



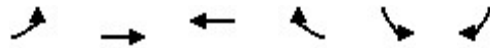
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	416	494	55	75	91
Future Volume (vph)	96	416	494	55	75	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.986			0.850
Flt Protected		0.991			0.950	
Satd. Flow (prot)	0	1818	1925	0	1565	1400
Flt Permitted		0.991			0.950	
Satd. Flow (perm)	0	1818	1925	0	1565	1400
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	21			21	5	3
Confl. Bikes (#/hr)					2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	12%	3%	5%	0%	2%	2%
Adj. Flow (vph)	109	473	561	63	85	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	582	624	0	85	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	75.1%
Analysis Period (min)	15
	ICU Level of Service D

HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

AM Peak  
 Build Condition - Unmitigated



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	↩
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	96	416	494	55	75	91
Future Volume (vph)	96	416	494	55	75	91
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	109	473	561	63	85	103
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total (vph)	582	624	85	103		
Volume Left (vph)	109	0	85	0		
Volume Right (vph)	0	63	0	103		
Hadj (s)	0.12	0.02	0.53	-0.67		
Departure Headway (s)	5.6	5.5	8.1	6.8		
Degree Utilization, x	0.91	0.95	0.19	0.20		
Capacity (veh/h)	633	653	438	514		
Control Delay (s)	40.0	46.5	11.8	10.3		
Approach Delay (s)	40.0	46.5	11.0			
Approach LOS	E	E	B			
Intersection Summary						
Delay			39.0			
Level of Service			E			
Intersection Capacity Utilization			75.1%	ICU Level of Service	D	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

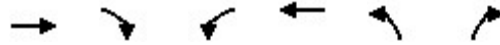
AM Peak  
Build Condition - Unmitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	544	0	30	750	0	0				
Future Volume (vph)	544	0	30	750	0	0				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt										
Flt Protected				0.998						
Satd. Flow (prot)	1600	1714	0	1437	1943	0				
Flt Permitted				0.965						
Satd. Flow (perm)	1600	1714	0	1390	1943	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)										
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%				
Parking (#/hr)				0						
Adj. Flow (vph)	585	0	32	806	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	585	0	0	838	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA		Perm	NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases			4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag										
							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0						
Actuated g/C Ratio	0.73			0.36						
v/c Ratio	0.50			1.66						

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	3.2			328.2						
Queue Delay	3.0			1.2						
Total Delay	6.2			329.4						
LOS	A			F						
Approach Delay	6.2			329.4						
Approach LOS	A			F						
Stops (vph)	84			574						
Fuel Used(gal)	1			70						
CO Emissions (g/hr)	88			4916						
NOx Emissions (g/hr)	17			956						
VOC Emissions (g/hr)	20			1139						
Dilemma Vehicles (#)	0			0						
Queue Length 50th (ft)	33			~658						
Queue Length 95th (ft)	m49			#878						
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1167			506						
Starvation Cap Reductn	459			0						
Spillback Cap Reductn	0			67						
Storage Cap Reductn	0			0						
Reduced v/c Ratio	0.83			1.91						

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.66  
 Intersection Signal Delay: 196.5 Intersection LOS: F  
 Intersection Capacity Utilization 70.7% ICU Level of Service C  
 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: 1055: Cottage Grove Avenue & 115th Street



Lanes, Volumes, Timings  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 Build Condition - Unmitigated





















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑	↑
Traffic Volume (vph)	0	225	234	30	665	0	0	0	0	5	0	250
Future Volume (vph)	0	225	234	30	665	0	0	0	0	5	0	250
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.923										0.850
Flt Protected					0.998						0.950	
Satd. Flow (prot)	0	3035	0	0	3194	0	0	0	0	0	1938	1471
Flt Permitted					0.998						0.950	
Satd. Flow (perm)	0	3035	0	0	3194	0	0	0	0	0	1938	1471
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	3%	5%	70%	4%	0%	0%	0%	0%	0%	0%	4%
Adj. Flow (vph)	0	239	249	32	707	0	0	0	0	5	0	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	488	0	0	739	0	0	0	0	0	5	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

AM Peak  
 Build Condition - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	225	234	30	665	0	0	0	0	5	0	250
Future Volume (Veh/h)	0	225	234	30	665	0	0	0	0	5	0	250
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	239	249	32	707	0	0	0	0	5	0	266
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None					None						
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	707			239			781	1134	244	890	1010	354
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	707			239			781	1134	244	890	1010	354
tC, single (s)	4.1			5.5			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.9			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	98	100	58
cM capacity (veh/h)	901			947			164	197	763	234	234	637
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	159	329	268	471	5	266						
Volume Left	0	0	32	0	5	0						
Volume Right	0	249	0	0	0	266						
cSH	1700	1700	947	1700	234	637						
Volume to Capacity	0.09	0.19	0.03	0.28	0.02	0.42						
Queue Length 95th (ft)	0	0	3	0	2	51						
Control Delay (s)	0.0	0.0	1.4	0.0	20.7	14.6						
Lane LOS			A		C	B						
Approach Delay (s)	0.0		0.5		14.8							
Approach LOS					B							
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			48.2%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
1057: Bishop Ford Freeway WB Ramps & 115th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Traffic Volume (vph)	225	0	685	0	0	0
Future Volume (vph)	225	0	685	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3159	0	1629	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3159	0	1629	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	242	0	737	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	242	0	737	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

AM Peak  
 Build Condition - Unmitigated


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	225	0	685	0	0	0
Future Volume (vph)	225	0	685	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	242	0	737	0	0	0

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total (vph)	121	121	737
Volume Left (vph)	121	121	737
Volume Right (vph)	0	0	0
Hadj (s)	0.58	0.58	0.29
Departure Headway (s)	7.0	7.0	5.0
Degree Utilization, x	0.23	0.23	1.02
Capacity (veh/h)	512	512	737
Control Delay (s)	10.9	10.9	59.4
Approach Delay (s)	10.9		59.4
Approach LOS	B		F

Intersection Summary			
Delay		47.4	
Level of Service		E	
Intersection Capacity Utilization	53.5%		ICU Level of Service A
Analysis Period (min)		15	

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	392	85	47	192	55	100	933	78	60	442	100
Future Volume (vph)	245	392	85	47	192	55	100	933	78	60	442	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.99	1.00	0.99		0.98	1.00		1.00	0.99	
Frt			0.850		0.967			0.988			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1556	1347	1596	1725	0	1535	3090	0	1509	2871	0
Flt Permitted	0.445			0.337			0.354			0.120		
Satd. Flow (perm)	711	1556	1327	565	1725	0	559	3090	0	190	2871	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87		16			11			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		946			3955			5338			2655	
Travel Time (s)		21.5			89.9			121.3			60.3	
Confl. Peds. (#/hr)	33		3	3		33	42		8	8		42
Confl. Bikes (#/hr)							1					1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	8%	6%	0%	7%	5%	4%	5%	11%	2%	6%	9%
Adj. Flow (vph)	250	400	87	48	196	56	102	952	80	61	451	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	400	87	48	252	0	102	1032	0	61	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.6	32.0	31.0	34.0	27.0		40.8	36.0		40.8	36.0	
Actuated g/C Ratio	0.40	0.36	0.34	0.38	0.30		0.45	0.40		0.45	0.40	
v/c Ratio	0.74	0.72	0.17	0.17	0.48		0.32	0.83		0.35	0.47	
Control Delay	36.6	36.0	6.4	17.2	27.6		15.7	32.1		18.2	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.6	36.0	6.4	17.2	27.6		15.7	32.1		18.2	20.9	
LOS	D	D	A	B	C		B	C		B	C	
Approach Delay		32.7			26.0			30.6			20.6	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		0.0	44.0		0.0	44.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Skip	Coord		Skip	Coord	
Stops (vph)	184	322	15	29	184		55	849		31	369	
Fuel Used(gal)	5	8	1	2	10		5	53		2	16	
CO Emissions (g/hr)	325	527	57	124	701		334	3730		114	1088	
NOx Emissions (g/hr)	63	103	11	24	136		65	726		22	212	
VOC Emissions (g/hr)	75	122	13	29	162		78	865		26	252	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	95	209	0	16	109		30	279		18	116	
Queue Length 95th (ft)	#192	#365	33	37	181		59	#402		39	165	
Internal Link Dist (ft)		866			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	337	553	514	282	528		318	1242		174	1169	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

AM Peak  
 Build Condition - Unmitigated

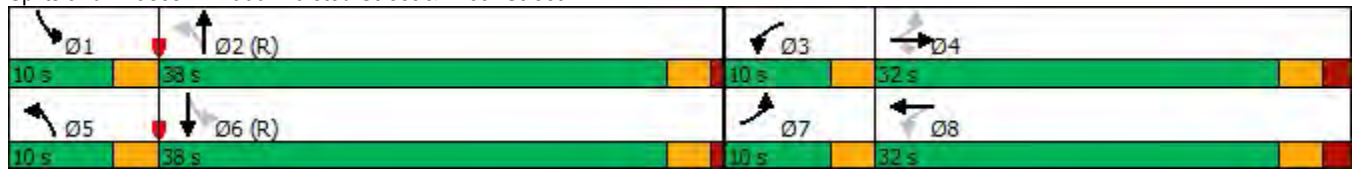


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.74	0.72	0.17	0.17	0.48		0.32	0.83		0.35	0.47	

Intersection Summary




















Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	28.5
Intersection LOS:	C
Intersection Capacity Utilization	86.7%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1060: Halsted Street & 119th Street



Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	439	20	8	271	25	45	112	32	15	53	45
Future Volume (vph)	55	439	20	8	271	25	45	112	32	15	53	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.97		1.00	0.97		0.99			0.99	
Frt			0.850			0.850		0.977			0.946	
Flt Protected		0.994			0.999			0.988			0.994	
Satd. Flow (prot)	0	1628	1428	0	1601	1231	0	1901	0	0	1853	0
Flt Permitted		0.938			0.987			0.922			0.963	
Satd. Flow (perm)	0	1536	1383	0	1581	1198	0	1773	0	0	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22			27		19			49	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	6		11	11		6	4		8	8		4
Confl. Bikes (#/hr)	1		1	1		1			1	1		
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%	7%	0%	0%	5%	16%	0%	0%	0%	10%	0%	3%
Adj. Flow (vph)	60	482	22	9	298	27	49	123	35	16	58	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	22	0	307	27	0	207	0	0	123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

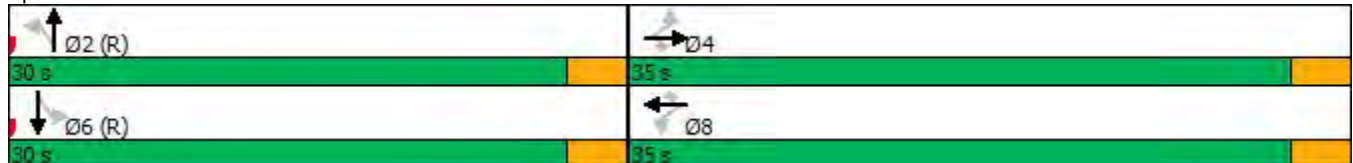
AM Peak  
Build Condition - Unmitigated

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.72	0.03		0.39	0.04		0.28			0.16	
Control Delay		19.7	4.2		9.7	3.0		12.6			6.4	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		19.7	4.2		9.7	3.0		12.6			6.4	
LOS		B	A		A	A		B			A	
Approach Delay		19.1			9.2			12.6			6.4	
Approach LOS		B			A			B			A	
Stops (vph)		376	5		100	4		107			70	
Fuel Used(gal)		19	1		4	0		5			3	
CO Emissions (g/hr)		1346	46		280	21		349			200	
NOx Emissions (g/hr)		262	9		54	4		68			39	
VOC Emissions (g/hr)		312	11		65	5		81			46	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		157	0		49	0		47			2	
Queue Length 95th (ft)		271	10		72	m4		89			20	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		756	692		778	603		747			773	
Starvation Cap Reductn		0	0		0	0		0			0	
Spillback Cap Reductn		0	0		0	0		0			0	
Storage Cap Reductn		0	0		0	0		0			0	
Reduced v/c Ratio		0.72	0.03		0.39	0.04		0.28			0.16	

Intersection Summary

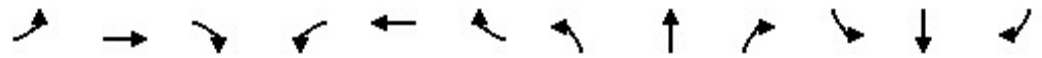
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.72  
 Intersection Signal Delay: 14.0 Intersection LOS: B  
 Intersection Capacity Utilization 86.8% ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	210	215	25	10	180	10	45	264	25	10	66	66
Future Volume (vph)	210	215	25	10	180	10	45	264	25	10	66	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		0.99	0.96		1.00	0.96		1.00	0.96		0.99	
Frt			0.850			0.850			0.850		0.937	
Flt Protected		0.976			0.997			0.993			0.997	
Satd. Flow (prot)	0	1568	1360	0	1494	1428	0	1640	1347	0	1816	0
Flt Permitted		0.738			0.974			0.943			0.976	
Satd. Flow (perm)	0	1179	1299	0	1459	1376	0	1557	1297	0	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34			34			34			69
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	11		17	17		11	4		17	17		4
Confl. Bikes (#/hr)	1		1	1		1	1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	9%	5%	33%	11%	0%	6%	1%	6%	0%	0%	8%
Adj. Flow (vph)	219	224	26	10	188	10	47	275	26	10	69	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	26	0	198	10	0	322	26	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0



Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		1.06	0.05		0.38	0.02		0.42	0.04		0.16	
Control Delay		72.8	1.2		18.5	1.2		4.9	0.8		9.5	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		72.8	1.2		18.5	1.2		4.9	0.8		9.5	
LOS		E	A		B	A		A	A		A	
Approach Delay		68.9			17.6			4.6			9.5	
Approach LOS		E			B			A			A	
Stops (vph)		333	4		138	1		111	3		107	
Fuel Used(gal)		13	0		2	0		14	1		4	
CO Emissions (g/hr)		877	20		153	3		967	74		268	
NOx Emissions (g/hr)		171	4		30	1		188	14		52	
VOC Emissions (g/hr)		203	5		35	1		224	17		62	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		~203	1		57	0		38	1		9	
Queue Length 95th (ft)		m#346	m1		108	3		m50	m1		42	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		417	481		516	508		766	655		909	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		1.06	0.05		0.38	0.02		0.42	0.04		0.16	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 33.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 90.0%  
 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: 1062: State Street & 119th Street

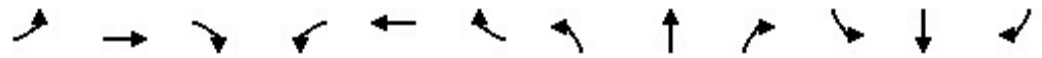


Red Line Extension  
09/16/2021

Synchro 10 Report  
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Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (vph)	0	1004	270	302	1277	0	0	0	0	349	250	465
Future Volume (vph)	0	1004	270	302	1277	0	0	0	0	349	250	465
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		1.00		1.00							0.99	0.99
Frt		0.968									0.940	0.850
Flt Protected				0.950						0.950	0.993	
Satd. Flow (prot)	0	4305	0	1644	3226	0	0	0	0	1468	2714	1375
Flt Permitted				0.121						0.950	0.993	
Satd. Flow (perm)	0	4305	0	209	3226	0	0	0	0	1468	2714	1356
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75									61	78
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			474			954	
Travel Time (s)		30.9			7.3			10.8			21.7	
Confl. Peds. (#/hr)	6		4	4		6	2					2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	11%	7%	4%	6%	0%	0%	0%	0%	6%	4%	8%
Adj. Flow (vph)	0	1024	276	308	1303	0	0	0	0	356	255	474
Shared Lane Traffic (%)										21%		47%
Lane Group Flow (vph)	0	1300	0	308	1303	0	0	0	0	281	553	251
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

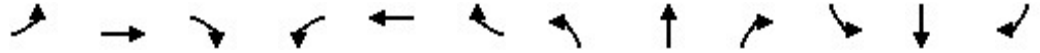
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (%)		43.8%		22.9%	66.7%					33.3%	33.3%	33.3%
Maximum Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										2.0	2.0	2.0
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		45.6		69.0	67.5					25.5	25.5	25.5
Actuated g/C Ratio		0.43		0.66	0.64					0.24	0.24	0.24
v/c Ratio		0.68		0.82	0.63					0.79	0.78	0.65
Control Delay		25.9		30.1	20.3					53.1	41.1	31.9
Queue Delay		0.0		8.8	49.8					0.0	0.0	0.0
Total Delay		25.9		38.8	70.1					53.1	41.1	31.9
LOS		C		D	E					D	D	C
Approach Delay		25.9			64.1						42.1	
Approach LOS		C			E						D	
90th %ile Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		40.0		19.5	64.0					29.0	29.0	29.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		40.3		20.7	65.5					27.5	27.5	27.5
50th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
30th %ile Green (s)		48.5		16.5	69.5					23.5	23.5	23.5
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		59.1		10.8	74.4					18.6	18.6	18.6
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		958		245	941					252	443	152
Fuel Used(gal)		26		4	14					6	11	4
CO Emissions (g/hr)		1783		277	957					448	770	298
NOx Emissions (g/hr)		347		54	186					87	150	58
VOC Emissions (g/hr)		413		64	222					104	178	69
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		260		165	378					190	176	112
Queue Length 95th (ft)		320		m197	m421					291	242	204
Internal Link Dist (ft)		1279			242			394			874	
Turn Bay Length (ft)				216						360		360

Lanes, Volumes, Timings  
 1064: S Paulina ST & 127th Street

AM Peak  
 Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1911		406	2073					405	793	430
Starvation Cap Reductn		0		69	1055					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		0.68		0.91	1.28					0.69	0.70	0.58

Intersection Summary
























Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 89 (85%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 45.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 115.3%  
 ICU Level of Service H  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1064: S Paulina ST & 127th Street















Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 				
Traffic Volume (vph)	380	973	0	0	1039	297	540	355	384	0	0	0
Future Volume (vph)	380	973	0	0	1039	297	540	355	384	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Fr <sub>t</sub>					0.967			0.922				
Fl <sub>t</sub> Protected	0.950						0.950					
Satd. Flow (prot)	3016	3138	0	0	4486	0	1644	3031	0	0	0	0
Fl <sub>t</sub> Permitted	0.950						0.950					
Satd. Flow (perm)	3013	3138	0	0	4486	0	1644	3031	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					76							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		322			336			554			548	
Travel Time (s)		7.3			7.6			12.6			12.5	
Confl. Peds. (#/hr)	4					4						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	9%	0%	0%	6%	4%	4%	3%	5%	0%	0%	0%
Adj. Flow (vph)	400	1024	0	0	1094	313	568	374	404	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1024	0	0	1407	0	568	778	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (%)	26.2%	67.1%			41.0%		32.9%	32.9%				
Maximum Green (s)	21.5	64.5			37.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	18.9	64.5			39.6		28.5	28.5				
Actuated g/C Ratio	0.18	0.61			0.38		0.27	0.27				
v/c Ratio	0.74	0.53			0.81		1.27	1.02dr				
Control Delay	54.3	7.8			29.0		173.5	59.1				
Queue Delay	0.0	0.6			1.8		9.1	0.0				
Total Delay	54.3	8.4			30.7		182.6	59.1				
LOS	D	A			C		F	E				
Approach Delay		21.3			30.7			111.2				
Approach LOS		C			C			F				
90th %ile Green (s)	21.5	64.5			37.0		28.5	28.5				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	21.5	64.5			37.0		28.5	28.5				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	19.5	64.5			39.0		28.5	28.5				
50th %ile Term Code	Gap	Coord			Coord		Max	Max				
30th %ile Green (s)	17.4	64.5			41.1		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	14.4	64.5			44.1		28.5	28.5				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	310	257			766		427	659				
Fuel Used(gal)	7	5			16		24	16				
CO Emissions (g/hr)	480	379			1092		1661	1099				
NOx Emissions (g/hr)	93	74			213		323	214				
VOC Emissions (g/hr)	111	88			253		385	255				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	122	75			197		~484	270				
Queue Length 95th (ft)	163	99			m223		#695	#392				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											
Base Capacity (vph)	617	1927			1741		446	822				

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

AM Peak  
 Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	479			184		0	0				
Spillback Cap Reductn	0	13			55		239	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.65	0.71			0.90		2.74	0.95				

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 7 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.27  
 Intersection Signal Delay: 53.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 115.3%  
 ICU Level of Service H  
 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	567	260	90	876	52	285	225	50	54	140	115
Future Volume (vph)	120	567	260	90	876	52	285	225	50	54	140	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	1.00		0.99	1.00		1.00	0.99	
Frt			0.850		0.992			0.973				0.932
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3167	1311	1605	3232	0	1451	3226	0	1550	2789	0
Flt Permitted	0.104			0.424			0.496			0.572		
Satd. Flow (perm)	171	3167	1282	713	3232	0	753	3226	0	929	2789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277		6			26				122
Link Speed (mph)		30			30			30				30
Link Distance (ft)		336			5379			1555				925
Travel Time (s)		7.6			122.3			35.3				21.0
Confl. Peds. (#/hr)	3		12	12		3	9		6	6		9
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 (%)	2%	8%	5%	3%	5%	3%	10%	3%	2%	3%	7%	4%
Parking (#/hr)			0									
Adj. Flow (vph)	128	603	277	96	932	55	303	239	53	57	149	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	603	277	96	987	0	303	292	0	57	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (%)	12.9%	40.0%	11.9%	11.9%	39.0%		11.9%	36.2%		11.9%	36.2%	
Maximum Green (s)	9.0	36.0	8.0	8.0	35.0		8.0	32.0		8.0	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	63.7	51.6	61.1	44.7	35.0		28.9	21.0		27.2	18.3	
Actuated g/C Ratio	0.61	0.49	0.58	0.43	0.33		0.28	0.20		0.26	0.17	
v/c Ratio	0.32	0.39	0.32	0.26	0.91		1.17	0.44		0.20	0.46	
Control Delay	12.3	17.1	2.8	12.9	47.1		136.2	30.7		26.8	23.0	
Queue Delay	0.0	0.3	0.2	0.0	4.5		0.0	0.0		0.0	0.0	
Total Delay	12.3	17.4	3.0	12.9	51.6		136.2	30.7		26.8	23.0	
LOS	B	B	A	B	D		F	C		C	C	
Approach Delay		12.8			48.1			84.4			23.6	
Approach LOS		B			D			F			C	
90th %ile Green (s)	17.6	41.7	8.0	10.9	35.0		8.0	23.4		8.0	23.4	
90th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
70th %ile Green (s)	20.7	46.6	8.0	9.1	35.0		8.0	20.3		8.0	20.3	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
50th %ile Green (s)	23.3	50.3	8.0	8.0	35.0		8.0	17.7		8.0	17.7	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Max	Hold	
30th %ile Green (s)	25.8	53.7	8.0	7.1	35.0		8.0	16.0		7.2	15.2	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Gap		Gap	Hold	
10th %ile Green (s)	26.0	65.5	8.0	0.0	35.0		8.0	27.5		0.0	15.0	
10th %ile Term Code	MaxR	Coord	Max	Skip	Coord		Max	Hold		Skip	Min	
Stops (vph)	57	390	55	50	826		291	263		38	120	
Fuel Used(gal)	1	6	1	4	52		13	6		1	4	
CO Emissions (g/hr)	65	392	79	300	3661		906	454		62	258	
NOx Emissions (g/hr)	13	76	15	58	712		176	88		12	50	
VOC Emissions (g/hr)	15	91	18	69	849		210	105		14	60	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	26	127	3	25	330		~244	92		28	46	
Queue Length 95th (ft)	m59	m209	m31	54	#457		#405	137		54	82	
Internal Link Dist (ft)		256			5299			1475			845	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Condition - Unmitigated

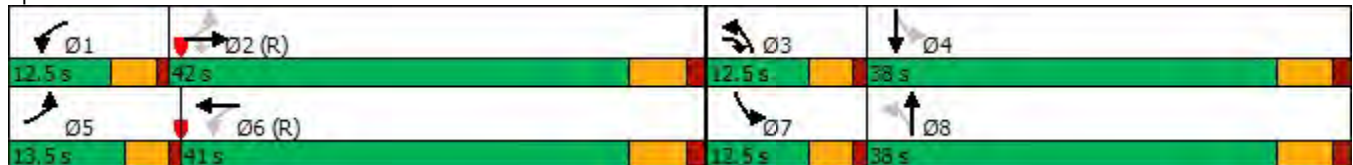


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	405	1555	863	382	1081		260	1001		293	934	
Starvation Cap Reductn	0	429	161	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	58		0	0		0	1	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.32	0.54	0.39	0.25	0.96		1.17	0.29		0.19	0.29	

Intersection Summary






















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	16 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.17
Intersection Signal Delay:	40.8
Intersection LOS:	D
Intersection Capacity Utilization	86.3%
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: 1066: S Ashland & 127th Street



Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
Build Condition - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	169	290	62	182	105	410	475	89	115	325	70
Future Volume (vph)	65	169	290	62	182	105	410	475	89	115	325	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98				0.99		1.00	1.00		1.00	1.00	
Frt		0.905			0.945			0.976			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	2930	0	1513	3019	0	1589	3147	0	1660	3240	0
Flt Permitted	0.528			0.347			0.365			0.417		
Satd. Flow (perm)	900	2930	0	553	3019	0	610	3147	0	728	3240	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					102			24				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	20					20	1		2	2		1
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 (%)	4%	5%	6%	13%	6%	5%	4%	6%	5%	3%	3%	0%
Adj. Flow (vph)	71	186	319	68	200	115	451	522	98	126	357	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	505	0	68	315	0	451	620	0	126	434	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (s)	13.5	31.5		13.5	31.5		24.0	46.5		13.5	36.0	
Total Split (%)	12.9%	30.0%		12.9%	30.0%		22.9%	44.3%		12.9%	34.3%	
Maximum Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					2.0							2.0
Flash Dont Walk (s)					23.5							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	37.8	28.6		37.8	28.7		56.0	41.1		41.0	30.1	
Actuated g/C Ratio	0.36	0.27		0.36	0.27		0.53	0.39		0.39	0.29	
v/c Ratio	0.19	0.63		0.25	0.35		0.88	0.50		0.35	0.47	
Control Delay	21.9	38.9		23.0	22.7		38.0	25.0		18.0	31.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	38.9		23.0	22.7		38.0	25.0		18.0	31.0	
LOS	C	D		C	C		D	C		B	C	
Approach Delay		36.8			22.7			30.4			28.1	
Approach LOS		D			C			C			C	
90th %ile Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
90th %ile Term Code	Max	MaxR		Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	9.5	25.5		9.5	25.5		20.0	40.5		9.5	30.0	
70th %ile Term Code	Max	MaxR		Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.8	26.0		9.0	26.2		20.0	40.5		9.5	30.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.8	27.2		7.8	27.2		20.0	41.2		8.8	30.0	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Gap	Coord	
10th %ile Green (s)	0.0	39.0		0.0	39.0		19.6	42.8		7.2	30.4	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Gap	Coord		Gap	Coord	
Stops (vph)	41	401		39	156		243	398		70	290	
Fuel Used(gal)	1	8		3	14		8	10		2	9	
CO Emissions (g/hr)	60	591		216	987		539	671		156	637	
NOx Emissions (g/hr)	12	115		42	192		105	131		30	124	
VOC Emissions (g/hr)	14	137		50	229		125	155		36	148	
Dilemma Vehicles (#)	0	22		0	14		0	27		0	20	
Queue Length 50th (ft)	30	162		29	61		188	157		33	120	
Queue Length 95th (ft)	60	224		58	102		#360	212		66	177	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	395	799		288	898		511	1246		372	928	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.63		0.24	0.35		0.88	0.50		0.34	0.47	

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 9 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 30.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 90.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1067: S Ashland & Vermont St



Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	190	559	90	10	490	126	70	620	10	84	320	100
Future Volume (vph)	190	559	90	10	490	126	70	620	10	84	320	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		0.99	1.00		1.00	0.99	
Frt		0.984			0.970			0.998			0.964	
Flt Protected		0.989			0.999		0.950			0.950		
Satd. Flow (prot)	0	3011	0	0	2989	0	1545	3288	0	1559	2995	0
Flt Permitted		0.631			0.936		0.437			0.274		
Satd. Flow (perm)	0	1920	0	0	2800	0	707	3288	0	448	2995	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			36			2			49	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	9		11	11		9	11		14	14		11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	6%	18%	50%	6%	6%	7%	3%	50%	6%	7%	2%
Adj. Flow (vph)	204	601	97	11	527	135	75	667	11	90	344	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	902	0	0	673	0	75	678	0	90	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	37.0		21.0	21.0		6.5	31.0		6.5	21.0	
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0	
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%	
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		11						14				
Act Effct Green (s)		34.4		34.4	34.4		34.1	25.3		33.8	25.1	
Actuated g/C Ratio		0.43		0.43	0.43		0.42	0.31		0.42	0.31	
v/c Ratio		1.09		0.55	0.55		0.20	0.66		0.31	0.47	
Control Delay		84.1		19.7	19.7		13.2	27.8		15.0	22.2	
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		84.1		19.7	19.7		13.2	27.8		15.0	22.2	
LOS		F		B	B		B	C		B	C	
Approach Delay		84.1		19.7	19.7			26.4			21.0	
Approach LOS		F		B	B			C			C	
90th %ile Green (s)	0.0	34.0		34.0	34.0		10.0	27.0		8.5	25.5	
90th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Max	Hold	
70th %ile Green (s)	0.0	34.0		34.0	34.0		8.6	27.0		8.5	26.9	
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Max	Hold	
50th %ile Green (s)	0.0	34.0		34.0	34.0		7.7	27.0		8.1	27.4	
50th %ile Term Code	Skip	Max		Hold	Hold		Gap	Max		Gap	Hold	
30th %ile Green (s)	0.0	34.0		34.0	34.0		6.8	26.3		7.1	26.6	
30th %ile Term Code	Skip	Max		Hold	Hold		Gap	Gap		Gap	Hold	
10th %ile Green (s)	0.0	34.0		34.0	34.0		0.0	19.3		0.0	19.3	
10th %ile Term Code	Skip	Max		Hold	Hold		Skip	Gap		Skip	Hold	
Stops (vph)		640		432	432		37	517		44	286	
Fuel Used(gal)		53		11	11		1	9		4	21	
CO Emissions (g/hr)		3711		794	794		45	604		279	1465	
NOx Emissions (g/hr)		722		154	154		9	118		54	285	
VOC Emissions (g/hr)		860		184	184		10	140		65	339	
Dilemma Vehicles (#)		0		0	0		0	0		0	0	
Queue Length 50th (ft)		~299		135	135		21	160		25	87	
Queue Length 95th (ft)		#423		193	193		44	221		51	137	
Internal Link Dist (ft)		5299		1243	1243			370			5258	
Turn Bay Length (ft)							135			130		

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		829			1214		440	1114		308	1008	
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		1.09			0.55		0.17	0.61		0.29	0.45	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	80.6
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.09
Intersection Signal Delay:	41.9
Intersection LOS:	D
Intersection Capacity Utilization	87.1%
ICU Level of Service	E
Analysis Period (min)	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	85
50th %ile Actuated Cycle:	84.6
30th %ile Actuated Cycle:	82.9
10th %ile Actuated Cycle:	65.3
~ 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: 1068: Halsted Street & 127th Street





Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	175	45	77	152	15	40	670	89	10	370	45
Future Volume (vph)	50	175	45	77	152	15	40	670	89	10	370	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.969			0.987			0.982			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1886	0	1629	1939	0	1660	3205	0	1140	3193	0
Flt Permitted	0.643			0.578			0.489			0.277		
Satd. Flow (perm)	1128	1886	0	982	1939	0	853	3205	0	332	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			9			30			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	10		16	16		10	4		6	6		4
Confl. Bikes (#/hr)			4	4								
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 (%)	2%	4%	5%	5%	4%	0%	3%	4%	8%	50%	5%	6%
Adj. Flow (vph)	54	190	49	84	165	16	43	728	97	11	402	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	239	0	84	181	0	43	825	0	11	451	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

AM Peak  
Build Condition - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.13	0.34		0.23	0.25		0.11	0.53		0.07	0.29	
Control Delay	14.7	14.9		25.9	24.7		10.3	13.0		10.7	10.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.7	14.9		25.9	24.7		10.3	13.0		10.7	10.3	
LOS	B	B		C	C		B	B		B	B	
Approach Delay		14.9			25.1			12.9			10.3	
Approach LOS		B			C			B			B	
Stops (vph)	33	136		74	154		23	482		7	220	
Fuel Used(gal)	2	11		2	3		1	16		0	4	
CO Emissions (g/hr)	173	760		115	244		55	1095		7	247	
NOx Emissions (g/hr)	34	148		22	48		11	213		1	48	
VOC Emissions (g/hr)	40	176		27	57		13	254		2	57	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	14	59		36	75		9	108		2	50	
Queue Length 95th (ft)	36	109		m37	m71		25	156		11	77	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	416	710		362	721		406	1544		158	1537	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.34		0.23	0.25		0.11	0.53		0.07	0.29	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.53  
 Intersection Signal Delay: 14.3 Intersection LOS: B  
 Intersection Capacity Utilization 70.3% ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1069: Halsted Street & Vermont St



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations	←↑		←↑				↑			↓		
Traffic Volume (vph)	618	198	660	15	5	15	5	50	10	0	5	5
Future Volume (vph)	618	198	660	15	5	15	5	50	10	0	5	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	12	12	16	12	12	16	12	12
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00				1.00			0.99		
Frt			0.997				0.911			0.930		
Flt Protected			0.989				0.987			0.977		
Satd. Flow (prot)	2956	0	2958	0	0	0	1749	0	0	1828	0	0
Flt Permitted			0.561				0.933			0.892		
Satd. Flow (perm)	2956	0	1677	0	0	0	1651	0	0	1669	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)	30		30				30			30		
Link Distance (ft)	1323		3930				1256			658		
Travel Time (s)	30.1		89.3				28.5			15.0		
Confl. Peds. (#/hr)		7		6		3					3	
Confl. Bikes (#/hr)		1										
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 (%)	8%	8%	6%	0%	0%	8%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	687	220	733	17	6	17	6	56	11	0	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	687	0	970	0	0	0	85	0	0	23	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	0		0				0			0		
Link Offset(ft)	0		0				0			0		
Crosswalk Width(ft)	16		16				16			16		
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07	1.07
Turning Speed (mph)		15		9	15	15		9	15		9	9
Turn Type	NA	custom	NA		Perm	Perm	NA		Perm	NA		
Protected Phases	8	7	4				2			6		
Permitted Phases		4	7		2	2			6			
Minimum Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (%)	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%		
Maximum Green (s)	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0		
Lost Time Adjust (s)	0.0		0.0				0.0			0.0		
Total Lost Time (s)	5.0		5.0				4.0			4.0		
Lead/Lag	Lag	Lead										
Lead-Lag Optimize?												
Walk Time (s)	9.0		18.0		5.0	5.0	5.0					
Flash Dont Walk (s)	9.0		9.0		9.0	9.0	9.0					
Pedestrian Calls (#/hr)	0		0		0	0	0					
Act Effct Green (s)	18.0		27.0				14.0			14.0		

Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

AM Peak  
Build Condition - Unmitigated



Lane Group	NEL	NER
Lane Configurations		
Traffic Volume (vph)	0	289
Future Volume (vph)	0	289
Ideal Flow (vphpl)	1800	1800
Lane Width (ft)	12	12
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt	0.865	
Flt Protected		
Satd. Flow (prot)	1428	0
Flt Permitted		
Satd. Flow (perm)	1428	0
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)	30	
Link Distance (ft)	1385	
Travel Time (s)	31.5	
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	9%
Adj. Flow (vph)	0	321
Shared Lane Traffic (%)		
Lane Group Flow (vph)	321	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	24	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)	15	9
Turn Type	Prot	
Protected Phases	3	
Permitted Phases		
Minimum Split (s)	15.0	
Total Split (s)	15.0	
Total Split (%)	23.1%	
Maximum Green (s)	10.0	
Yellow Time (s)	3.0	
All-Red Time (s)	2.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	5.0	
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)	10.0	

Lanes, Volumes, Timings  
1070: S Wallance St & 127th Street

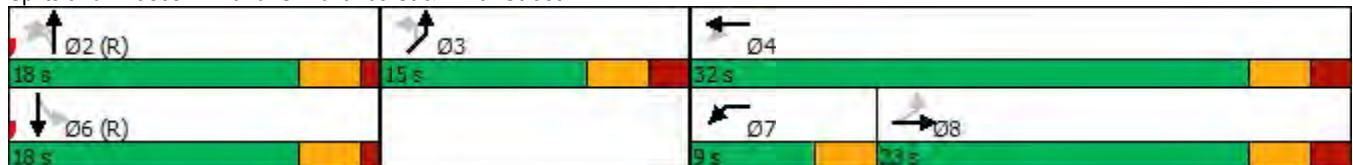
AM Peak  
Build Condition - Unmitigated

Lane Group												
	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Actuated g/C Ratio	0.28		0.42				0.22			0.22		
v/c Ratio	0.84		1.25				0.24			0.06		
Control Delay	33.7		141.3				23.2			21.0		
Queue Delay	0.0		0.0				0.0			0.0		
Total Delay	33.7		141.3				23.2			21.0		
LOS	C		F				C			C		
Approach Delay	33.7		141.3				23.3			21.0		
Approach LOS	C		F				C			C		
Stops (vph)	535		509				61			19		
Fuel Used(gal)	14		55				1			0		
CO Emissions (g/hr)	948		3821				101			21		
NOx Emissions (g/hr)	185		743				20			4		
VOC Emissions (g/hr)	220		886				23			5		
Dilemma Vehicles (#)	0		0				0			0		
Queue Length 50th (ft)	134		~237				28			7		
Queue Length 95th (ft)	#222		#380				62			24		
Internal Link Dist (ft)	1243		3850				1176			578		
Turn Bay Length (ft)												
Base Capacity (vph)	818		775				355			359		
Starvation Cap Reductn	0		0				0			0		
Spillback Cap Reductn	0		0				0			0		
Storage Cap Reductn	0		0				0			0		
Reduced v/c Ratio	0.84		1.25				0.24			0.06		

Intersection Summary

Area Type:	Other		
Cycle Length:	65		
Actuated Cycle Length:	65		
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		
Natural Cycle:	100		
Control Type:	Pretimed		
Maximum v/c Ratio:	1.47		
Intersection Signal Delay:	117.6	Intersection LOS:	F
Intersection Capacity Utilization	90.3%	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.			

Splits and Phases: 1070: S Wallance St & 127th Street



Lanes, Volumes, Timings  
 1070: S Wallance St & 127th Street

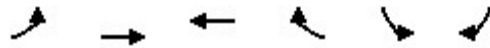
AM Peak  
 Build Condition - Unmitigated



Lane Group	NEL	NER
Actuated g/C Ratio	0.15	
v/c Ratio	1.47	
Control Delay	257.9	
Queue Delay	0.0	
Total Delay	257.9	
LOS	F	
Approach Delay	257.9	
Approach LOS	F	
Stops (vph)	228	
Fuel Used(gal)	20	
CO Emissions (g/hr)	1367	
NOx Emissions (g/hr)	266	
VOC Emissions (g/hr)	317	
Dilemma Vehicles (#)	0	
Queue Length 50th (ft)	~187	
Queue Length 95th (ft)	#335	
Internal Link Dist (ft)	1305	
Turn Bay Length (ft)		
Base Capacity (vph)	219	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	1.47	
Intersection Summary		

Lanes, Volumes, Timings  
1071: 127th Street & State Street

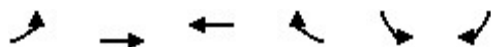
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↘	↙
Traffic Volume (vph)	200	789	681	71	54	200
Future Volume (vph)	200	789	681	71	54	200
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.986			0.850
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	3010	2997	0	1520	1360
Flt Permitted		0.628			0.950	
Satd. Flow (perm)	0	1909	2997	0	1520	1360
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			31			215
Link Speed (mph)		30	30		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	14.5		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	215	848	732	76	58	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1063	808	0	58	215
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

AM Peak  
Build Condition - Unmitigated

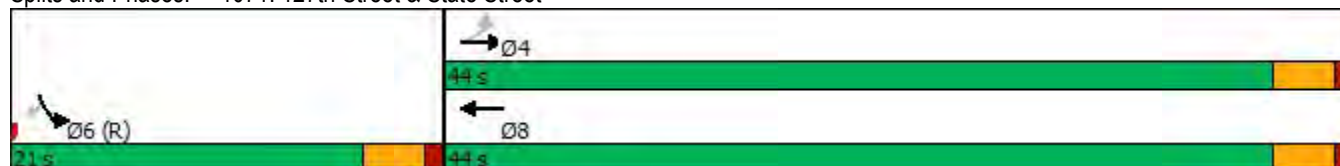


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		0.91	0.44		0.15	0.42
Control Delay		20.3	6.2		17.7	4.7
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		20.3	6.2		17.7	4.7
LOS		C	A		B	A
Approach Delay		20.3	6.2		7.5	
Approach LOS		C	A		A	
Stops (vph)		942	196		38	25
Fuel Used(gal)		40	6		3	9
CO Emissions (g/hr)		2767	402		186	607
NOx Emissions (g/hr)		538	78		36	118
VOC Emissions (g/hr)		641	93		43	141
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		251	47		16	3
Queue Length 95th (ft)		m262	70		35	29
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1174	1856		397	514
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.91	0.44		0.15	0.42

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 13.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 90.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

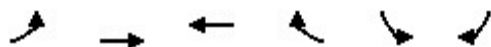
Splits and Phases: 1071: 127th Street & State Street





Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

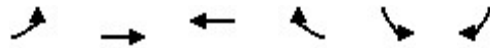
AM Peak  
Build Condition - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↗	↘
Traffic Volume (vph)	60	778	692	217	159	60
Future Volume (vph)	60	778	692	217	159	60
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	0.99			
Frt			0.964			0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	2926	2810	0	1464	1373
Flt Permitted		0.822			0.950	
Satd. Flow (perm)	0	2415	2810	0	1464	1373
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			111			65
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)	1			1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	9%	8%	12%	9%	4%
Adj. Flow (vph)	65	846	752	236	173	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	911	988	0	173	65
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (s)	42.0	42.0	42.0		23.0	23.0
Total Split (%)	64.6%	64.6%	64.6%		35.4%	35.4%
Maximum Green (s)	38.0	38.0	38.0		19.0	19.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			25.0			

Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

AM Peak  
Build Condition - Unmitigated

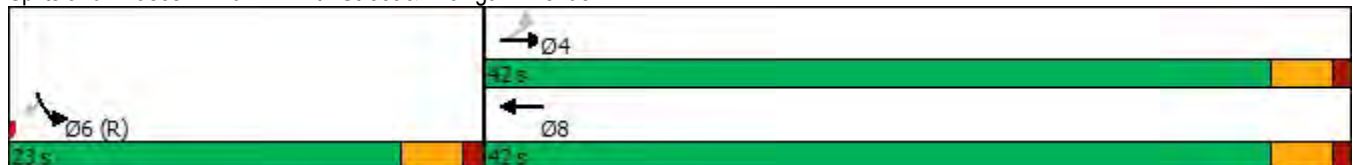


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		38.0	38.0		19.0	19.0
Actuated g/C Ratio		0.58	0.58		0.29	0.29
v/c Ratio		0.65	0.59		0.41	0.15
Control Delay		8.9	6.1		21.9	7.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		8.9	6.1		21.9	7.2
LOS		A	A		C	A
Approach Delay		8.9	6.1		17.9	
Approach LOS		A	A		B	
Stops (vph)		283	452		102	16
Fuel Used(gal)		7	22		11	4
CO Emissions (g/hr)		506	1543		784	275
NOx Emissions (g/hr)		99	300		153	53
VOC Emissions (g/hr)		117	358		182	64
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		76	67		50	0
Queue Length 95th (ft)		m101	89		m70	m2
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1411	1688		427	447
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.65	0.59		0.41	0.15

Intersection Summary













Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 42 (65%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 8.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 89.2%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1072: 127th Street & Michigan Avenue



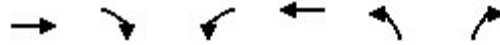
Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Build Condition - Unmitigated

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	737	160	32	343	410	144
Future Volume (vph)	737	160	32	343	410	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00			0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1568	1382	1660	3196	1565	1400
Flt Permitted			0.129		0.950	
Satd. Flow (perm)	1568	1347	225	3196	1565	1374
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						113
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5340	2671	
Travel Time (s)	3.7			104.0	60.7	
Confl. Peds. (#/hr)		4	4			8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	3%	7%	2%	2%
Adj. Flow (vph)	810	176	35	377	451	158
Shared Lane Traffic (%)						
Lane Group Flow (vph)	810	176	35	377	451	158
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Build Condition - Unmitigated

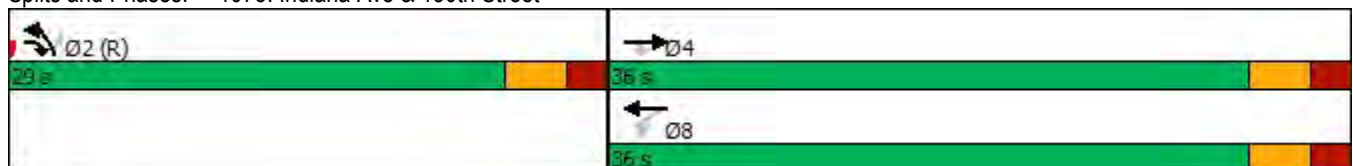


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	55.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	0.85	0.48	0.48	0.37	0.37
v/c Ratio	1.08	0.15	0.33	0.25	0.78	0.27
Control Delay	81.5	1.1	20.9	10.6	30.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.5	1.1	20.9	10.6	30.1	6.7
LOS	F	A	C	B	C	A
Approach Delay	67.2			11.5	24.0	
Approach LOS	E			B	C	
Stops (vph)	640	27	25	189	336	37
Fuel Used(gal)	31	3	2	15	13	3
CO Emissions (g/hr)	2148	240	109	1076	902	238
NOx Emissions (g/hr)	418	47	21	209	176	46
VOC Emissions (g/hr)	498	56	25	249	209	55
Dilemma Vehicles (#)	0	0	0	26	0	0
Queue Length 50th (ft)	~382	0	8	43	154	11
Queue Length 95th (ft)	#591	m0	33	68	#298	47
Internal Link Dist (ft)	83			5260	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	747	1152	107	1524	577	578
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	1.08	0.15	0.33	0.25	0.78	0.27

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 42.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 73.3%  
 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: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
Build Condition - Unmitigated

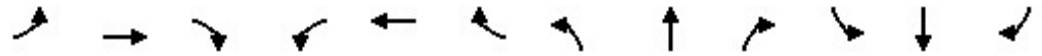


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	87	494	0	30	630	90	0	0	0	50	5	89
Future Volume (vph)	87	494	0	30	630	90	0	0	0	50	5	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00	0.88						0.96
Frt						0.850						0.917
Flt Protected		0.993			0.998							0.983
Satd. Flow (prot)	0	3073	0	0	1615	1377	0	1800	0	0	1579	0
Flt Permitted		0.713			0.968							0.929
Satd. Flow (perm)	0	2197	0	0	1566	1213	0	1800	0	0	1486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						100						99
Link Speed (mph)		30			30			30				30
Link Distance (ft)		228			105			169				1380
Travel Time (s)		5.2			2.4			3.8				31.4
Confl. Peds. (#/hr)	33		13	13		33	29		13	13		29
Confl. Bikes (#/hr)	1		1	1		1						
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 (%)	4%	3%	0%	0%	4%	0%	0%	0%	0%	5%	0%	11%
Adj. Flow (vph)	97	549	0	33	700	100	0	0	0	56	6	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	733	100	0	0	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA	Perm				pm+pt	NA	
Protected Phases		4		3	3			2		1		6
Permitted Phases	4			3	3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0		32.0
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0		32.0
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%		37.6%
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0		27.0
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0		3.0
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0		2.0
Lost Time Adjust (s)		0.0						0.0				0.0
Total Lost Time (s)		4.0						3.0				5.0
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0								14.0

Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
Build Condition - Unmitigated

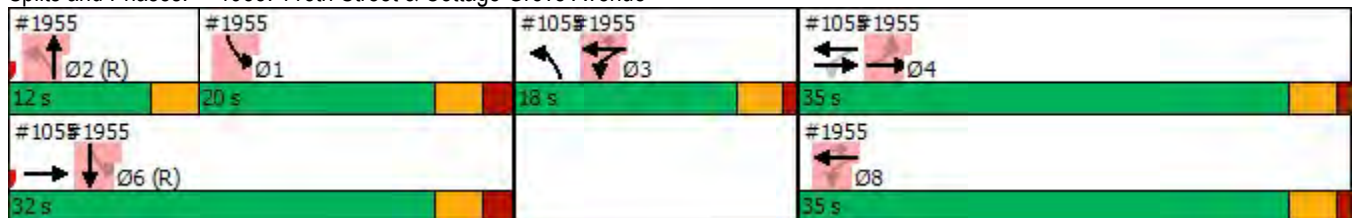


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			45.0	49.0						27.0
Actuated g/C Ratio		0.36			0.53	0.58						0.32
v/c Ratio		0.81			0.88	0.13						0.29
Control Delay		33.8			16.7	0.3						10.9
Queue Delay		1.3			50.6	27.3						0.0
Total Delay		35.1			67.3	27.6						10.9
LOS		D			E	C						B
Approach Delay		35.1			62.5							10.9
Approach LOS		D			E							B
Stops (vph)		496			182	1						46
Fuel Used(gal)		9			4	0						2
CO Emissions (g/hr)		627			265	6						149
NOx Emissions (g/hr)		122			51	1						29
VOC Emissions (g/hr)		145			61	1						35
Dilemma Vehicles (#)		0			0	0						0
Queue Length 50th (ft)		160			120	0						23
Queue Length 95th (ft)		#252			m24	m0						68
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		801			837	741						555
Starvation Cap Reductn		0			342	630						0
Spillback Cap Reductn		46			0	0						1
Storage Cap Reductn		0			0	0						0
Reduced v/c Ratio		0.86			1.48	0.90						0.29

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 125  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.66  
 Intersection Signal Delay: 46.6 Intersection LOS: D  
 Intersection Capacity Utilization 87.2% ICU Level of Service E  
 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: 1955: 115th Street & Cottage Grove Avenue

























Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1035	70	137	755	0	314	0	290	0	0	0
Future Volume (vph)	0	1035	70	137	755	0	314	0	290	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	16	12
Storage Length (ft)	165		165	165		165	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	210			200			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1800	3320	1530	1644	3320	1800	0	1710	1500	0	2040	0
Flt Permitted				0.162				0.757				
Satd. Flow (perm)	1800	3320	1530	280	3320	1800	0	1363	1500	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		5343			1170			134			331	
Travel Time (s)		104.1			22.8			3.0			7.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	0%	0%	2%	0%	0%	0%
Adj. Flow (vph)	0	1078	73	143	786	0	327	0	302	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1078	73	143	786	0	0	327	302	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
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)	50	50	50	50	50	50	50	50	50	50	50	50
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm			
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	33.0	33.0	33.0	7.0	43.0	43.0	6.0	6.0	6.0	6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	37.0	37.0	37.0	10.0	47.0	47.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0	28.0	28.0	28.0	28.0
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.9%
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	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
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)		43.6	43.6	54.6	53.6			23.4	23.4			
Actuated g/C Ratio		0.51	0.51	0.64	0.63			0.28	0.28			
v/c Ratio		0.63	0.09	0.49	0.38			0.87	0.73			
Control Delay		17.2	11.4	12.0	8.3			54.8	39.9			
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			
Total Delay		17.2	11.4	12.0	8.3			54.8	39.9			
LOS		B	B	B	A			D	D			
Approach Delay		16.8			8.9			47.6				
Approach LOS		B			A			D				
90th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
70th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
50th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
50th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
30th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0	24.0	24.0	24.0	24.0
30th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
10th %ile Green (s)	46.2	46.2	46.2	7.0	56.2	56.2	20.8	20.8	20.8	20.8	20.8	20.8
10th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)		713	35	51	339			272	254			
Fuel Used(gal)		49	3	2	11			5	4			
CO Emissions (g/hr)		3419	218	147	803			373	284			
NOx Emissions (g/hr)		665	43	29	156			73	55			
VOC Emissions (g/hr)		792	51	34	186			86	66			
Dilemma Vehicles (#)		61	0	0	44			0	0			
Queue Length 50th (ft)		210	19	27	97			164	144			
Queue Length 95th (ft)		276	41	50	131			#311	#256			
Internal Link Dist (ft)		5263			1090			54				251
Turn Bay Length (ft)			165	165								
Base Capacity (vph)		1704	785	292	2095			384	423			
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		0.63	0.09	0.49	0.38			0.85	0.71			

Intersection Summary

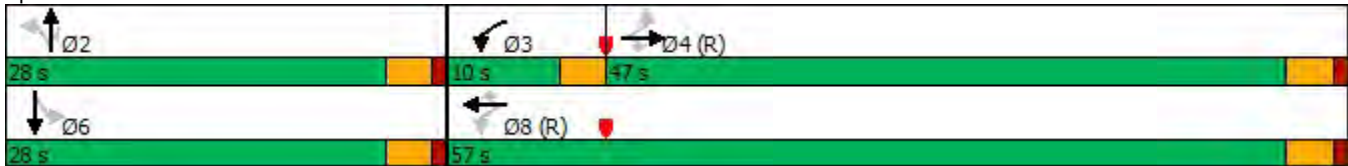
Area Type: Other

Lanes, Volumes, Timings  
 1: Ellis Avenue & 130th Street

PM Peak  
 Build Conditions - Unmitigated







Cycle Length: 85	
Actuated Cycle Length: 85	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 21.3	Intersection LOS: C
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Ellis Avenue & 130th Street



Lanes, Volumes, Timings  
2: Ellis Avenue & Old 130th Street

PM Peak  
Build Conditions - Unmitigated

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↕
Traffic Volume (vph)	0	374	191	2	0	175
Future Volume (vph)	0	374	191	2	0	175
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.999			
Flt Protected						
Satd. Flow (prot)	0	1557	3417	0	0	3420
Flt Permitted						
Satd. Flow (perm)	0	1557	3417	0	0	3420
Link Speed (mph)	30		30			30
Link Distance (ft)	602		184			134
Travel Time (s)	13.7		4.2			3.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	416	212	2	0	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	416	214	0	0	194
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	0		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Ellis Avenue & Old 130th Street

PM Peak  
Build Conditions - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↕
Traffic Volume (veh/h)	0	374	191	2	0	175
Future Volume (Veh/h)	0	374	191	2	0	175
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	416	212	2	0	194
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	134					
pX, platoon unblocked						
vC, conflicting volume	310	107			214	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	107			214	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	55			100	
cM capacity (veh/h)	663	933			1368	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	416	141	73	97	97	
Volume Left	0	0	0	0	0	
Volume Right	416	0	2	0	0	
cSH	933	1700	1700	1700	1700	
Volume to Capacity	0.45	0.08	0.04	0.06	0.06	
Queue Length 95th (ft)	58	0	0	0	0	
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	11.9	0.0		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			6.0			
Intersection Capacity Utilization			36.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
3: Ellis Avenue & Greenwood Avenue

PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	9	2	4	2	2	64	1	2	154	2	6	70
Future Volume (vph)	9	2	4	2	2	64	1	2	154	2	6	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Ped Bike Factor												
Frt		0.966			0.872				0.998			
Flt Protected		0.970			0.999				0.999			
Satd. Flow (prot)	0	1687	0	0	1568	0	0	0	1744	0	0	0
Flt Permitted		0.970			0.999				0.999			
Satd. Flow (perm)	0	1687	0	0	1568	0	0	0	1744	0	0	0
Link Speed (mph)		30			30				30			
Link Distance (ft)		472			392				265			
Travel Time (s)		10.7			8.9				6.0			
Confl. Peds. (#/hr)						43				43		43
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%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%
Adj. Flow (vph)	10	2	4	2	2	71	1	2	171	2	7	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	0	75	0	0	0	176	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	R NA	Left
Median Width(ft)		0			0				0			
Link Offset(ft)		0			0				0			
Crosswalk Width(ft)		16			16				16			
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	9	15
Sign Control		Stop			Stop				Free			
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.7%					ICU Level of Service A						
Analysis Period (min)	15											

Lanes, Volumes, Timings  
 3: Ellis Avenue & Greenwood Avenue

PM Peak  
 Build Conditions - Unmitigated


















Lane Group	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (vph)	90	8
Future Volume (vph)	90	8
Ideal Flow (vphpl)	1800	1800
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.850
Flt Protected	0.978	
Satd. Flow (prot)	1722	1530
Flt Permitted	0.978	
Satd. Flow (perm)	1722	1530
Link Speed (mph)	30	
Link Distance (ft)	184	
Travel Time (s)	4.2	
Confl. Peds. (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	1%	0%
Adj. Flow (vph)	100	9
Shared Lane Traffic (%)		
Lane Group Flow (vph)	185	9
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(ft)	0	
Link Offset(ft)	0	
Crosswalk Width(ft)	16	
Two way Left Turn Lane		
Headway Factor	1.07	1.07
Turning Speed (mph)		9
Sign Control	Free	
<b>Intersection Summary</b>		

# HCM Unsignalized Intersection Capacity Analysis

## 3: Ellis Avenue & Greenwood Avenue

PM Peak  
Build Conditions - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	9	2	4	2	2	64	1	2	154	2	6	70
Future Volume (Veh/h)	9	2	4	2	2	64	1	2	154	2	6	70
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
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
Hourly flow rate (vph)	10	2	4	2	2	71	0	2	171	2	0	78
Pedestrians					43							
Lane Width (ft)					12.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					4							
Right turn flare (veh)												
Median type									None			
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00				0.00	
vC, conflicting volume	547	476	100	480	484	258	0	109			0	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	547	476	100	480	484	258	0	109			0	216
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	97	100	100	100	100	90	0	100			0	94
cM capacity (veh/h)	363	444	961	443	439	730	0	1494			0	1294
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>	<b>SB 2</b>							
Volume Total	16	75	175	178	9							
Volume Left	10	2	2	78	0							
Volume Right	4	71	2	0	9							
cSH	441	706	1494	1294	1700							
Volume to Capacity	0.04	0.11	0.00	0.06	0.01							
Queue Length 95th (ft)	3	9	0	5	0							
Control Delay (s)	13.5	10.7	0.1	3.8	0.0							
Lane LOS	B	B	A	A								
Approach Delay (s)	13.5	10.7	0.1	3.6								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay			3.8									
Intersection Capacity Utilization			43.7%		ICU Level of Service				A			
Analysis Period (min)			15									



HCM Unsignalized Intersection Capacity Analysis  
 3: Ellis Avenue & Greenwood Avenue










PM Peak  
 Build Conditions - Unmitigated



Movement	SBT	SBR
Lane Configurations	↕	↗
Traffic Volume (veh/h)	90	8
Future Volume (Veh/h)	90	8
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.90	0.90
Hourly flow rate (vph)	100	9
Pedestrians	43	
Lane Width (ft)	12.0	
Walking Speed (ft/s)	4.0	
Percent Blockage	4	
Right turn flare (veh)		
Median type	None	
Median storage (veh)		
Upstream signal (ft)	318	
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Lanes, Volumes, Timings  
4: Greenwood Avenue & 130th Place

PM Peak  
Build Conditions - Unmitigated

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	66	0	1	77
Future Volume (vph)	0	0	66	0	1	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected						0.999
Satd. Flow (prot)	1765	0	1765	0	0	1763
Flt Permitted						0.999
Satd. Flow (perm)	1765	0	1765	0	0	1763
Link Speed (mph)	30		30			30
Link Distance (ft)	345		375			351
Travel Time (s)	7.8		8.5			8.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	72	0	1	84
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	0	0	72	0	0	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	8.5%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 4: Greenwood Avenue & 130th Place

PM Peak  
Build Conditions - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	66	0	1	77
Future Volume (Veh/h)	0	0	66	0	1	77
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	72	0	1	84
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	158	72			72	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	72			72	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	833	990			1528	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	72	85			
Volume Left	0	0	1			
Volume Right	0	0	0			
cSH	1700	1700	1528			
Volume to Capacity	0.00	0.04	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.1			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			8.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Greenwood Avenue & 131st Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	0	48	12	0	1	48	20
Future Volume (vph)	0	48	12	0	1	48	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	0.865						
Fl <sub>t</sub> Protected							0.966
Satd. Flow (prot)	1557	0	1800	0	0	0	1739
Fl <sub>t</sub> Permitted							0.966
Satd. Flow (perm)	1557	0	1800	0	0	0	1739
Link Speed (mph)	30		30		30		
Link Distance (ft)	396		262		692		
Travel Time (s)	9.0		6.0		15.7		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	51	13	0	1	51	21
Shared Lane Traffic (%)							
Lane Group Flow (vph)	51	0	13	0	0	0	73
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	R NA	Left	Left
Median Width(ft)	12		0		0		
Link Offset(ft)	0		0		0		
Crosswalk Width(ft)	16		16		16		
Two way Left Turn Lane							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9		9	9	15	
Sign Control	Stop		Free		Free		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.6%
Analysis Period (min)	15
	ICU Level of Service A

# HCM Unsignalized Intersection Capacity Analysis

## 5: Greenwood Avenue & 131st Street

PM Peak  
Build Conditions - Unmitigated



Movement	WBL	WBR	NBT	NBR	SBU	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	0	48	12	0	1	48	20
Future Volume (Veh/h)	0	48	12	0	1	48	20
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	51	13	0	0	51	21
<b>Pedestrians</b>							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked					0.00		
vC, conflicting volume	136	13			0	13	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	136	13			0	13	
tC, single (s)	6.4	6.2			0.0	4.1	
tC, 2 stage (s)							
tF (s)	3.5	3.3			0.0	2.2	
p0 queue free %	100	95			0	97	
cM capacity (veh/h)	835	1073			0	1619	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	51	13	72				
Volume Left	0	0	51				
Volume Right	51	0	0				
cSH	1073	1700	1619				
Volume to Capacity	0.05	0.01	0.03				
Queue Length 95th (ft)	4	0	2				
Control Delay (s)	8.5	0.0	5.2				
Lane LOS	A		A				
Approach Delay (s)	8.5	0.0	5.2				
Approach LOS	A						
<b>Intersection Summary</b>							
Average Delay			6.0				
Intersection Capacity Utilization			20.6%	ICU Level of Service			A
Analysis Period (min)			15				

Lanes, Volumes, Timings  
6: Greenwood Avenue & 132nd Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (vph)	2	0	5	0	0	0	1	7	0	1	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899										0.992
Fl <sub>t</sub> Protected		0.988						0.994				0.997
Satd. Flow (prot)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Fl <sub>t</sub> Permitted		0.988						0.994				0.997
Satd. Flow (perm)	0	1599	0	0	1800	0	0	1789	0	0	0	1780
Link Speed (mph)		30			30			30				30
Link Distance (ft)		318			1039			274				262
Travel Time (s)		7.2			23.6			6.2				6.0
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	8	0	1	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	9	0	0	0	18
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Left
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	9	15	
Sign Control		Stop			Stop			Free				Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
 6: Greenwood Avenue & 132nd Street

















PM Peak  
 Build Conditions - Unmitigated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	1
Future Volume (vph)	1
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	1
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

# HCM Unsignalized Intersection Capacity Analysis

## 6: Greenwood Avenue & 132nd Street

PM Peak  
Build Conditions - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Future Volume (Veh/h)	2	0	5	0	0	0	1	7	0	1	0	14
Sign Control		Stop			Stop			Free				Free
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	2	0	6	0	0	0	1	8	0	0	0	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None				None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked										0.00		
vC, conflicting volume	26	26	16	32	27	8	17			0	8	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26	26	16	32	27	8	17			0	8	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			0.0	4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			0.0	2.2	
p0 queue free %	100	100	99	100	100	100	100			0	100	
cM capacity (veh/h)	988	870	1068	974	870	1080	1613			0	1625	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	0	9	17								
Volume Left	2	0	1	0								
Volume Right	6	0	0	1								
cSH	1047	1700	1613	1625								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	8.5	0.0	0.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	0.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									



HCM Unsignalized Intersection Capacity Analysis  
 6: Greenwood Avenue & 132nd Street

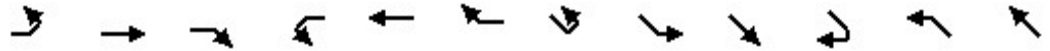
PM Peak  
 Build Conditions - Unmitigated



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	1
Future Volume (Veh/h)	1
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	1
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations		↕			↕				↕			↕
Traffic Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (vph)	2	0	5	0	0	0	1	0	14	1	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>		0.899							0.992			
Fl <sub>t</sub> Protected		0.988							0.997			
Satd. Flow (prot)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Fl <sub>t</sub> Permitted		0.988							0.997			
Satd. Flow (perm)	0	1599	0	0	1800	0	0	0	1780	0	0	1800
Link Speed (mph)		30			30				15			15
Link Distance (ft)		1039			253				374			412
Travel Time (s)		23.6			5.8				17.0			18.7
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%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	0	6	0	0	0	1	0	16	1	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	0	18	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	R NA	Left	Left	Right	Left	Left
Median Width(ft)		0			0				0			0
Link Offset(ft)		0			0				0			0
Crosswalk Width(ft)		16			16				16			16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	9	15		9	15	
Sign Control		Free			Free				Stop			Stop

Intersection Summary

















Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.3%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	NWR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
7: Beaubien Woods Driveway & 132nd Street

PM Peak  
Build Conditions - Unmitigated

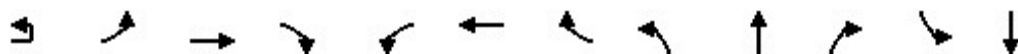
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEU	SEL	SET	SER	NWL	NWT
Lane Configurations												
Traffic Volume (veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Future Volume (Veh/h)	2	0	5	0	0	0	1	0	14	1	0	0
Sign Control		Free			Free				Stop			Stop
Grade		0%			0%				0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	6	0	0	0	0	0	16	1	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked							0.00					
vC, conflicting volume	0			6			0	7	10	0	16	7
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			6			0	7	10	0	16	7
tC, single (s)	4.1			4.1			0.0	7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			0.0	3.5	4.0	3.3	3.5	4.0
p0 queue free %	100			100			0	100	98	100	100	100
cM capacity (veh/h)	1636			1628			0	1017	888	1091	989	891
Direction, Lane #	EB 1	WB 1	SE 1	NW 1								
Volume Total	8	0	17	0								
Volume Left	2	0	0	0								
Volume Right	6	0	1	0								
cSH	1636	1700	898	1700								
Volume to Capacity	0.00	0.00	0.02	0.00								
Queue Length 95th (ft)	0	0	1	0								
Control Delay (s)	1.8	0.0	9.1	0.0								
Lane LOS	A		A	A								
Approach Delay (s)	1.8	0.0	9.1	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Movement	NWR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.90
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	3
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	3
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	1087
Direction, Lane #	

Lanes, Volumes, Timings  
8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		3				4			4			2
Traffic Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (vph)	1	2	0	1	0	0	0	1	3	0	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr t	0.865											
Flt Protected	0.950										0.988	
Satd. Flow (prot)	0	1676	0	0	0	1765	0	0	1744	0	0	1765
Flt Permitted	0.950										0.988	
Satd. Flow (perm)	0	1676	0	0	0	1765	0	0	1744	0	0	1765
Link Speed (mph)	30			30				30			30	
Link Distance (ft)	306			254				288			234	
Travel Time (s)	7.0			5.8				6.5			5.3	
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)	1	2	0	1	0	0	0	1	3	0	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	1	0	0	0	0	0	4	0	0	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)	12			0				0			0	
Link Offset(ft)	0			0				0			0	
Crosswalk Width(ft)	16			16				16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Sign Control	Stop			Stop				Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization Err% ICU Level of Service H

Analysis Period (min) 15

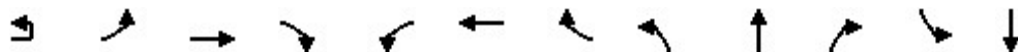
Lanes, Volumes, Timings  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 Build Conditions - Unmitigated

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	0
Future Volume (vph)	0
Ideal Flow (vphpl)	1800
Lane Util. Factor	1.00
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	1.07
Turning Speed (mph)	9
Sign Control	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis  
8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
Build Conditions - Unmitigated



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		2		1		0		1	3			2
Traffic Volume (veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Future Volume (Veh/h)	1	2	0	1	0	0	0	1	3	0	0	2
Sign Control			Stop			Stop			Free			Free
Grade			0%			0%			0%			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
Hourly flow rate (vph)	0	2	0	1	0	0	0	1	3	0	0	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			None
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	7	7	2	8	7	3	2			3	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	7	7	2	8	7	3	2			3	
tC, single (s)	0.0	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1	
tC, 2 stage (s)												
tF (s)	0.0	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2	
p0 queue free %	0	100	100	100	100	100	100	100			100	
cM capacity (veh/h)	0	1012	888	1082	1010	888	1081	1620			1619	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	0	4	2								
Volume Left	2	0	1	0								
Volume Right	1	0	0	0								
cSH	1035	1700	1620	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (ft)	0	0	0	0								
Control Delay (s)	8.5	0.0	1.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.5	0.0	1.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									



HCM Unsignalized Intersection Capacity Analysis  
 8: Doty Avenue & 132nd Street/School Driveway

PM Peak  
 Build Conditions - Unmitigated



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	
tC, single (s)	
tC, 2 stage (s)	
tF (s)	
p0 queue free %	
cM capacity (veh/h)	
Direction, Lane #	

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1120	5	40	800	50	0	0	0	795	120	520
Future Volume (vph)	35	1120	5	40	800	50	0	0	0	795	120	520
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	11	11
Storage Length (ft)	120		0	180		190	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor	0.85	1.00		1.00		0.49				0.99		0.98
Frt		0.999				0.850						0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	855	4856	0	1710	3226	765	0	1800	0	3285	1673	1464
Flt Permitted	0.950			0.950						0.950		
Satd. Flow (perm)	727	4856	0	1708	3226	376	0	1800	0	3265	1673	1435
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		1				101						
Link Speed (mph)		30			30			30				30
Link Distance (ft)		809			325			759				669
Travel Time (s)		18.4			7.4			17.3				15.2
Confl. Peds. (#/hr)	350		4	4		350	8		6	6		8
Confl. Bikes (#/hr)	4		1			7				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	100%	1%	20%	0%	6%	100%	0%	0%	0%	1%	4%	1%
Adj. Flow (vph)	38	1204	5	43	860	54	0	0	0	855	129	559
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	1209	0	43	860	54	0	0	0	855	129	559
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			36			24				24
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100		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	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	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

Lanes, Volumes, Timings  
1002: Lafayette Avenue & 95th Street

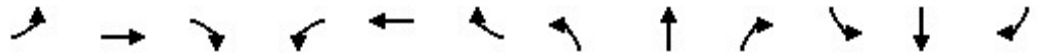
PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA	Perm				Split	NA	pm+ov
Protected Phases	7	4		3	8		5	5		6	6	7
Permitted Phases						8						6
Detector Phase	7	4		3	8	8	5	5		6	6	7
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	4.0	10.0	10.0		4.0	4.0	10.0
Minimum Split (s)	15.0	53.0		10.0	51.0	51.0	15.0	15.0		44.0	44.0	15.0
Total Split (s)	15.0	53.0		13.0	51.0	51.0	20.0	20.0		44.0	44.0	15.0
Total Split (%)	11.5%	40.8%		10.0%	39.2%	39.2%	15.4%	15.4%		33.8%	33.8%	11.5%
Maximum Green (s)	10.0	48.0		9.0	46.0	46.0	15.0	15.0		39.0	39.0	10.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		1.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0		4.0	5.0	5.0		5.0		5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		Max	Max	None
Walk Time (s)		25.0			19.0	19.0				9.0	9.0	
Flash Dont Walk (s)		23.0			27.0	27.0				30.0	30.0	
Pedestrian Calls (#/hr)		0			0	0				0	0	
Act Effct Green (s)	10.0	71.0		8.0	66.0	66.0				39.0	39.0	49.0
Actuated g/C Ratio	0.08	0.55		0.06	0.51	0.51				0.30	0.30	0.38
v/c Ratio	0.58	0.46		0.41	0.53	0.23				0.87	0.26	1.03
Control Delay	92.1	19.0		71.1	26.3	6.9				53.7	36.3	85.4
Queue Delay	0.0	0.0		0.0	5.0	0.0				48.4	0.0	0.0
Total Delay	92.1	19.0		71.1	31.3	6.9				102.1	36.3	85.4
LOS	F	B		E	C	A				F	D	F
Approach Delay		21.3			31.7						90.5	
Approach LOS		C			C						F	
90th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
90th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
70th %ile Green (s)	10.0	68.0		9.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
70th %ile Term Code	Max	Coord		Max	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
50th %ile Green (s)	10.0	68.4		8.6	66.0	66.0	0.0	0.0		39.0	39.0	10.0
50th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
30th %ile Green (s)	10.0	69.7		7.3	66.0	66.0	0.0	0.0		39.0	39.0	10.0
30th %ile Term Code	Max	Coord		Gap	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
10th %ile Green (s)	10.0	81.0		0.0	66.0	66.0	0.0	0.0		39.0	39.0	10.0
10th %ile Term Code	Max	Coord		Skip	Coord	Coord	Skip	Skip		MaxR	MaxR	Max
Stops (vph)	32	657		39	369	8				722	89	581
Fuel Used(gal)	1	15		1	8	0				17	2	15
CO Emissions (g/hr)	74	1054		63	584	17				1176	140	1046
NOx Emissions (g/hr)	14	205		12	114	3				229	27	203
VOC Emissions (g/hr)	17	244		15	135	4				273	32	242
Dilemma Vehicles (#)	0	0		0	0	0				0	0	0
Queue Length 50th (ft)	32	227		38	196	3				352	83	~461

Lanes, Volumes, Timings  
 1002: Lafayette Avenue & 95th Street

PM Peak  
 Build Conditions - Unmitigated

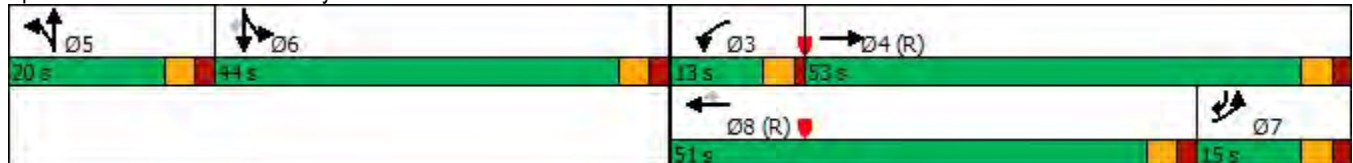


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#86	268		m52	258	m11				#443	137	#729
Internal Link Dist (ft)		729			245			679			589	
Turn Bay Length (ft)	120			180		190						
Base Capacity (vph)	65	2653		118	1637	240				985	501	543
Starvation Cap Reductn	0	0		0	696	0				0	0	0
Spillback Cap Reductn	0	64		0	0	0				226	0	0
Storage Cap Reductn	0	0		0	0	0				0	0	0
Reduced v/c Ratio	0.58	0.47		0.36	0.91	0.23				1.13	0.26	1.03

Intersection Summary






















Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 124 (95%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 52.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 81.5%  
 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: 1002: Lafayette Avenue & 95th Street



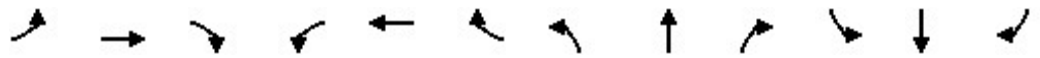
Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	1135	305	70	720	370	130	335	75	55	0	40
Future Volume (vph)	475	1135	305	70	720	370	130	335	75	55	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	11	12	11	12	11	14	12	12	12
Storage Length (ft)	200		0	150		350	300		400	0		0
Storage Lanes	0		0	1		1	1		1	1		1
Taper Length (ft)	25			25			100			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.82	0.99		1.00		0.68		1.00	0.92	0.97		
Frt		0.968				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	3285	3259	0	1653	3138	1464	0	3191	1600	855	0	765
Flt Permitted	0.950			0.950				0.986		0.950		
Satd. Flow (perm)	2697	3259	0	1650	3138	998	0	3185	1479	827	0	765
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				78			92			134
Link Speed (mph)		30			35			30				30
Link Distance (ft)		325			954			10393				681
Travel Time (s)		7.4			18.6			236.2				15.5
Confl. Peds. (#/hr)	327		13	13		327	6		60	60		6
Confl. Bikes (#/hr)	1					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 (%)	1%	1%	0%	0%	9%	1%	0%	3%	2%	100%	0%	100%
Adj. Flow (vph)	505	1207	324	74	766	394	138	356	80	59	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	505	1531	0	74	766	394	0	494	80	59	0	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.12	1.07	1.12	1.07	1.12	0.99	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1	1	1		1
Detector Template												
Leading Detector (ft)	50	50		50	50	50	50	50	50	50		50
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)	50	50		50	50	50	50	50	50	50		50
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
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Prot		Prot
Protected Phases	7	4		3	8	6	2	2	3	6		6
Permitted Phases						8			2			

Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	6	2	2	3	6		6
Switch Phase												
Minimum Initial (s)	10.0	4.0		6.0	4.0	10.0	4.0	4.0	6.0	10.0		10.0
Minimum Split (s)	14.0	56.0		11.0	41.0	15.0	41.0	41.0	11.0	15.0		15.0
Total Split (s)	28.0	56.0		13.0	41.0	20.0	41.0	41.0	13.0	20.0		20.0
Total Split (%)	21.5%	43.1%		10.0%	31.5%	15.4%	31.5%	31.5%	10.0%	15.4%		15.4%
Maximum Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lead	Lead		Lag	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
Recall Mode	None	C-Max		None	C-Max	None	Max	Max	None	None		None
Walk Time (s)		23.0			11.0		7.0	7.0				
Flash Dont Walk (s)		28.0			25.0		29.0	29.0				
Pedestrian Calls (#/hr)		0			0		0	0				
Act Effct Green (s)	23.0	51.3		8.0	37.4	52.0		36.0	44.0	14.7		14.7
Actuated g/C Ratio	0.18	0.39		0.06	0.29	0.40		0.28	0.34	0.11		0.11
v/c Ratio	0.87	1.17		0.73	0.85	0.79		0.56	0.14	0.61		0.21
Control Delay	59.7	117.5		97.5	54.3	28.1		43.7	5.5	82.0		2.3
Queue Delay	7.2	0.0		0.0	0.0	0.0		0.3	0.0	0.0		0.2
Total Delay	66.8	117.5		97.5	54.3	28.1		44.0	5.5	82.0		2.5
LOS	E	F		F	D	C		D	A	F		A
Approach Delay		104.9			48.5			38.6				48.5
Approach LOS		F			D			D				D
90th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
90th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
70th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
70th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
50th %ile Green (s)	24.0	51.0		8.0	36.0	15.0	36.0	36.0	8.0	15.0		15.0
50th %ile Term Code	Max	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
30th %ile Green (s)	23.1	51.0		8.0	36.9	15.0	36.0	36.0	8.0	15.0		15.0
30th %ile Term Code	Gap	Coord		Max	Coord	Max	MaxR	MaxR	Max	Max		Max
10th %ile Green (s)	19.7	52.6		8.0	41.9	13.4	36.0	36.0	8.0	13.4		13.4
10th %ile Term Code	Gap	Coord		Hold	Coord	Gap	MaxR	MaxR	Hold	Gap		Gap
Stops (vph)	426	1282		62	649	238		405	21	50		0
Fuel Used(gal)	9	45		2	18	6		45	6	1		0
CO Emissions (g/hr)	652	3155		163	1244	451		3146	451	104		16
NOx Emissions (g/hr)	127	614		32	242	88		612	88	20		3
VOC Emissions (g/hr)	151	731		38	288	105		729	104	24		4
Dilemma Vehicles (#)	0	0		0	27	0		0	0	0		0
Queue Length 50th (ft)	171	~818		62	325	116		200	3	48		0
Queue Length 95th (ft)	m#247	#608		#144	#433	#201		263	m9	#111		0
Internal Link Dist (ft)		245			874			10313				601
Turn Bay Length (ft)	200			150		350			400			
Base Capacity (vph)	606	1305		101	901	502		883	568	98		206
Starvation Cap Reductn	70	3		0	0	0		0	0	0		0

Lanes, Volumes, Timings  
1003: State Street & 95th Street

PM Peak  
Build Conditions - Unmitigated

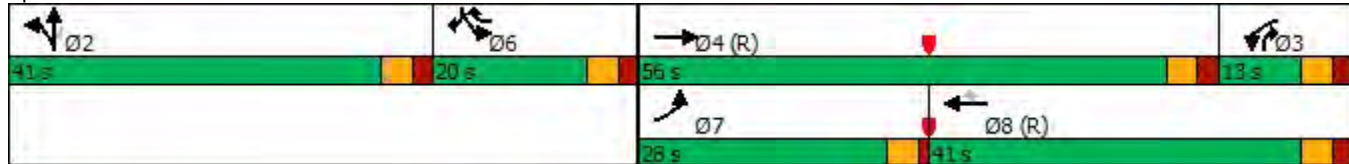


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0		0	0	0		80	0	0		20
Storage Cap Reductn	0	0		0	0	0		0	0	0		0
Reduced v/c Ratio	0.94	1.18		0.73	0.85	0.78		0.62	0.14	0.60		0.23

Intersection Summary























Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 0 (0%), Referenced to phase 4:EBT and 8:WBT, Start of Green  
 Natural Cycle: 125  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 76.2      Intersection LOS: E  
 Intersection Capacity Utilization 99.7%      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: 1003: State Street & 95th Street



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	411	185	153	391	159	110	655	92	155	820	100
Future Volume (vph)	85	411	185	153	391	159	110	655	92	155	820	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99	0.99		0.99		0.95	0.99		0.94
Frt		0.953			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1879	0	1676	1880	0	1550	3040	1363	1509	3069	1337
Flt Permitted	0.125			0.177			0.190			0.270		
Satd. Flow (perm)	221	1879	0	309	1880	0	307	3040	1296	425	3069	1251
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				95			83
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304				668
Travel Time (s)		15.1			46.3			120.5				15.2
Confl. Peds. (#/hr)	24		45	45		24	36		24	24		36
Confl. Bikes (#/hr)						1				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	5%	1%	2%	4%	3%
Adj. Flow (vph)	91	442	199	165	420	171	118	704	99	167	882	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	641	0	165	591	0	118	704	99	167	882	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		11.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		34.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	13.0	47.0		34.0	34.0		12.0	46.0	46.0	12.0	46.0	46.0
Total Split (%)	12.4%	44.8%		32.4%	32.4%		11.4%	43.8%	43.8%	11.4%	43.8%	43.8%
Maximum Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		5.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/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
Recall Mode	Max	Max		Max	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0		11.0	11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0		18.0	18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)	44.0	42.0		29.0	29.0		51.6	42.2	42.2	52.4	42.6	42.6
Actuated g/C Ratio	0.42	0.40		0.28	0.28		0.49	0.40	0.40	0.50	0.41	0.41
v/c Ratio	0.39	0.84		1.94	1.11		0.47	0.58	0.17	0.55	0.71	0.19
Control Delay	24.0	38.6		488.6	108.6		19.5	26.8	5.4	21.2	30.0	7.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	38.6		488.6	108.6		19.5	26.8	5.4	21.2	30.0	7.7
LOS	C	D		F	F		B	C	A	C	C	A
Approach Delay		36.8			191.5			23.6			26.7	
Approach LOS		D			F			C			C	
90th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	10.0	42.0		29.0	29.0		9.0	42.0	42.0	9.0	42.0	42.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Max	Coord	Coord	Max	Coord	Coord
30th %ile Green (s)	10.0	42.0		29.0	29.0		8.4	42.0	42.0	9.0	42.6	42.6
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Max	Coord	Coord
10th %ile Green (s)	10.0	42.0		29.0	29.0		6.6	43.1	43.1	7.9	44.4	44.4
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Gap	Coord	Coord	Gap	Coord	Coord
Stops (vph)	50	496		103	449		55	495	13	84	667	21
Fuel Used(gal)	1	11		18	23		5	33	4	2	13	1
CO Emissions (g/hr)	79	734		1273	1634		370	2335	278	136	907	55
NOx Emissions (g/hr)	15	143		248	318		72	454	54	26	176	11
VOC Emissions (g/hr)	18	170		295	379		86	541	64	31	210	13
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	37	368		~172	~447		39	191	2	57	257	10
Queue Length 95th (ft)	70	#570		#305	#665		71	251	34	97	333	45
Internal Link Dist (ft)		583			1956			5224			588	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	231	767		85	532		259	1222	577	305	1245	556
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

PM Peak  
 Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.39	0.84		1.94	1.11		0.46	0.58	0.17	0.55	0.71	0.19

Intersection Summary





















Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 47 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.94  
 Intersection Signal Delay: 62.9      Intersection LOS: E  
 Intersection Capacity Utilization 104.1%      ICU Level of Service G  
 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.

Splits and Phases: 1016: Halsted Street & 103rd Street



Lanes, Volumes, Timings  
1017: Normal Avenue & 103rd Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	475	125	123	500	105	103	74	113	0	0	0
Future Volume (vph)	100	475	125	123	500	105	103	74	113	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	9	9	10	9	9	12	15	12	12	16	12
Storage Length (ft)	60		70	60		80	0		0	0		0
Storage Lanes	1		1	1		1	0		0	0		0
Taper Length (ft)	85			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.947				
Fl <sub>t</sub> Protected	0.950			0.950				0.983				
Satd. Flow (prot)	1550	1573	1337	1550	1573	1337	0	1789	0	0	0	0
Fl <sub>t</sub> Permitted	0.393			0.411				0.983				
Satd. Flow (perm)	641	1573	1337	670	1573	1337	0	1789	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			113		46				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2036			1955			343			764	
Travel Time (s)		46.3			44.4			7.8			17.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	108	511	134	132	538	113	111	80	122	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	511	134	132	538	113	0	313	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.22	1.22	1.17	1.22	1.22	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	20.0	20.0				
Total Split (%)	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%	30.8%	30.8%				
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	15.0	15.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		5.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	31.0	31.0	31.0	31.0	31.0	31.0	5.0	5.0				
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0				
Act Effct Green (s)	41.0	41.0	41.0	41.0	41.0	41.0		15.0				

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	31%
Maximum Green (s)	15.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	5.0
Flash Dont Walk (s)	10.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	

Lanes, Volumes, Timings  
 1017: Normal Avenue & 103rd Street

PM Peak  
 Build Conditions - Unmitigated

	↗	→	↘	↙	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63		0.23				
v/c Ratio	0.27	0.52	0.15	0.31	0.54	0.13		0.70				
Control Delay	7.5	8.9	1.5	8.0	9.3	1.5		29.5				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0				
Total Delay	7.5	8.9	1.5	8.0	9.3	1.5		29.5				
LOS	A	A	A	A	A	A		C				
Approach Delay		7.4			7.9			29.5				
Approach LOS		A			A			C				
Stops (vph)	44	244	10	55	264	9		218				
Fuel Used(gal)	2	10	2	2	10	2		4				
CO Emissions (g/hr)	139	681	145	166	701	118		261				
NOx Emissions (g/hr)	27	133	28	32	136	23		51				
VOC Emissions (g/hr)	32	158	34	39	162	27		60				
Dilemma Vehicles (#)	0	0	0	0	0	0		0				
Queue Length 50th (ft)	16	95	0	21	102	0		97				
Queue Length 95th (ft)	40	161	16	49	175	14		#199				
Internal Link Dist (ft)		1956			1875			263			684	
Turn Bay Length (ft)	60		70	60		80						
Base Capacity (vph)	404	992	892	422	992	885		448				
Starvation Cap Reductn	0	0	0	0	0	0		0				
Spillback Cap Reductn	0	0	0	0	0	0		0				
Storage Cap Reductn	0	0	0	0	0	0		0				
Reduced v/c Ratio	0.27	0.52	0.15	0.31	0.54	0.13		0.70				





















**Intersection Summary**  
 Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:Hold, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 11.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.9%  
 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.



Lane Group	Ø6
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	540	89	90	611	45	52	105	100	70	305	65
Future Volume (vph)	34	540	89	90	611	45	52	105	100	70	305	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	11	11	12	11	12	12	15	12
Storage Length (ft)	58		200	58		75	0		100	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	100			90			25			25		
Lane Util. 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
Ped Bike Factor	0.99	0.99		0.99	1.00			0.99	0.93		0.98	
Frt		0.979			0.990				0.850		0.980	
Flt Protected	0.950			0.950				0.984			0.992	
Satd. Flow (prot)	1596	1645	0	1596	1702	0	0	1701	1515	0	1890	0
Flt Permitted	0.254			0.273				0.718			0.922	
Satd. Flow (perm)	424	1645	0	456	1702	0	0	1233	1415	0	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8				105		12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1955			674			5189			1320	
Travel Time (s)		44.4			15.3			117.9			30.0	
Confl. Peds. (#/hr)	25		19	19		25	36		30	30		36
Confl. Bikes (#/hr)	4		2			1						3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	3%	0%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	36	568	94	95	643	47	55	111	105	74	321	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	662	0	95	690	0	0	166	105	0	463	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.12	1.12	1.17	1.12	1.12	1.07	1.12	1.07	1.07	0.95	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Minimum Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		37.3%	37.3%	37.3%	37.3%	37.3%	
Maximum Green (s)	43.0	43.0		43.0	43.0		24.0	24.0	24.0	24.0	24.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	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	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	33.0	33.0		33.0	33.0		13.0	13.0	13.0	13.0	13.0	

Lanes, Volumes, Timings  
1018: Wentworth Avenue & 103rd Street

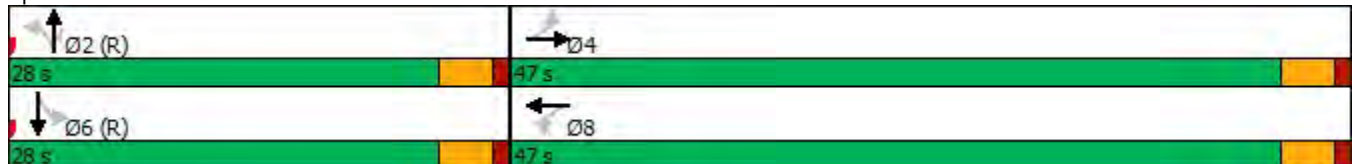
PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	43.0	43.0		43.0	43.0			24.0	24.0			24.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.32	0.32			0.32
v/c Ratio	0.15	0.70		0.36	0.70			0.42	0.20			0.82
Control Delay	9.4	15.9		13.7	16.3			24.1	5.3			36.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	9.4	15.9		13.7	16.3			24.1	5.3			36.9
LOS	A	B		B	B			C	A			D
Approach Delay		15.6			16.0			16.8				36.9
Approach LOS		B			B			B				D
Stops (vph)	17	424		49	453			122	17			366
Fuel Used(gal)	1	14		1	8			8	4			10
CO Emissions (g/hr)	47	976		70	568			564	307			689
NOx Emissions (g/hr)	9	190		14	110			110	60			134
VOC Emissions (g/hr)	11	226		16	132			131	71			160
Dilemma Vehicles (#)	0	0		0	0			0	0			0
Queue Length 50th (ft)	7	193		22	207			60	0			191
Queue Length 95th (ft)	22	317		56	334			115	32			#347
Internal Link Dist (ft)		1875			594			5109				1240
Turn Bay Length (ft)	58			58					100			
Base Capacity (vph)	243	951		261	979			394	524			566
Starvation Cap Reductn	0	0		0	0			0	0			0
Spillback Cap Reductn	0	0		0	0			0	0			0
Storage Cap Reductn	0	0		0	0			0	0			0
Reduced v/c Ratio	0.15	0.70		0.36	0.70			0.42	0.20			0.82

Intersection Summary

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 35 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 20.3      Intersection LOS: C  
 Intersection Capacity Utilization 91.6%      ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1018: Wentworth Avenue & 103rd Street





Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	288	135	144	283	131	75	615	77	114	955	70
Future Volume (vph)	105	288	135	144	283	131	75	615	77	114	955	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	9	10	10	9
Storage Length (ft)	0		0	0		0	115		90	115		120
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (ft)	25			25			80			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor		0.99			0.99		1.00		0.98	1.00		0.96
Frt		0.962			0.965				0.850			0.850
Flt Protected		0.990			0.987		0.950			0.950		
Satd. Flow (prot)	0	2944	0	0	2935	0	1565	3069	1350	1565	3099	1350
Flt Permitted		0.668			0.698		0.133			0.306		
Satd. Flow (perm)	0	1982	0	0	2070	0	218	3069	1326	503	3099	1298
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			51				103			103
Link Speed (mph)		30			30			30				30
Link Distance (ft)		667			375			2662			5304	
Travel Time (s)		15.2			8.5			60.5			120.5	
Confl. Peds. (#/hr)	35		30	30		35	34		8	8		34
Confl. Bikes (#/hr)	2					1						1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	4%	0%	1%	3%	3%	2%	4%	2%	2%	3%	2%
Adj. Flow (vph)	108	297	139	148	292	135	77	634	79	118	985	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	544	0	0	575	0	77	634	79	118	985	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.22	1.17	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (s)	8.0	40.0		32.0	32.0		8.0	37.0	37.0	8.0	37.0	37.0
Total Split (%)	9.4%	47.1%		37.6%	37.6%		9.4%	43.5%	43.5%	9.4%	43.5%	43.5%
Maximum Green (s)	5.0	35.0		27.0	27.0		5.0	33.0	33.0	5.0	33.0	33.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	1.0	1.0	0.0	1.0	1.0
Lost Time Adjust (s)		-1.0			-1.0		1.0	-0.5	0.0	1.0	-0.5	0.0
Total Lost Time (s)		4.0			4.0		4.0	3.5	4.0	4.0	3.5	4.0
Lead/Lag	Lead			Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)		12.0		4.0	4.0			19.0	19.0		19.0	19.0

Lanes, Volumes, Timings  
1034: Halsted Street & 111th Street

PM Peak  
Build Conditions - Unmitigated

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		23.0		23.0	23.0			14.0	14.0		14.0	14.0
Pedestrian Calls (#/hr)		0		0	0			0	0		0	0
Act Effct Green (s)		36.0			28.0		37.0	33.5	33.0	37.0	33.5	33.0
Actuated g/C Ratio		0.42			0.33		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio		0.59			0.80		0.49	0.52	0.14	0.44	0.81	0.13
Control Delay		18.6			33.9		28.7	14.7	1.1	19.0	29.2	2.3
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		18.6			33.9		28.7	14.7	1.1	19.0	29.2	2.3
LOS		B			C		C	B	A	B	C	A
Approach Delay		18.6			33.9			14.7			26.6	
Approach LOS		B			C			B			C	
Stops (vph)		311			445		51	269	4	70	813	5
Fuel Used(gal)		6			15		2	16	2	6	50	3
CO Emissions (g/hr)		452			1039		159	1125	114	387	3472	207
NOx Emissions (g/hr)		88			202		31	219	22	75	676	40
VOC Emissions (g/hr)		105			241		37	261	27	90	805	48
Dilemma Vehicles (#)		0			0		0	0	0	0	0	0
Queue Length 50th (ft)		90			133		19	83	0	34	240	0
Queue Length 95th (ft)		132			#221		m56	113	m3	64	321	15
Internal Link Dist (ft)		587			295			2582			5224	
Turn Bay Length (ft)							115		90	115		120
Base Capacity (vph)		924			716		158	1209	577	268	1221	566
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.59			0.80		0.49	0.52	0.14	0.44	0.81	0.13

Intersection Summary
















Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 48 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 23.5 Intersection LOS: C  
 Intersection Capacity Utilization 99.2% ICU Level of Service F  
 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: 1034: Halsted Street & 111th Street



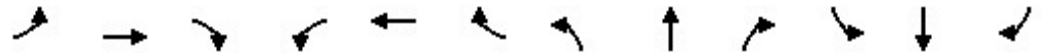
Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	439	0	0	431	95	65	55	48	0	0	0
Future Volume (vph)	105	439	0	0	431	95	65	55	48	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. 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
Fr <sub>t</sub>					0.976			0.961				
Fl <sub>t</sub> Protected		0.990						0.981				
Satd. Flow (prot)	0	1730	0	0	1706	0	0	1648	0	0	0	0
Fl <sub>t</sub> Permitted		0.780						0.981				
Satd. Flow (perm)	0	1363	0	0	1706	0	0	1648	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					31			31				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1591			2004			794				646
Travel Time (s)		36.2			45.5			18.0				14.7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	113	472	0	0	463	102	70	59	52	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	585	0	0	565	0	0	181	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Minimum Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (s)	43.0	43.0			43.0		22.0	22.0				
Total Split (%)	66.2%	66.2%			66.2%		33.8%	33.8%				
Maximum Green (s)	39.0	39.0			39.0		18.0	18.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		4.0			4.0			4.0				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	32.0	32.0			32.0		10.0	10.0				
Flash Dont Walk (s)	7.0	7.0			7.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)		39.0			39.0			18.0				
Actuated g/C Ratio		0.60			0.60			0.28				
v/c Ratio		0.72			0.55			0.38				
Control Delay		15.4			4.9			18.4				
Queue Delay		0.0			0.0			0.0				

Lanes, Volumes, Timings  
1035: Normal Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated

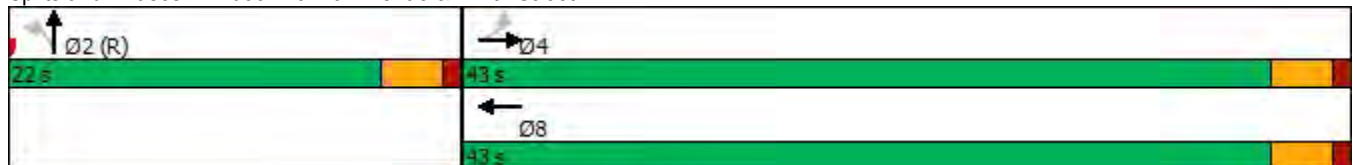


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		15.4			4.9			18.4				
LOS		B			A			B				
Approach Delay		15.4			4.9			18.4				
Approach LOS		B			A			B				
Stops (vph)		376			83			110				
Fuel Used(gal)		12			9			2				
CO Emissions (g/hr)		847			642			159				
NOx Emissions (g/hr)		165			125			31				
VOC Emissions (g/hr)		196			149			37				
Dilemma Vehicles (#)		0			0			0				
Queue Length 50th (ft)		142			38			47				
Queue Length 95th (ft)		264			49			97				
Internal Link Dist (ft)		1511			1924			714			566	
Turn Bay Length (ft)												
Base Capacity (vph)		817			1036			478				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.72			0.55			0.38				

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	16 (25%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization:	80.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1035: Normal Avenue & 111th Street



Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	452	48	45	426	55	38	125	40	70	195	59
Future Volume (vph)	31	452	48	45	426	55	38	125	40	70	195	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	11	11	12	11	11
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00			0.98			0.98	
Frt		0.988			0.986			0.970			0.973	
Flt Protected		0.997			0.996			0.991			0.989	
Satd. Flow (prot)	0	1954	0	0	1944	0	0	3103	0	0	3101	0
Flt Permitted		0.954			0.931			0.860			0.848	
Satd. Flow (perm)	0	1869	0	0	1816	0	0	2671	0	0	2646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			12			43			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2004			892			179			181	
Travel Time (s)		45.5			20.3			4.1			4.1	
Confl. Peds. (#/hr)	32		25	25		32	59		24	24		59
Confl. Bikes (#/hr)	1		2			3	1		2			4
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%	3%	0%	3%	3%	0%	0%	0%	7%	4%	0%	0%
Adj. Flow (vph)	33	481	51	48	453	59	40	133	43	74	207	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	565	0	0	560	0	0	216	0	0	344	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.12	1.12	1.07	1.12	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (s)	34.0	34.0		34.0	34.0		31.0	31.0		31.0	31.0	
Total Split (%)	52.3%	52.3%		52.3%	52.3%		47.7%	47.7%		47.7%	47.7%	
Maximum Green (s)	30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		30.0			30.0			27.0			27.0	

Lanes, Volumes, Timings  
1036: Wentworth Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated

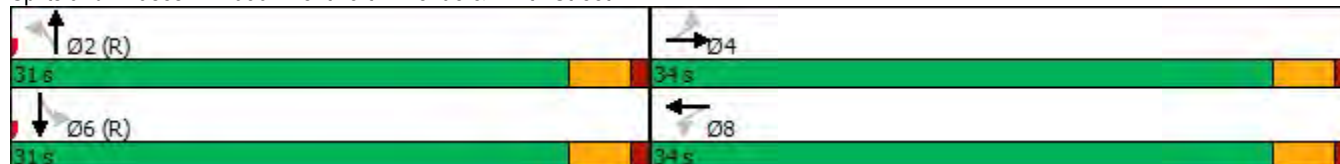


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.46			0.46			0.42			0.42	
v/c Ratio		0.65			0.66			0.19			0.30	
Control Delay		20.7			9.1			9.8			11.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.7			9.1			9.8			11.6	
LOS		C			A			A			B	
Approach Delay		20.7			9.1			9.8			11.6	
Approach LOS		C			A			A			B	
Stops (vph)		361			165			163			173	
Fuel Used(gal)		13			7			6			15	
CO Emissions (g/hr)		876			507			385			1066	
NOx Emissions (g/hr)		170			99			75			207	
VOC Emissions (g/hr)		203			118			89			247	
Dilemma Vehicles (#)		0			0			0			0	
Queue Length 50th (ft)		169			64			15			38	
Queue Length 95th (ft)		267			79			m21			65	
Internal Link Dist (ft)		1924			812			99			101	
Turn Bay Length (ft)												
Base Capacity (vph)		868			844			1134			1128	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.65			0.66			0.19			0.30	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	13.6
Intersection LOS:	B
Intersection Capacity Utilization:	97.8%
ICU Level of Service:	F
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1036: Wentworth Avenue & 111th Street



Lanes, Volumes, Timings  
1037: State Street & 111th Street

PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	388	68	90	519	95	63	285	130	85	235	69
Future Volume (vph)	61	388	68	90	519	95	63	285	130	85	235	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	9	10	10	9	10	10	12	10	10	12
Storage Length (ft)	70		0	60		0	70		70	80		75
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	115			90			80			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.98	1.00		0.99	0.99		0.99	1.00	
Frt		0.978			0.977			0.953			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1520	3015	0	1596	3078	0	1596	2961	0	1596	3069	0
Flt Permitted	0.291			0.408			0.556			0.490		
Satd. Flow (perm)	463	3015	0	671	3078	0	929	2961	0	818	3069	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			35			138			73	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		418			546			2651			289	
Travel Time (s)		9.5			12.4			60.3			6.6	
Confl. Peds. (#/hr)	20		31	31		20	16		20	20		16
Confl. Bikes (#/hr)	1					1			1	1		
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 (%)	5%	3%	0%	0%	1%	0%	0%	2%	2%	0%	0%	0%
Adj. Flow (vph)	65	413	72	96	552	101	67	303	138	90	250	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	485	0	96	653	0	67	441	0	90	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.22	1.17	1.17	1.22	1.17	1.17	1.07	1.17	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (s)	26.0	26.0		26.0	26.0		39.0	39.0		39.0	39.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0	9.0		22.0	22.0		22.0	22.0	

Lanes, Volumes, Timings  
1037: State Street & 111th Street

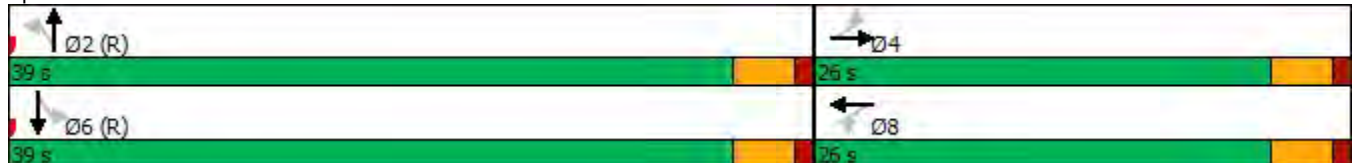
PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	22.0	22.0		22.0	22.0		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.54	0.54		0.54	0.54	
v/c Ratio	0.42	0.47		0.42	0.61		0.13	0.27		0.20	0.19	
Control Delay	19.6	11.6		23.0	19.4		6.8	4.4		9.8	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.6	11.6		23.0	19.4		6.8	4.4		9.8	7.8	
LOS	B	B		C	B		A	A		A	A	
Approach Delay		12.6			19.9			4.7			8.2	
Approach LOS		B			B			A			A	
Stops (vph)	52	370		78	517		30	134		47	142	
Fuel Used(gal)	1	8		1	8		2	10		8	27	
CO Emissions (g/hr)	81	544		86	552		109	677		525	1858	
NOx Emissions (g/hr)	16	106		17	107		21	132		102	362	
VOC Emissions (g/hr)	19	126		20	128		25	157		122	431	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	19	72		33	121		8	13		38	62	
Queue Length 95th (ft)	m31	89		m78	176		m21	36		m37	m58	
Internal Link Dist (ft)		338			466			2571			209	
Turn Bay Length (ft)	70			60			70			80		
Base Capacity (vph)	156	1042		227	1064		500	1658		440	1686	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.42	0.47		0.42	0.61		0.13	0.27		0.20	0.19	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 12.4      Intersection LOS: B  
 Intersection Capacity Utilization 71.1%      ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1037: State Street & 111th Street





Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	409	108	95	442	55	58	260	65	60	350	84
Future Volume (vph)	81	409	108	95	442	55	58	260	65	60	350	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	9	10	9	9	10	12	12	10	12	12	10	12
Storage Length (ft)	60		0	75		77	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			0.98	
Frt		0.969			0.983			0.975			0.975	
Flt Protected	0.950			0.950				0.992			0.994	
Satd. Flow (prot)	1539	3007	0	1438	3071	0	0	2894	0	0	2904	0
Flt Permitted	0.423			0.410				0.823			0.859	
Satd. Flow (perm)	678	3007	0	618	3071	0	0	2385	0	0	2503	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70			29			44			44	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		546			221			277			684	
Travel Time (s)		12.4			5.0			6.3			15.5	
Confl. Peds. (#/hr)	38		17	17		38	125		53	53		125
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%	3%	0%	7%	2%	0%	0%	6%	10%	2%	5%	5%
Adj. Flow (vph)	86	435	115	101	470	59	62	277	69	64	372	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	550	0	101	529	0	0	408	0	0	525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.22	1.17	1.22	1.22	1.17	1.07	1.07	1.17	1.07	1.07	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%		53.8%	53.8%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	31.0	31.0		31.0	31.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		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	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	20.0	20.0		20.0	20.0		14.0	14.0		14.0	14.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		12.0	12.0		12.0	12.0	

Lanes, Volumes, Timings  
1038: Michigan Avenue & 111th Street

PM Peak  
Build Conditions - Unmitigated

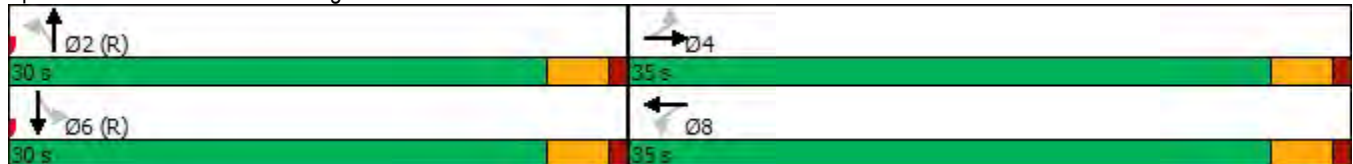


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.0	31.0		31.0	31.0			26.0			26.0	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.40			0.40	
v/c Ratio	0.27	0.37		0.34	0.36			0.42			0.51	
Control Delay	18.4	16.3		14.9	10.9			10.8			15.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	18.4	16.3		14.9	10.9			10.8			15.5	
LOS	B	B		B	B			B			B	
Approach Delay		16.6			11.6			10.8			15.5	
Approach LOS		B			B			B			B	
Stops (vph)	65	434		60	275			261			326	
Fuel Used(gal)	1	6		1	5			10			6	
CO Emissions (g/hr)	70	441		76	353			719			419	
NOx Emissions (g/hr)	14	86		15	69			140			82	
VOC Emissions (g/hr)	16	102		18	82			167			97	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	27	100		23	61			25			72	
Queue Length 95th (ft)	57	101		58	93			66			114	
Internal Link Dist (ft)		466			141			197			604	
Turn Bay Length (ft)	60			75								
Base Capacity (vph)	323	1470		294	1479			980			1027	
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	0.27	0.37		0.34	0.36			0.42			0.51	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	48 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	13.8
Intersection LOS:	B
Intersection Capacity Utilization:	88.1%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 1038: Michigan Avenue & 111th Street



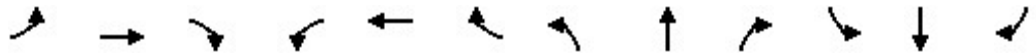
Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	262	110	206	440	86	120	525	66	86	855	141
Future Volume (vph)	139	262	110	206	440	86	120	525	66	86	855	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	12	10	10	12	9	14	16	9	14	16
Storage Length (ft)	120		115	60		58	165		165	110		80
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	140			60			90			90		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	1.00		0.99	1.00	
Frt		0.956			0.975			0.983			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	2985	0	1580	3036	0	1509	3450	0	1524	3467	0
Flt Permitted	0.325			0.453			0.133			0.305		
Satd. Flow (perm)	531	2985	0	747	3036	0	211	3450	0	486	3467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			29			18			24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			564			2655			2662	
Travel Time (s)		30.3			12.8			60.3			60.5	
Confl. Peds. (#/hr)	19		16	16		19	22		25	25		22
Confl. Bikes (#/hr)										1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	1%	2%	2%	2%	4%	0%	1%	3%	0%
Adj. Flow (vph)	146	276	116	217	463	91	126	553	69	91	900	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	392	0	217	554	0	126	622	0	91	1048	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.07	1.17	1.17	1.07	1.22	0.99	0.91	1.22	0.99	0.91
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (s)	8.0	32.0		8.0	32.0		10.0	35.0		10.0	35.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		11.8%	41.2%		11.8%	41.2%	
Maximum Green (s)	5.0	27.0		5.0	27.0		7.0	31.0		7.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0		1.0	-1.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Walk Time (s)		7.0			7.0			19.0			19.0	

Lanes, Volumes, Timings  
1049: Halsted Street & 115th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		20.0			20.0			12.0			12.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.0	28.0		32.0	28.0		37.0	31.0		37.0	31.0	
Actuated g/C Ratio	0.38	0.33		0.38	0.33		0.44	0.36		0.44	0.36	
v/c Ratio	0.59	0.38		0.68	0.54		0.69	0.49		0.32	0.82	
Control Delay	28.6	18.3		32.1	24.4		35.0	21.8		20.1	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.6	18.3		32.1	24.4		35.0	21.8		20.1	30.7	
LOS	C	B		C	C		C	C		C	C	
Approach Delay		21.1			26.5			24.1			29.9	
Approach LOS		C			C			C			C	
Stops (vph)	103	217		164	394		63	426		51	770	
Fuel Used(gal)	3	6		9	21		4	17		2	31	
CO Emissions (g/hr)	197	451		603	1472		258	1203		169	2178	
NOx Emissions (g/hr)	38	88		117	286		50	234		33	424	
VOC Emissions (g/hr)	46	104		140	341		60	279		39	505	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	48	64		75	118		36	128		29	202	
Queue Length 95th (ft)	88	103		#140	169		#101	178		m41	271	
Internal Link Dist (ft)		1251			484			2575			2582	
Turn Bay Length (ft)	120			60			165			110		
Base Capacity (vph)	248	1037		320	1019		183	1269		284	1279	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.59	0.38		0.68	0.54		0.69	0.49		0.32	0.82	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 5 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Pretimed

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

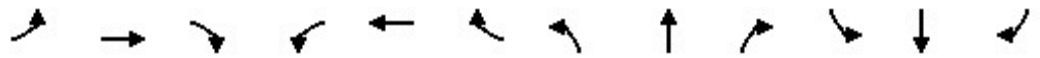
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1049: Halsted Street & 115th Street



Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

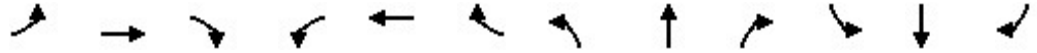
PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↖	↗
Traffic Volume (vph)	60	384	40	59	533	30	35	105	48	45	160	85
Future Volume (vph)	60	384	40	59	533	30	35	105	48	45	160	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	11	11	12	10	10	12	10	10
Storage Length (ft)	0		80	0		0	0		30	0		30
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.993			0.995			0.988			0.989	
Satd. Flow (prot)	0	1675	1479	0	1701	1479	0	1660	1428	0	1649	1428
Flt Permitted		0.685			0.910			0.903			0.919	
Satd. Flow (perm)	0	1155	1417	0	1554	1431	0	1517	1406	0	1531	1398
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			39			32			51			86
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3405			1340			2669			2478	
Travel Time (s)		77.4			30.5			60.7			56.3	
Confl. Peds. (#/hr)	11		20	20		11	1		4	4		1
Confl. Bikes (#/hr)			1			1			1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	63	404	42	62	561	32	37	111	51	47	168	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	467	42	0	623	32	0	148	51	0	215	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.12	1.07	1.12	1.12	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	52.3%	52.3%	52.3%	52.3%	52.3%	52.3%	47.7%	47.7%	47.7%	47.7%	47.7%	47.7%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0	27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	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
Total Lost Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	19.0	19.0	19.0	19.0	19.0	19.0	16.0	16.0	16.0	16.0	16.0	16.0

Lanes, Volumes, Timings  
1050: Wentworth Avenue & 115th Street

PM Peak  
Build Conditions - Unmitigated

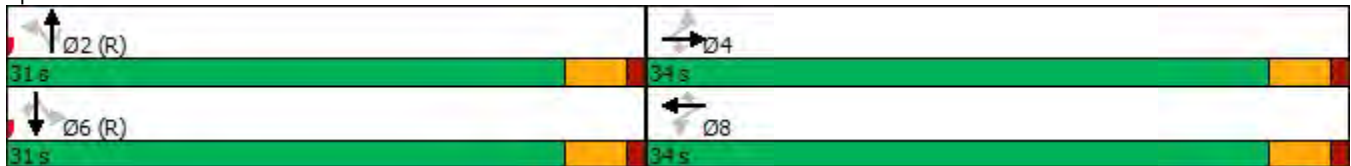


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		30.0	30.0		30.0	30.0		27.0	27.0		27.0	27.0
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.42	0.42		0.42	0.42
v/c Ratio		0.88	0.06		0.87	0.05		0.23	0.08		0.34	0.14
Control Delay		36.9	4.2		28.7	3.4		14.2	4.3		14.2	2.3
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Total Delay		36.9	4.2		28.7	3.4		14.2	4.3		14.2	2.3
LOS		D	A		C	A		B	A		B	A
Approach Delay		34.2			27.5			11.6			10.7	
Approach LOS		C			C			B			B	
Stops (vph)		351	10		482	5		99	16		160	19
Fuel Used(gal)		19	1		12	0		4	1		6	2
CO Emissions (g/hr)		1329	93		861	25		272	79		399	133
NOx Emissions (g/hr)		259	18		167	5		53	15		78	26
VOC Emissions (g/hr)		308	22		199	6		63	18		92	31
Dilemma Vehicles (#)		0	0		0	0		0	0		0	0
Queue Length 50th (ft)		158	1		236	1		39	1		74	1
Queue Length 95th (ft)		#333	15		#376	5		m78	m10		112	m6
Internal Link Dist (ft)		3325			1260			2589			2398	
Turn Bay Length (ft)			80						30			30
Base Capacity (vph)		533	675		717	677		630	613		635	630
Starvation Cap Reductn		0	0		0	0		0	0		0	0
Spillback Cap Reductn		0	0		0	0		0	0		0	0
Storage Cap Reductn		0	0		0	0		0	0		0	0
Reduced v/c Ratio		0.88	0.06		0.87	0.05		0.23	0.08		0.34	0.14

Intersection Summary

























Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 24.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 106.2%  
 ICU Level of Service G  
 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: 1050: Wentworth Avenue & 115th Street



Lanes, Volumes, Timings  
1051: State Street & 115th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	385	37	59	305	40	92	135	83	115	225	70
Future Volume (vph)	95	385	37	59	305	40	92	135	83	115	225	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Length (ft)	80		0	55		75	45		50	55		260
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	90			95			110			95		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.983			0.943				0.965
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1631	1386	1550	3046	0	1550	2922	0	1550	2991	0
Flt Permitted	0.950			0.520			0.560			0.606		
Satd. Flow (perm)	1550	1631	1386	848	3046	0	913	2922	0	988	2991	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1340			559			516				2651
Travel Time (s)		30.5			12.7			11.7				60.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	102	414	40	63	328	43	99	145	89	124	242	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	414	40	63	371	0	99	234	0	124	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2				6
Permitted Phases			4	8			2			6		
Minimum Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (s)	10.0	35.0	35.0	25.0	25.0		30.0	30.0		30.0	30.0	
Total Split (%)	15.4%	53.8%	53.8%	38.5%	38.5%		46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	1.0	1.0	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	
Total Lost Time (s)	3.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Walk Time (s)		8.0	8.0	8.0	8.0		13.0	13.0		13.0	13.0	
Flash Dont Walk (s)		13.0	13.0	13.0	13.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	
Act Effct Green (s)	7.0	31.0	31.0	21.0	21.0		26.0	26.0		26.0	26.0	

Lanes, Volumes, Timings  
1051: State Street & 115th Street

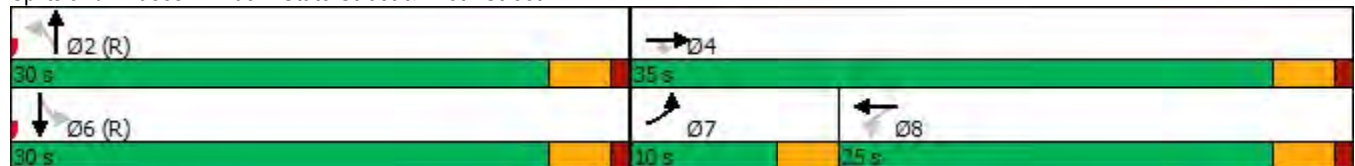
PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.11	0.48	0.48	0.32	0.32		0.40	0.40		0.40	0.40	
v/c Ratio	0.61	0.53	0.06	0.23	0.38		0.27	0.20		0.31	0.27	
Control Delay	44.8	7.4	4.8	14.0	13.5		14.7	12.4		17.9	15.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.8	7.4	4.8	14.0	13.5		14.7	12.4		17.9	15.6	
LOS	D	A	A	B	B		B	B		B	B	
Approach Delay		14.1			13.6			13.1			16.2	
Approach LOS		B			B			B			B	
Stops (vph)	80	132	8	23	138		60	136		93	229	
Fuel Used(gal)	2	5	0	1	3		3	6		3	8	
CO Emissions (g/hr)	161	373	33	39	225		177	409		231	580	
NOx Emissions (g/hr)	31	73	6	8	44		34	80		45	113	
VOC Emissions (g/hr)	37	86	8	9	52		41	95		54	134	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	34	34	3	11	33		26	27		62	77	
Queue Length 95th (ft)	m46	m45	m5	m19	43		m54	m47		108	91	
Internal Link Dist (ft)		1260			479			436			2571	
Turn Bay Length (ft)	80			55			45			55		
Base Capacity (vph)	166	777	661	273	984		365	1168		395	1196	
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	
Reduced v/c Ratio	0.61	0.53	0.06	0.23	0.38		0.27	0.20		0.31	0.27	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 14.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 52.5%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.























Splits and Phases: 1051: State Street & 115th Street





Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	354	93	220	366	70	32	310	25	70	340	66
Future Volume (vph)	81	354	93	220	366	70	32	310	25	70	340	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.995			0.992	
Satd. Flow (prot)	1550	1631	1386	1550	1631	1386	0	1623	1386	0	1618	1386
Fl <sub>t</sub> Permitted	0.529			0.950				0.913			0.802	
Satd. Flow (perm)	863	1631	1386	1550	1631	1386	0	1489	1386	0	1308	1386
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			75			101			185
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	87	381	100	237	394	75	34	333	27	75	366	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	381	100	237	394	75	0	367	27	0	441	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	0.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

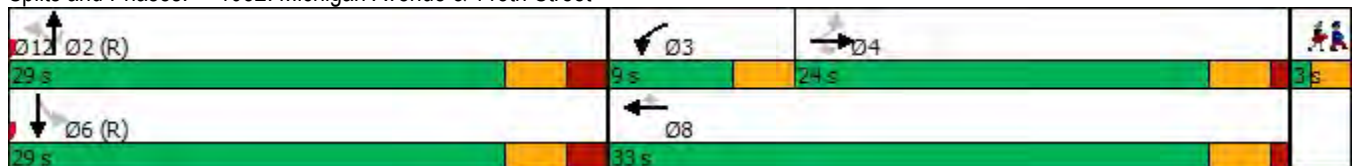
PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.00
v/c Ratio	0.33	0.76	0.20	1.66	0.54	0.11		0.67	0.05		0.91	0.38
Control Delay	18.8	27.7	3.3	334.5	16.9	6.7		16.9	0.6		42.3	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	18.8	27.7	3.3	334.5	16.9	6.7		16.9	0.6		42.3	6.6
LOS	B	C	A	F	B	A		B	A		D	A
Approach Delay	22.0			122.4				15.8			37.4	
Approach LOS	C			F				B			D	
Stops (vph)	46	269	14	171	205	19		267	2		363	8
Fuel Used(gal)	1	5	1	17	5	1		24	2		14	2
CO Emissions (g/hr)	64	351	38	1205	321	43		1677	110		984	105
NOx Emissions (g/hr)	12	68	7	235	62	8		326	21		191	21
VOC Emissions (g/hr)	15	81	9	279	74	10		389	26		228	24
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	24	105	6	~149	104	5		107	0		158	1
Queue Length 95th (ft)	44	175	14	m#163	m111	m6		m174	m0		#348	12
Internal Link Dist (ft)	479			306				1260			2314	
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	265	501	507	143	727	659		549	575		482	185
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
Reduced v/c Ratio	0.33	0.76	0.20	1.66	0.54	0.11		0.67	0.05		0.91	0.38

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.66  
 Intersection Signal Delay: 57.0      Intersection LOS: E  
 Intersection Capacity Utilization 89.6%      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: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

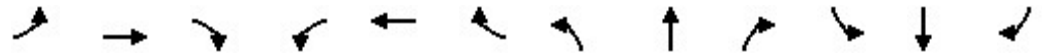
Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	396	33	80	664	80	62	130	195	0	0	0
Future Volume (vph)	20	396	33	80	664	80	62	130	195	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	15	10
Storage Length (ft)	0		95	0		80	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850		0.932				
Fl <sub>t</sub> Protected		0.998			0.995			0.992				
Satd. Flow (prot)	0	1628	1386	0	1623	1386	0	1616	0	0	0	0
Fl <sub>t</sub> Permitted		0.952			0.908			0.992				
Satd. Flow (perm)	0	1553	1386	0	1481	1386	0	1616	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			35			56		81				
Link Speed (mph)		30			30			30				30
Link Distance (ft)		384			636			791				721
Travel Time (s)		8.7			14.5			18.0				16.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	22	426	35	86	714	86	67	140	210	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	448	35	0	800	86	0	417	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.07	1.07	1.17	0.95	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2				
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru				
Leading Detector (ft)	20	100	20	20	100	20	20	100				
Trailing Detector (ft)	0	0	0	0	0	0	0	0				
Detector 1 Position(ft)	0	0	0	0	0	0	0	0				
Detector 1 Size(ft)	20	6	20	20	6	20	20	6				
Detector 1 Type	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				
Detector 1 Queue (s)	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				
Detector 2 Position(ft)		94			94			94				
Detector 2 Size(ft)		6			6			6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA				

Lanes, Volumes, Timings  
1053: Indiana Avenue & 115th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2				
Permitted Phases	4		4	8		8	2					
Detector Phase	4	4	4	8	8	8	2	2				
Switch Phase												
Minimum Initial (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	24.0	24.0				
Total Split (%)	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%	36.9%	36.9%				
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0				
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0				
Total Lost Time (s)		5.0	5.0		5.0	5.0		4.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	8.0	8.0				
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None				
Walk Time (s)	28.0	28.0	28.0	28.0	28.0	28.0	10.0	10.0				
Flash Dont Walk (s)	8.0	8.0	8.0	8.0	8.0	8.0	10.0	10.0				
Pedestrian Calls (#/hr)	0	0	0	0	0	0	30	30				
Act Effct Green (s)		36.7	36.7		36.7	36.7		19.3				
Actuated g/C Ratio		0.56	0.56		0.56	0.56		0.30				
v/c Ratio		0.51	0.04		0.96	0.11		0.78				
Control Delay		17.9	8.2		39.1	3.7		28.5				
Queue Delay		0.0	0.0		0.0	0.0		0.0				
Total Delay		17.9	8.2		39.1	3.7		28.5				
LOS		B	A		D	A		C				
Approach Delay		17.2			35.7			28.5				
Approach LOS		B			D			C				
90th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
90th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
70th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
70th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
50th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
50th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
30th %ile Green (s)	36.0	36.0	36.0	36.0	36.0	36.0	20.0	20.0				
30th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Max	Max				
10th %ile Green (s)	39.6	39.6	39.6	39.6	39.6	39.6	16.4	16.4				
10th %ile Term Code	Coord	Coord	Coord	Coord	Coord	Coord	Gap	Gap				
Stops (vph)		287	18		565	18		273				
Fuel Used(gal)		6	0		17	1		6				
CO Emissions (g/hr)		392	25		1168	69		430				
NOx Emissions (g/hr)		76	5		227	13		84				
VOC Emissions (g/hr)		91	6		271	16		100				
Dilemma Vehicles (#)		0	0		0	0		0				
Queue Length 50th (ft)		143	5		279	5		118				
Queue Length 95th (ft)		m187	m5		#526	22		#250				
Internal Link Dist (ft)		304			556			711			641	
Turn Bay Length (ft)			95			80						

Lanes, Volumes, Timings  
 1053: Indiana Avenue & 115th Street

PM Peak  
 Build Conditions - Unmitigated

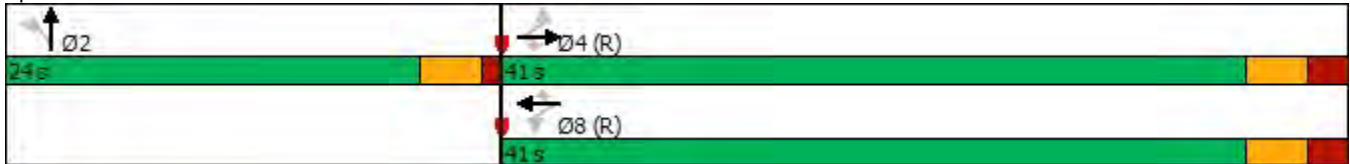


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		877	798		836	807		553				
Starvation Cap Reductn		0	0		0	0		0				
Spillback Cap Reductn		0	0		0	0		0				
Storage Cap Reductn		0	0		0	0		0				
Reduced v/c Ratio		0.51	0.04		0.96	0.11		0.75				

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 25 (38%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 29.0 Intersection LOS: C  
 Intersection Capacity Utilization 100.0% ICU Level of Service G  
 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: 1053: Indiana Avenue & 115th Street



Lanes, Volumes, Timings  
 1054: 115th Street & Martin Luther King Jr Drive

PM Peak  
 Build Conditions - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	97	490	638	45	140	191
Future Volume (vph)	97	490	638	45	140	191
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	16	12	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.991			0.850
Flt Protected		0.992			0.950	
Satd. Flow (prot)	0	1858	1985	0	1596	1428
Flt Permitted		0.992			0.950	
Satd. Flow (perm)	0	1858	1985	0	1596	1428
Link Speed (mph)		30	30		30	
Link Distance (ft)		683	263		1350	
Travel Time (s)		15.5	6.0		30.7	
Confl. Peds. (#/hr)	17			17	6	5
Confl. Bikes (#/hr)				3	2	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	5%	2%	2%	0%	0%	0%
Adj. Flow (vph)	110	557	725	51	159	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	667	776	0	159	217
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	0.99	0.91	1.07	1.17	1.17
Turning Speed (mph)	15			9	15	9
Sign Control		Stop	Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	90.3%
ICU Level of Service	E
Analysis Period (min)	15



HCM Unsignalized Intersection Capacity Analysis  
 1054: 115th Street & Martin Luther King Jr Drive

PM Peak  
 Build Conditions - Unmitigated



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Sign Control		Stop	Stop		Stop	
Traffic Volume (vph)	97	490	638	45	140	191
Future Volume (vph)	97	490	638	45	140	191
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	110	557	725	51	159	217
Direction, Lane #	EB 1	WB 1	SB 1	SB 2		
Volume Total (vph)	667	776	159	217		
Volume Left (vph)	110	0	159	0		
Volume Right (vph)	0	51	0	217		
Hadj (s)	0.08	-0.01	0.50	-0.70		
Departure Headway (s)	6.2	6.1	8.1	6.9		
Degree Utilization, x	1.15	1.32	0.36	0.41		
Capacity (veh/h)	574	599	441	518		
Control Delay (s)	108.0	173.9	14.3	13.5		
Approach Delay (s)	108.0	173.9	13.8			
Approach LOS	F	F	B			
Intersection Summary						
Delay			116.7			
Level of Service			F			
Intersection Capacity Utilization			90.3%	ICU Level of Service	E	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

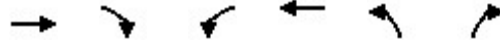
PM Peak  
Build Conditions - Unmitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	828	0	0	702	5	35				
Future Volume (vph)	828	0	0	702	5	35				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.881					
Flt Protected					0.994					
Satd. Flow (prot)	1631	1748	0	1468	1734	0				
Flt Permitted					0.994					
Satd. Flow (perm)	1631	1748	0	1468	1734	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					38					
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Parking (#/hr)				0						
Adj. Flow (vph)	890	0	0	755	5	38				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	890	0	0	755	43	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm		NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0	14.0					
Actuated g/C Ratio	0.73			0.36	0.16					
v/c Ratio	0.75			1.41	0.14					

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

PM Peak  
Build Conditions - Unmitigated

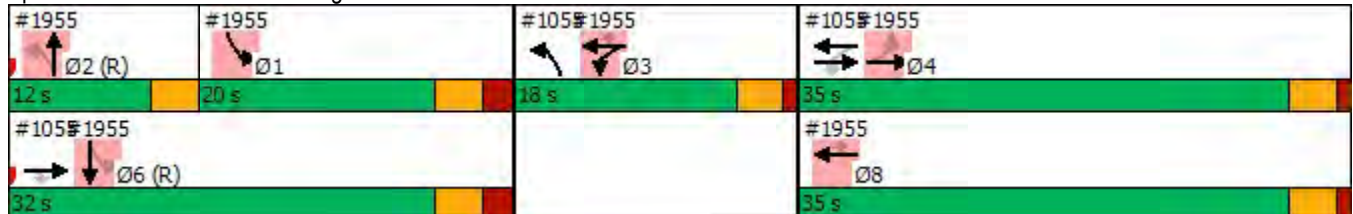


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	7.7			221.9	13.2					
Queue Delay	5.2			0.9	0.0					
Total Delay	12.9			222.8	13.2					
LOS	B			F	B					
Approach Delay	12.9			222.8	13.3					
Approach LOS	B			F	B					
Stops (vph)	285			543	14					
Fuel Used(gal)	4			48	0					
CO Emissions (g/hr)	248			3378	24					
NOx Emissions (g/hr)	48			657	5					
VOC Emissions (g/hr)	57			783	6					
Dilemma Vehicles (#)	0			0	0					
Queue Length 50th (ft)	144			~549	2					
Queue Length 95th (ft)	174			#761	30					
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1189			535	317					
Starvation Cap Reductn	236			0	0					
Spillback Cap Reductn	0			55	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.93			1.57	0.14					

Intersection Summary

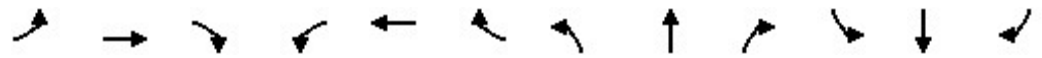
Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 106.8      Intersection LOS: F  
 Intersection Capacity Utilization 56.8%      ICU Level of Service B  
 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.

Splits and Phases: 1055: Cottage Grove Avenue & 115th Street



Lanes, Volumes, Timings  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
 Build Conditions - Unmitigated





















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑	↑
Traffic Volume (vph)	0	255	698	30	397	0	0	0	0	20	10	280
Future Volume (vph)	0	255	698	30	397	0	0	0	0	20	10	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	12	12	12	12	12	12	15	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.890										0.850
Flt Protected					0.996						0.968	
Satd. Flow (prot)	0	3022	0	0	3366	0	0	0	0	0	1975	1500
Flt Permitted					0.996						0.968	
Satd. Flow (perm)	0	3022	0	0	3366	0	0	0	0	0	1975	1500
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1260			277			633			783	
Travel Time (s)		28.6			6.3			14.4			17.8	
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%	4%	1%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	271	743	32	422	0	0	0	0	21	11	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1014	0	0	454	0	0	0	0	0	32	298
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.91	1.07	1.07	1.07	1.07	1.07	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1056: Bishop Ford Freeway EB Ramps & 115th Street

PM Peak  
 Build Conditions - Unmitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	255	698	30	397	0	0	0	0	20	10	280
Future Volume (Veh/h)	0	255	698	30	397	0	0	0	0	20	10	280
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	0	271	743	32	422	0	0	0	0	21	11	298
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	422			271			923	1128	507	622	757	211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	422			271			923	1128	507	622	757	211
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	94	97	62
cM capacity (veh/h)	1148			1275			136	201	516	368	331	794
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2						
Volume Total	181	833	173	281	32	298						
Volume Left	0	0	32	0	21	0						
Volume Right	0	743	0	0	0	298						
cSH	1700	1700	1275	1700	354	794						
Volume to Capacity	0.11	0.49	0.03	0.17	0.09	0.38						
Queue Length 95th (ft)	0	0	2	0	7	44						
Control Delay (s)	0.0	0.0	1.6	0.0	16.2	12.2						
Lane LOS			A		C	B						
Approach Delay (s)	0.0		0.6		12.6							
Approach LOS					B							
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			45.7%		ICU Level of Service		A					
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 1057: Bishop Ford Freeway WB Ramps & 115th Street

PM Peak  
 Build Conditions - Unmitigated



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Traffic Volume (vph)	275	0	427	0	0	0
Future Volume (vph)	275	0	427	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
<b>Fr</b>						
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3221	0	1660	0	0	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3221	0	1660	0	0	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	277			605	530	
Travel Time (s)	6.3			13.8	12.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	296	0	459	0	0	0
<b>Shared Lane Traffic (%)</b>						
Lane Group Flow (vph)	296	0	459	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
<b>Two way Left Turn Lane</b>						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 1057: Bishop Ford Freeway WB Ramps & 115th Street























PM Peak  
 Build Conditions - Unmitigated



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖		↖			
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	275	0	427	0	0	0
Future Volume (vph)	275	0	427	0	0	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	296	0	459	0	0	0
Direction, Lane #	EB 1	EB 2	NB 1			
Volume Total (vph)	148	148	459			
Volume Left (vph)	148	148	459			
Volume Right (vph)	0	0	0			
Hadj (s)	0.55	0.55	0.25			
Departure Headway (s)	6.3	6.3	5.0			
Degree Utilization, x	0.26	0.26	0.64			
Capacity (veh/h)	544	545	697			
Control Delay (s)	10.3	10.3	16.3			
Approach Delay (s)	10.3		16.3			
Approach LOS	B		C			
Intersection Summary						
Delay			14.0			
Level of Service			B			
Intersection Capacity Utilization			39.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	313	160	106	324	75	115	561	76	120	1021	150
Future Volume (vph)	165	313	160	106	324	75	115	561	76	120	1021	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	1.00	0.99		0.99	1.00		0.99	0.99	
Frt			0.850		0.972			0.982			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1580	1600	1400	1596	1793	0	1580	3122	0	1539	3002	0
Flt Permitted	0.248			0.407			0.123			0.289		
Satd. Flow (perm)	408	1600	1372	681	1793	0	203	3122	0	466	3002	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163		13			19			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			3955			5338			2655	
Travel Time (s)		17.1			89.9			121.3			60.3	
Confl. Peds. (#/hr)	28		8	8		28	59		11	11		59
Confl. Bikes (#/hr)						3	1		2			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	5%	2%	0%	4%	0%	1%	4%	0%	0%	3%	3%
Adj. Flow (vph)	168	319	163	108	331	77	117	572	78	122	1042	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	319	163	108	408	0	117	650	0	122	1195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		



Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	34.8	30.0	29.0	34.0	27.0		40.0	34.0		40.0	34.0	
Actuated g/C Ratio	0.39	0.33	0.32	0.38	0.30		0.44	0.38		0.44	0.38	
v/c Ratio	0.71	0.60	0.30	0.34	0.75		0.64	0.55		0.44	1.04	
Control Delay	37.6	31.6	5.6	19.7	37.4		31.3	23.4		18.5	66.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.6	31.6	5.6	19.7	37.4		31.3	23.4		18.5	66.7	
LOS	D	C	A	B	D		C	C		B	E	
Approach Delay		26.6			33.7			24.6			62.2	
Approach LOS		C			C			C			E	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	34.0		7.0	34.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Max	Coord	
Stops (vph)	107	261	22	68	340		61	467		68	994	
Fuel Used(gal)	3	5	1	4	17		6	32		3	46	
CO Emissions (g/hr)	197	370	87	284	1206		409	2245		231	3189	
NOx Emissions (g/hr)	38	72	17	55	235		80	437		45	621	
VOC Emissions (g/hr)	46	86	20	66	280		95	520		54	739	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	60	155	0	37	202		35	145		37	~387	
Queue Length 95th (ft)	#133	248	44	71	#319		#91	199		69	#518	
Internal Link Dist (ft)		672			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	236	533	552	318	547		182	1191		278	1147	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Unmitigated

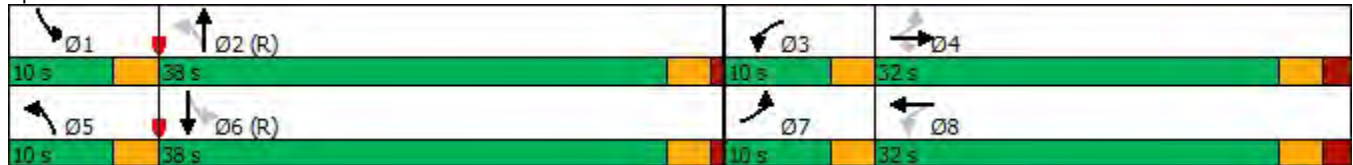


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.71	0.60	0.30	0.34	0.75		0.64	0.55		0.44	1.04	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	41.7
Intersection LOS:	D
Intersection Capacity Utilization	89.2%
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.	

Splits and Phases: 1060: Halsted Street & 119th Street



Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗		↕			↕	
Traffic Volume (vph)	45	390	75	28	435	25	45	72	27	25	118	80
Future Volume (vph)	45	390	75	28	435	25	45	72	27	25	118	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	10	10	10	10	12	15	12	12	16	12
Storage Length (ft)	0		105	0		75	0		0	0		0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.96		1.00	0.97		0.99			0.99	
Frt			0.850			0.850		0.974			0.952	
Flt Protected		0.995			0.997			0.985			0.995	
Satd. Flow (prot)	0	1681	1428	0	1629	1428	0	1891	0	0	1882	0
Flt Permitted		0.923			0.962			0.872			0.966	
Satd. Flow (perm)	0	1558	1369	0	1571	1381	0	1671	0	0	1826	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			23		22			53	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		3955			1331			2677			2669	
Travel Time (s)		89.9			30.3			60.8			60.7	
Confl. Peds. (#/hr)	12		20	20		12	8		2	2		8
Confl. Bikes (#/hr)	1		2	1		1			1	1		
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 (%)	3%	3%	0%	0%	3%	0%	0%	0%	0%	0%	1%	3%
Adj. Flow (vph)	49	429	82	31	478	27	49	79	30	27	130	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	478	82	0	509	27	0	158	0	0	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.17	1.17	1.17	1.17	1.07	0.95	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	30.0	30.0		30.0	30.0	
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%		46.2%	46.2%	
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	27.0	27.0		27.0	27.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0			0.0	
Total Lost Time (s)		3.0	3.0		3.0	3.0		3.0			3.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1061: Wentworth Avenue & 119th Street

PM Peak  
Build Conditions - Unmitigated

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0		0	0	
Act Effct Green (s)		32.0	32.0		32.0	32.0		27.0			27.0	
Actuated g/C Ratio		0.49	0.49		0.49	0.49		0.42			0.42	
v/c Ratio		0.62	0.11		0.66	0.04		0.22			0.31	
Control Delay		16.6	2.9		18.0	5.0		11.5			9.0	
Queue Delay		0.0	0.0		0.0	0.0		0.0			0.0	
Total Delay		16.6	2.9		18.0	5.0		11.5			9.0	
LOS		B	A		B	A		B			A	
Approach Delay		14.6			17.3			11.5			9.0	
Approach LOS		B			B			B			A	
Stops (vph)		309	11		357	6		77			169	
Fuel Used(gal)		17	2		8	0		4			6	
CO Emissions (g/hr)		1160	169		592	22		263			418	
NOx Emissions (g/hr)		226	33		115	4		51			81	
VOC Emissions (g/hr)		269	39		137	5		61			97	
Dilemma Vehicles (#)		0	0		0	0		0			0	
Queue Length 50th (ft)		130	0		147	2		33			22	
Queue Length 95th (ft)		221	19		265	m7		68			m36	
Internal Link Dist (ft)		3875			1251			2597			2589	
Turn Bay Length (ft)			105			75						
Base Capacity (vph)		767	715		773	691		706			789	
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		0.62	0.11		0.66	0.04		0.22			0.31	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 32 (49%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 14.3

Intersection LOS: B

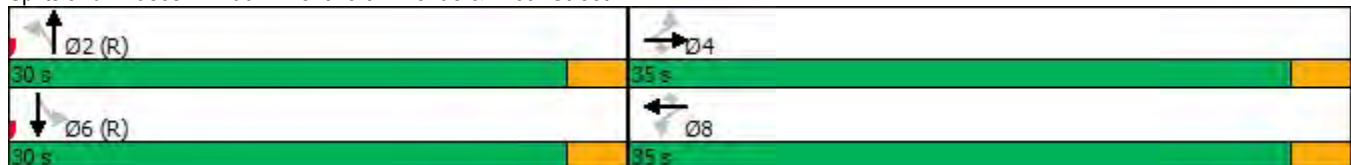
Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

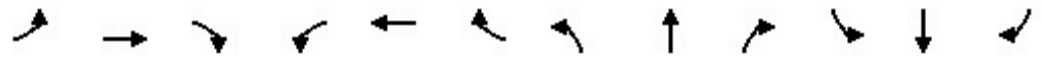
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1061: Wentworth Avenue & 119th Street



Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	88	235	50	15	245	10	40	123	20	15	210	195
Future Volume (vph)	88	235	50	15	245	10	40	123	20	15	210	195
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.94		1.00	0.95		1.00	0.97		0.99	
Frt			0.850			0.850			0.850		0.937	
Flt Protected		0.987			0.997			0.988			0.998	
Satd. Flow (prot)	0	1634	1428	0	1614	1428	0	1600	1428	0	1870	0
Flt Permitted		0.818			0.971			0.850			0.989	
Satd. Flow (perm)	0	1348	1347	0	1570	1360	0	1376	1390	0	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			34			34			94
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	19		25	25		19	3		6	6		3
Confl. Bikes (#/hr)	1		2	1		1	1		1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	0%	4%	0%	0%	5%	0%	0%	0%	2%
Adj. Flow (vph)	92	245	52	16	255	10	42	128	21	16	219	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	337	52	0	271	10	0	170	21	0	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0

Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.71	0.10		0.49	0.02		0.25	0.03		0.46	
Control Delay		18.5	1.9		20.1	1.2		1.8	0.7		10.1	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		18.5	1.9		20.1	1.2		1.8	0.7		10.1	
LOS		B	A		C	A		A	A		B	
Approach Delay		16.3			19.4			1.7			10.1	
Approach LOS		B			B			A			B	
Stops (vph)		271	12		198	1		40	3		304	
Fuel Used(gal)		6	1		3	0		7	1		11	
CO Emissions (g/hr)		425	42		218	3		496	60		791	
NOx Emissions (g/hr)		83	8		42	1		96	12		154	
VOC Emissions (g/hr)		98	10		51	1		115	14		183	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		120	3		82	0		10	0		187	
Queue Length 95th (ft)		#231	m4		146	3		m10	m0		253	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		476	508		555	503		677	701		959	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.71	0.10		0.49	0.02		0.25	0.03		0.46	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 12.7

Intersection LOS: B

Intersection Capacity Utilization 88.9%

ICU Level of Service E

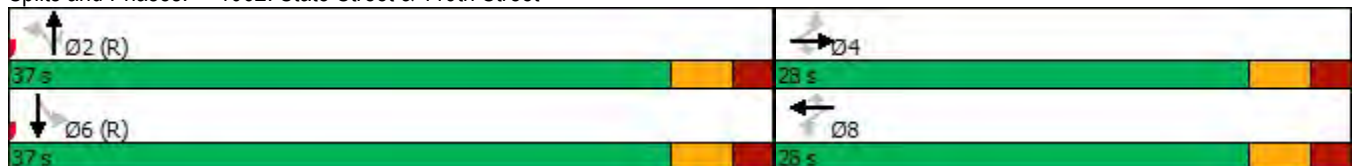
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

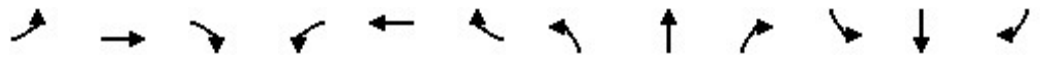
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1062: State Street & 119th Street



Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (vph)	0	1099	365	379	1100	0	0	0	0	651	360	425
Future Volume (vph)	0	1099	365	379	1100	0	0	0	0	651	360	425
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		0.99		1.00								
Frt		0.963									0.980	0.850
Flt Protected				0.950						0.950	0.981	
Satd. Flow (prot)	0	4569	0	1676	3320	0	0	0	0	1541	2911	1442
Flt Permitted				0.082						0.950	0.981	
Satd. Flow (perm)	0	4569	0	145	3320	0	0	0	0	1541	2911	1442
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75									12	103
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			590			708	
Travel Time (s)		30.9			7.3			13.4			16.1	
Confl. Peds. (#/hr)	15		11	11		15						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	3%	3%	2%	3%	0%	0%	0%	0%	1%	3%	3%
Adj. Flow (vph)	0	1121	372	387	1122	0	0	0	0	664	367	434
Shared Lane Traffic (%)										43%		23%
Lane Group Flow (vph)	0	1493	0	387	1122	0	0	0	0	378	753	334
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4

Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (%)		36.1%		33.9%	70.0%					30.0%	30.0%	30.0%
Maximum Green (s)		35.5		34.5	74.5					28.5	28.5	28.5
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										1.5	1.5	1.5
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		44.1		76.0	74.5					28.5	28.5	28.5
Actuated g/C Ratio		0.38		0.66	0.65					0.25	0.25	0.25
v/c Ratio		0.83		0.88	0.52					0.99	1.03	0.77
Control Delay		36.5		35.7	23.0					88.1	83.7	40.6
Queue Delay		0.1		10.8	51.0					0.0	0.0	0.0
Total Delay		36.6		46.4	74.0					88.1	83.7	40.6
LOS		D		D	E					F	F	D
Approach Delay		36.6			66.9						75.0	
Approach LOS		D			E						E	
90th %ile Green (s)		35.5		34.5	74.5					28.5	28.5	28.5
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		39.3		30.7	74.5					28.5	28.5	28.5
70th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
50th %ile Green (s)		43.6		26.4	74.5					28.5	28.5	28.5
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		47.9		22.1	74.5					28.5	28.5	28.5
30th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
10th %ile Green (s)		54.2		15.8	74.5					28.5	28.5	28.5
10th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
Stops (vph)		1163		329	950					321	640	211
Fuel Used(gal)		33		6	13					10	20	6
CO Emissions (g/hr)		2292		386	921					731	1411	397
NOx Emissions (g/hr)		446		75	179					142	275	77
VOC Emissions (g/hr)		531		89	213					169	327	92
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		348		224	377					307	~344	179
Queue Length 95th (ft)		#513		m274	m443					#525	#482	#329
Internal Link Dist (ft)		1279			242			510			628	



Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Unmitigated

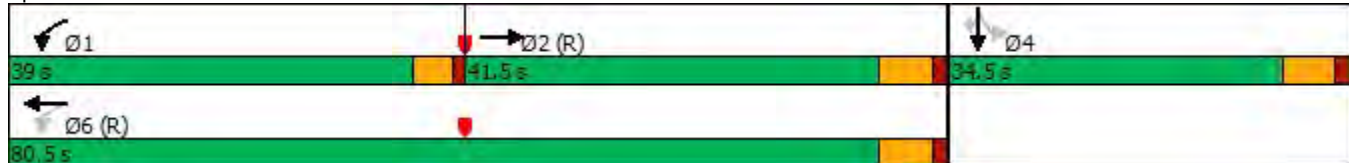


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)				216						360		360
Base Capacity (vph)		1798		555	2150					381	730	434
Starvation Cap Reductn		0		141	1318					0	0	0
Spillback Cap Reductn		24		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.84		0.93	1.35					0.99	1.03	0.77

Intersection Summary
























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 85 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 59.5      Intersection LOS: E  
 Intersection Capacity Utilization 116.6%      ICU Level of Service H  
 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: 1064: S Paulina St & 127th Street



Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 				
Traffic Volume (vph)	430	1320	0	0	1068	339	410	340	301	0	0	0
Future Volume (vph)	430	1320	0	0	1068	339	410	340	301	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Fr <sub>t</sub>					0.964			0.930				
Fl <sub>t</sub> Protected	0.950						0.950					
Satd. Flow (prot)	3252	3353	0	0	4636	0	1676	3120	0	0	0	0
Fl <sub>t</sub> Permitted	0.950						0.950					
Satd. Flow (perm)	3247	3353	0	0	4636	0	1676	3120	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					86							
Link Speed (mph)		30			30			30				30
Link Distance (ft)		322			336			554				548
Travel Time (s)		7.3			7.6			12.6				12.5
Confl. Peds. (#/hr)	7		5	5		7						
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	2%	1%	3%	0%	0%	0%
Adj. Flow (vph)	453	1389	0	0	1124	357	432	358	317	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	1389	0	0	1481	0	432	675	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (%)	23.0%	70.0%			47.0%		30.0%	30.0%				
Maximum Green (s)	20.5	74.5			48.0		28.5	28.5				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	19.5	74.5			49.0		28.5	28.5				
Actuated g/C Ratio	0.17	0.65			0.43		0.25	0.25				
v/c Ratio	0.82	0.64			0.73		1.04	0.87				
Control Delay	53.4	2.9			23.5		97.9	55.1				
Queue Delay	0.4	2.8			4.5		21.8	0.0				
Total Delay	53.8	5.7			28.0		119.8	55.1				
LOS	D	A			C		F	E				
Approach Delay		17.6			28.0			80.3				
Approach LOS		B			C			F				
90th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	20.5	74.5			48.0		28.5	28.5				
50th %ile Term Code	Max	Coord			Coord		Max	Max				
30th %ile Green (s)	19.6	74.5			48.9		28.5	28.5				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	16.5	74.5			52.0		28.5	28.5				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	375	292			661		348	582				
Fuel Used(gal)	8	6			14		12	13				
CO Emissions (g/hr)	547	399			983		830	921				
NOx Emissions (g/hr)	106	78			191		161	179				
VOC Emissions (g/hr)	127	93			228		192	213				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	142	11			197		~346	253				
Queue Length 95th (ft)	m168	m12			m255		#545	#354				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

PM Peak  
 Build Conditions - Unmitigated

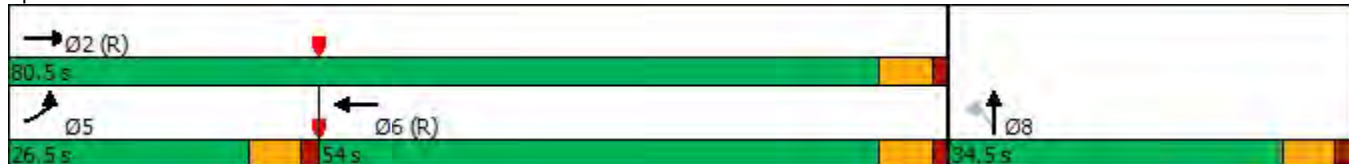


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	579	2172			2024		415	773				
Starvation Cap Reductn	11	644			297		0	0				
Spillback Cap Reductn	0	133			464		40	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.80	0.91			0.95		1.15	0.87				

Intersection Summary























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.04  
 Intersection Signal Delay: 36.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 116.6%  
 ICU Level of Service H  
 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: 1065: Marshfield Ave & 127th Street



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	731	465	120	766	68	285	225	85	96	205	155
Future Volume (vph)	155	731	465	120	766	68	285	225	85	96	205	155
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	1.00		1.00	0.99		0.99	0.99	
Frt			0.850		0.988			0.959				0.935
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3386	1337	1605	3282	0	1580	3216	0	1550	2945	0
Flt Permitted	0.109			0.347			0.298			0.553		
Satd. Flow (perm)	179	3386	1292	583	3282	0	493	3216	0	894	2945	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			384		8			50				165
Link Speed (mph)		30			30			30				30
Link Distance (ft)		336			5379			1555				925
Travel Time (s)		7.6			122.3			35.3				21.0
Confl. Peds. (#/hr)	11		23	23		11	8		12	12		8
Confl. Bikes (#/hr)									1			
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 (%)	2%	1%	3%	3%	3%	0%	1%	1%	2%	3%	0%	1%
Parking (#/hr)			0									
Adj. Flow (vph)	165	778	495	128	815	72	303	239	90	102	218	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	778	495	128	887	0	303	329	0	102	383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (%)	13.0%	38.3%	17.8%	10.9%	36.1%		17.8%	37.8%		13.0%	33.0%	
Maximum Green (s)	10.5	38.0	16.0	8.0	35.5		16.0	37.5		10.5	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	63.9	48.2	65.7	47.1	35.5		41.7	26.2		30.8	19.8	
Actuated g/C Ratio	0.56	0.42	0.57	0.41	0.31		0.36	0.23		0.27	0.17	
v/c Ratio	0.44	0.55	0.55	0.39	0.87		0.92	0.43		0.35	0.60	
Control Delay	18.0	22.1	6.2	18.2	47.9		59.0	30.1		27.9	27.9	
Queue Delay	0.0	1.1	0.2	0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	18.0	23.2	6.4	18.2	48.1		59.0	30.1		27.9	27.9	
LOS	B	C	A	B	D		E	C		C	C	
Approach Delay		16.8			44.3			44.0			27.9	
Approach LOS		B			D			D			C	
90th %ile Green (s)	16.4	38.0	16.0	13.9	35.5		16.0	31.6		10.5	26.1	
90th %ile Term Code	MaxR	Coord	Max	Max	Coord		Max	Hold		Max	Gap	
70th %ile Green (s)	20.4	44.5	16.0	11.4	35.5		16.0	27.6		10.5	22.1	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
50th %ile Green (s)	23.6	49.3	16.0	9.8	35.5		16.0	24.4		10.5	18.9	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
30th %ile Green (s)	25.8	52.8	16.0	8.5	35.5		16.0	23.5		9.2	16.7	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Gap	
10th %ile Green (s)	27.8	56.5	15.7	6.8	35.5		15.7	23.7		7.0	15.0	
10th %ile Term Code	MaxR	Coord	Gap	Gap	Coord		Gap	Hold		Gap	Min	
Stops (vph)	77	542	164	69	745		233	250		70	186	
Fuel Used(gal)	1	8	3	6	47		8	7		2	6	
CO Emissions (g/hr)	98	573	190	409	3301		571	491		114	396	
NOx Emissions (g/hr)	19	111	37	80	642		111	96		22	77	
VOC Emissions (g/hr)	23	133	44	95	765		132	114		26	92	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	41	231	118	42	323		196	101		52	78	
Queue Length 95th (ft)	m113	m310	m168	85	#433		#262	137		84	121	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

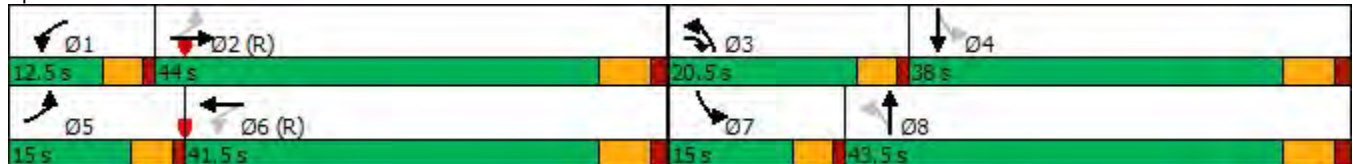
PM Peak  
Build Conditions - Unmitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		256			5299			1475			845	
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	374	1419	909	331	1018		330	1082		306	938	
Starvation Cap Reductn	0	387	72	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	6		0	0		0	1	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.75	0.59	0.39	0.88		0.92	0.30		0.33	0.41	

Intersection Summary





















Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 15 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 31.0 Intersection LOS: C  
 Intersection Capacity Utilization 88.0% ICU Level of Service E  
 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: 1066: S Ashland & 127th Street



Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	249	465	79	240	110	460	430	101	260	515	70
Future Volume (vph)	60	249	465	79	240	110	460	430	101	260	515	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	11	12	12	12	12	12
Storage Length (ft)	85		0	140		0	140		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	55			135			115			125		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00	0.99		1.00				1.00	
Frt		0.902			0.953			0.971				0.982
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	2993	0	1710	3202	0	1621	3294	0	1693	3294	0
Flt Permitted	0.474			0.167			0.206			0.432		
Satd. Flow (perm)	847	2993	0	300	3202	0	351	3294	0	770	3294	0
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					63			29				
Link Speed (mph)		35			35			35				35
Link Distance (ft)		542			3053			918				1555
Travel Time (s)		10.6			59.5			17.9				30.3
Confl. Peds. (#/hr)	12		3	3		12	5					5
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%	2%	2%	0%	1%	1%	2%	1%	0%	1%	2%	0%
Adj. Flow (vph)	66	274	511	87	264	121	505	473	111	286	566	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	785	0	87	385	0	505	584	0	286	643	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.12	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	



Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

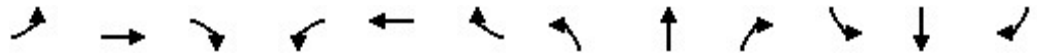
PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (s)	15.0	32.5		19.5	37.0		25.0	50.5		12.5	38.0	
Total Split (%)	13.0%	28.3%		17.0%	32.2%		21.7%	43.9%		10.9%	33.0%	
Maximum Green (s)	11.0	26.5		15.5	31.0		21.0	44.5		8.5	32.0	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5		1.0	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0		3.5	7.0		3.5	7.0		3.5	7.0	
Minimum Gap (s)	0.2	4.0		0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Time To Reduce (s)	0.0	18.0		0.0	18.0		0.0	25.0		0.0	25.0	
Recall Mode	None	Max		None	Max		None	C-Max		None	C-Max	
Walk Time (s)					6.0							4.0
Flash Dont Walk (s)					25.0							28.0
Pedestrian Calls (#/hr)					0							0
Act Effct Green (s)	43.9	34.6		45.7	35.4		59.0	44.5		42.5	32.0	
Actuated g/C Ratio	0.38	0.30		0.40	0.31		0.51	0.39		0.37	0.28	
v/c Ratio	0.17	1.15dr		0.37	0.37		1.23	0.45		0.81	0.70	
Control Delay	21.7	51.3		25.3	28.1		147.1	26.2		42.0	41.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.7	51.3		25.3	28.1		147.1	26.2		42.0	41.9	
LOS	C	D		C	C		F	C		D	D	
Approach Delay		49.0			27.5			82.2			41.9	
Approach LOS		D			C			F			D	
90th %ile Green (s)	11.0	29.4		12.6	31.0		21.0	44.5		8.5	32.0	
90th %ile Term Code	Max	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	9.7	31.3		10.7	32.3		21.0	44.5		8.5	32.0	
70th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.6	32.5		9.5	33.4		21.0	44.5		8.5	32.0	
50th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.6	33.6		8.4	34.4		21.0	44.5		8.5	32.0	
30th %ile Term Code	Gap	MaxR		Gap	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	0.0	46.0		0.0	46.0		21.0	44.5		8.5	32.0	
10th %ile Term Code	Skip	MaxR		Skip	MaxR		Max	Coord		Max	Coord	
Stops (vph)	37	604		47	227		263	364		205	497	
Fuel Used(gal)	1	15		4	18		19	9		7	15	
CO Emissions (g/hr)	54	1034		277	1248		1314	635		467	1069	
NOx Emissions (g/hr)	11	201		54	243		256	124		91	208	
VOC Emissions (g/hr)	13	240		64	289		305	147		108	248	
Dilemma Vehicles (#)	0	29		0	15		0	23		0	29	
Queue Length 50th (ft)	29	297		39	99		~371	158		106	208	
Queue Length 95th (ft)	58	#451		73	149		#585	209		#217	284	
Internal Link Dist (ft)		462			2973			838			1475	
Turn Bay Length (ft)	85			140			140			150		

Lanes, Volumes, Timings  
1067: S Ashland & Vermont St

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	416	899		315	1029		411	1292		352	916	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.87		0.28	0.37		1.23	0.45		0.81	0.70	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 5 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.23  
 Intersection Signal Delay: 54.8 Intersection LOS: D  
 Intersection Capacity Utilization 99.6% 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1067: S Ashland & Vermont St



Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔↔		↔	↔↔	
Traffic Volume (vph)	110	632	145	15	574	85	120	330	10	195	595	180
Future Volume (vph)	110	632	145	15	574	85	120	330	10	195	595	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		1.00	1.00		1.00	0.99	
Frt		0.975			0.981			0.995			0.965	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3138	0	0	3156	0	1559	3337	0	1637	3082	0
Flt Permitted		0.666			0.922		0.159			0.534		
Satd. Flow (perm)	0	2102	0	0	2913	0	261	3337	0	918	3082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			19			4			47	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	4		2	2		4	8		4	4		8
Confl. Bikes (#/hr)												2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	0%	2%	6%	6%	2%	0%	1%	3%	3%
Adj. Flow (vph)	118	680	156	16	617	91	129	355	11	210	640	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	954	0	0	724	0	129	366	0	210	834	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	8.0	37.0		21.0	21.0		8.0	31.0		8.0	21.0	
Total Split (s)	10.0	40.0		30.0	30.0		15.0	33.0		12.0	30.0	
Total Split (%)	11.8%	47.1%		35.3%	35.3%		17.6%	38.8%		14.1%	35.3%	
Maximum Green (s)	6.5	34.0		24.0	24.0		11.5	27.0		8.5	24.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		2						4				
Act Effct Green (s)		34.0			34.0		37.3	25.2		34.9	24.0	
Actuated g/C Ratio		0.41			0.41		0.45	0.30		0.42	0.29	
v/c Ratio		1.09			0.60		0.48	0.36		0.46	0.90	
Control Delay		82.0			21.6		18.8	23.5		17.3	42.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		82.0			21.6		18.8	23.5		17.3	42.1	
LOS		F			C		B	C		B	D	
Approach Delay		82.0			21.6			22.3			37.1	
Approach LOS		F			C			C			D	
90th %ile Green (s)	0.0	34.0		34.0	34.0		11.5	27.0		8.5	24.0	
90th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
70th %ile Green (s)	0.0	34.0		34.0	34.0		11.4	26.9		8.5	24.0	
70th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
50th %ile Green (s)	0.0	34.0		34.0	34.0		10.0	25.5		8.5	24.0	
50th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
30th %ile Green (s)	0.0	34.0		34.0	34.0		8.6	24.1		8.5	24.0	
30th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Max	Max	
10th %ile Green (s)	0.0	34.0		34.0	34.0		6.6	22.6		8.0	24.0	
10th %ile Term Code	Skip	Max		Hold	Hold		Gap	Hold		Gap	Max	
Stops (vph)		709			496		65	251		124	643	
Fuel Used(gal)		56			13		1	4		9	43	
CO Emissions (g/hr)		3909			883		87	294		663	2971	
NOx Emissions (g/hr)		761			172		17	57		129	578	
VOC Emissions (g/hr)		906			205		20	68		154	689	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		~295			148		37	77		63	209	
Queue Length 95th (ft)		#428			213		69	114		107	#333	
Internal Link Dist (ft)		5299			1243			370			5258	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Build Conditions - Unmitigated

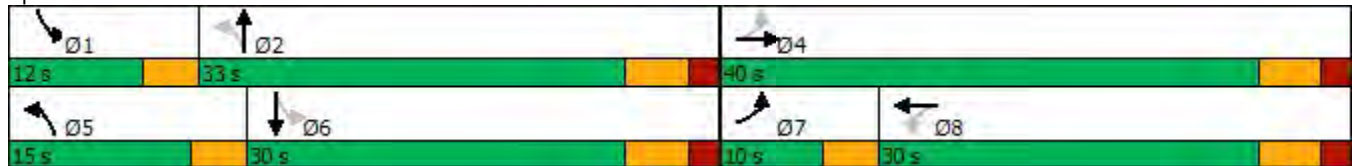


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)							135			130		
Base Capacity (vph)		879			1203		302	1087		460	923	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		1.09			0.60		0.43	0.34		0.46	0.90	

Intersection Summary























Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	83.1
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.09
Intersection Signal Delay:	44.7
Intersection LOS:	D
Intersection Capacity Utilization	95.8%
ICU Level of Service	F
Analysis Period (min)	15
90th %ile Actuated Cycle:	85
70th %ile Actuated Cycle:	84.9
50th %ile Actuated Cycle:	83.5
30th %ile Actuated Cycle:	82.1
10th %ile Actuated Cycle:	80.1
~ 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: 1068: Halsted Street & 127th Street



Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
Build Conditions - Unmitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	257	170	113	224	30	80	515	91	35	680	70
Future Volume (vph)	85	257	170	113	224	30	80	515	91	35	680	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	12	12	12	12	12	12
Storage Length (ft)	60		0	55		0	105		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	90			55			100			110		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	1.00		1.00	1.00	
Frt		0.940			0.982			0.977			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1710	1888	0	1613	2000	0	1676	3218	0	1437	3270	0
Flt Permitted	0.530			0.305			0.282			0.361		
Satd. Flow (perm)	952	1888	0	514	2000	0	497	3218	0	545	3270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			12			42			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2456			1385			1856			450	
Travel Time (s)		55.8			31.5			42.2			10.2	
Confl. Peds. (#/hr)	3		20	20		3	2		3	3		2
Confl. Bikes (#/hr)			1	4					2			2
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%	1%	6%	0%	0%	2%	3%	6%	19%	3%	2%
Adj. Flow (vph)	92	279	185	123	243	33	87	560	99	38	739	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	464	0	123	276	0	87	659	0	38	815	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (s)	29.0	29.0		29.0	29.0		36.0	36.0		36.0	36.0	
Total Split (%)	44.6%	44.6%		44.6%	44.6%		55.4%	55.4%		55.4%	55.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings  
1069: Halsted Street & Vermont St

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	24.0	24.0		24.0	24.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.48	0.48		0.48	0.48	
v/c Ratio	0.26	0.63		0.65	0.37		0.37	0.42		0.15	0.52	
Control Delay	16.9	19.3		28.2	19.5		16.5	11.4		11.4	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.9	19.3		28.2	19.5		16.5	11.4		11.4	12.9	
LOS	B	B		C	B		B	B		B	B	
Approach Delay		18.9			22.2			12.0			12.9	
Approach LOS		B			C			B			B	
Stops (vph)	58	301		104	238		52	347		21	475	
Fuel Used(gal)	4	22		2	5		2	12		0	7	
CO Emissions (g/hr)	298	1516		171	354		120	845		22	505	
NOx Emissions (g/hr)	58	295		33	69		23	164		4	98	
VOC Emissions (g/hr)	69	351		40	82		28	196		5	117	
Dilemma Vehicles (#)	0	0		0	0		0	0		0	0	
Queue Length 50th (ft)	25	128		54	114		21	78		8	107	
Queue Length 95th (ft)	57	219		m45	m91		55	116		24	153	
Internal Link Dist (ft)		2376			1305			1776			370	
Turn Bay Length (ft)	60			55			105			90		
Base Capacity (vph)	351	733		189	746		237	1556		259	1571	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.63		0.65	0.37		0.37	0.42		0.15	0.52	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 57 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 15.4 Intersection LOS: B  
 Intersection Capacity Utilization 79.8% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1069: Halsted Street & Vermont St



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	807	316	704	20	5	10	10	50	10	0	5
Future Volume (vph)	5	807	316	704	20	5	10	10	50	10	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	10	10	12	12	16	12	12	16	12
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00				0.99			0.98	
Flt				0.997				0.910			0.930	
Flt Protected				0.985				0.990			0.977	
Satd. Flow (prot)	0	3161	0	3090	0	0	0	1817	0	0	1816	0
Flt Permitted		0.944		0.568				0.952			0.893	
Satd. Flow (perm)	0	2984	0	1781	0	0	0	1744	0	0	1658	0
Right Turn on Red					No				No			
Satd. Flow (RTOR)												
Link Speed (mph)		30		30				30			30	
Link Distance (ft)		1323		3930				1256			658	
Travel Time (s)		30.1		89.3				28.5			15.0	
Confl. Peds. (#/hr)	7		4		7		7		2	2		7
Confl. Bikes (#/hr)			1						2			2
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%	1%	2%	1%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	897	351	782	22	6	11	11	56	11	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	903	0	1155	0	0	0	84	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		0		0				0			0	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		16		16				16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.17	1.17	1.07	1.07	0.91	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		15		9	15	15		9	15		9
Turn Type	Perm	NA	custom	NA		Perm	Perm	NA		Perm	NA	
Protected Phases		8	7	4				2			6	
Permitted Phases	8		4	7		2	2			6		
Minimum Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (%)	35.4%	35.4%	13.8%	49.2%		27.7%	27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	18.0	18.0	6.0	27.0		14.0	14.0	14.0		14.0	14.0	
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	0.0	2.0		1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0		0.0				0.0			0.0	
Total Lost Time (s)		5.0		5.0				4.0			4.0	
Lead/Lag	Lag	Lag	Lead									
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		18.0		5.0	5.0	5.0				
Flash Dont Walk (s)	9.0	9.0		9.0		9.0	9.0	9.0				
Pedestrian Calls (#/hr)	0	0		0		0	0	0				
Act Effect Green (s)		18.0		27.0				14.0			14.0	



Lanes, Volumes, Timings  
1070: S Wallace St & 127th Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	SBR2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	5	5	313
Future Volume (vph)	5	5	313
Ideal Flow (vphpl)	1800	1800	1800
Lane Width (ft)	12	12	12
Lane Util. Factor	1.00	1.00	1.00
Ped Bike Factor			
Frt		0.867	
Flt Protected		0.999	
Satd. Flow (prot)	0	1559	0
Flt Permitted		0.999	
Satd. Flow (perm)	0	1559	0
Right Turn on Red	No		
Satd. Flow (RTOR)			
Link Speed (mph)		30	
Link Distance (ft)		1385	
Travel Time (s)		31.5	
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%
Adj. Flow (vph)	6	6	348
Shared Lane Traffic (%)			
Lane Group Flow (vph)	0	354	0
Enter Blocked Intersection	No	No	No
Lane Alignment	Right	Left	Right
Median Width(ft)		24	
Link Offset(ft)		0	
Crosswalk Width(ft)		16	
Two way Left Turn Lane			
Headway Factor	1.07	1.07	1.07
Turning Speed (mph)	9	15	9
Turn Type		Prot	
Protected Phases		3	
Permitted Phases			
Minimum Split (s)		15.0	
Total Split (s)		15.0	
Total Split (%)		23.1%	
Maximum Green (s)		10.0	
Yellow Time (s)		3.0	
All-Red Time (s)		2.0	
Lost Time Adjust (s)		0.0	
Total Lost Time (s)		5.0	
Lead/Lag			
Lead-Lag Optimize?			
Walk Time (s)			
Flash Dont Walk (s)			
Pedestrian Calls (#/hr)			
Act Effct Green (s)		10.0	

Lanes, Volumes, Timings  
1070: S Wallance St & 127th Street

PM Peak  
Build Conditions - Unmitigated

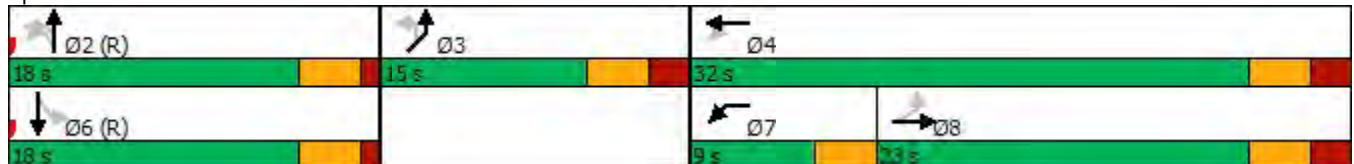


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28		0.42				0.22				0.22
v/c Ratio		1.09		1.70dl				0.22				0.06
Control Delay		85.7		208.1				22.9				21.0
Queue Delay		0.0		0.0				0.0				0.0
Total Delay		85.7		208.1				22.9				21.0
LOS		F		F				C				C
Approach Delay		85.7		208.1				22.9				21.0
Approach LOS		F		F				C				C
Stops (vph)		678		614				61				19
Fuel Used(gal)		26		79				1				0
CO Emissions (g/hr)		1840		5545				100				21
NOx Emissions (g/hr)		358		1079				20				4
VOC Emissions (g/hr)		426		1285				23				5
Dilemma Vehicles (#)		0		0				0				0
Queue Length 50th (ft)		~218		~345				28				7
Queue Length 95th (ft)		#326		#444				61				24
Internal Link Dist (ft)		1243		3850				1176				578
Turn Bay Length (ft)												
Base Capacity (vph)		826		820				375				357
Starvation Cap Reductn		0		0				0				0
Spillback Cap Reductn		0		0				0				0
Storage Cap Reductn		0		0				0				0
Reduced v/c Ratio		1.09		1.41				0.22				0.06

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.48  
 Intersection Signal Delay: 163.6  
 Intersection LOS: F  
 Intersection Capacity Utilization 102.9%  
 ICU Level of Service G  
 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.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1070: S Wallance St & 127th Street



Lanes, Volumes, Timings  
 1070: S Wallace St & 127th Street

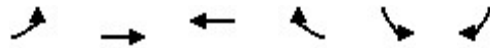
PM Peak  
 Build Conditions - Unmitigated



Lane Group	SBR2	NEL	NER
Actuated g/C Ratio		0.15	
v/c Ratio		1.48	
Control Delay		259.4	
Queue Delay		0.0	
Total Delay		259.4	
LOS		F	
Approach Delay		259.4	
Approach LOS		F	
Stops (vph)		238	
Fuel Used(gal)		22	
CO Emissions (g/hr)		1510	
NOx Emissions (g/hr)		294	
VOC Emissions (g/hr)		350	
Dilemma Vehicles (#)		0	
Queue Length 50th (ft)		~193	
Queue Length 95th (ft)		#348	
Internal Link Dist (ft)		1305	
Turn Bay Length (ft)			
Base Capacity (vph)		239	
Starvation Cap Reductn		0	
Spillback Cap Reductn		0	
Storage Cap Reductn		0	
Reduced v/c Ratio		1.48	
<b>Intersection Summary</b>			

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↗	↗
Traffic Volume (vph)	290	897	831	70	95	230
Future Volume (vph)	290	897	831	70	95	230
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.988			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3062	3062	0	1550	1386
Flt Permitted		0.568			0.950	
Satd. Flow (perm)	0	1760	3062	0	1550	1386
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			25			162
Link Speed (mph)		30	20		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	21.7		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	312	965	894	75	102	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1277	969	0	102	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		1.24dl	0.51		0.25	0.51
Control Delay		101.4	8.1		25.8	15.9
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		101.4	8.1		25.8	15.9
LOS		F	A		C	B
Approach Delay		101.4	8.1		18.8	
Approach LOS		F	A		B	
Stops (vph)		1045	364		75	168
Fuel Used(gal)		67	8		5	11
CO Emissions (g/hr)		4662	542		341	788
NOx Emissions (g/hr)		907	105		66	153
VOC Emissions (g/hr)		1080	126		79	183
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		~350	91		40	46
Queue Length 95th (ft)		m#268	101		72	96
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1083	1893		405	482
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		1.18	0.51		0.25	0.51

Intersection Summary

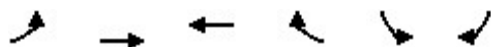
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.18  
 Intersection Signal Delay: 55.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 92.6%  
 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.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1071: 127th Street & State Street



Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	90	902	801	178	306	100
Future Volume (vph)	90	902	801	178	306	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	30
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	1.00			0.99
Frt			0.973			0.850
Flt Protected		0.995			0.950	
Satd. Flow (prot)	0	3117	2990	0	1506	1360
Flt Permitted		0.710			0.950	
Satd. Flow (perm)	0	2224	2990	0	1506	1343
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			61			62
Link Speed (mph)		30	30		30	
Link Distance (ft)		637	664		6686	
Travel Time (s)		14.5	15.1		152.0	
Confl. Peds. (#/hr)	2			2		1
Confl. Bikes (#/hr)	1					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	2%	10%	6%	5%
Adj. Flow (vph)	98	980	871	193	333	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1078	1064	0	333	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (s)	38.0	38.0	38.0		27.0	27.0
Total Split (%)	58.5%	58.5%	58.5%		41.5%	41.5%
Maximum Green (s)	34.0	34.0	34.0		23.0	23.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			21.0			

Lanes, Volumes, Timings  
1072: 127th Street & Michigan Avenue

PM Peak  
Build Conditions - Unmitigated

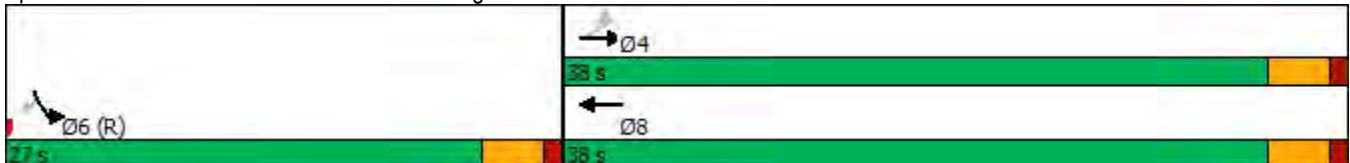


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Flash Dont Walk (s)			13.0			
Pedestrian Calls (#/hr)			0			
Act Effct Green (s)		34.0	34.0		23.0	23.0
Actuated g/C Ratio		0.52	0.52		0.35	0.35
v/c Ratio		0.93	0.67		0.63	0.21
Control Delay		19.8	15.5		25.4	13.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		19.8	15.5		25.4	13.4
LOS		B	B		C	B
Approach Delay		19.8	15.5		22.5	
Approach LOS		B	B		C	
Stops (vph)		640	555		255	70
Fuel Used(gal)		12	26		22	7
CO Emissions (g/hr)		870	1819		1548	484
NOx Emissions (g/hr)		169	354		301	94
VOC Emissions (g/hr)		202	422		359	112
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		155	105		128	10
Queue Length 95th (ft)		m136	175		m124	m10
Internal Link Dist (ft)		557	584		6606	
Turn Bay Length (ft)						30
Base Capacity (vph)		1163	1593		532	515
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.93	0.67		0.63	0.21

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 35 (54%), Referenced to phase 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 18.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 87.6%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1072: 127th Street & Michigan Avenue



Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
Build Conditions - Unmitigated

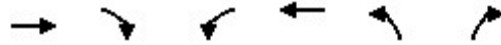


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	728	275	187	823	200	62
Future Volume (vph)	728	275	187	823	200	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						0.99
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1706	1450	1676	3288	1492	1428
Flt Permitted			0.129		0.950	
Satd. Flow (perm)	1706	1450	228	3288	1492	1410
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						68
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5343	2671	
Travel Time (s)	3.7			104.1	60.7	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	4%	7%	0%
Adj. Flow (vph)	800	302	205	904	220	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	800	302	205	904	220	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (%)	55.4%	44.6%	55.4%	55.4%	44.6%	44.6%
Maximum Green (s)	31.0	24.0	31.0	31.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0



Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
Build Conditions - Unmitigated

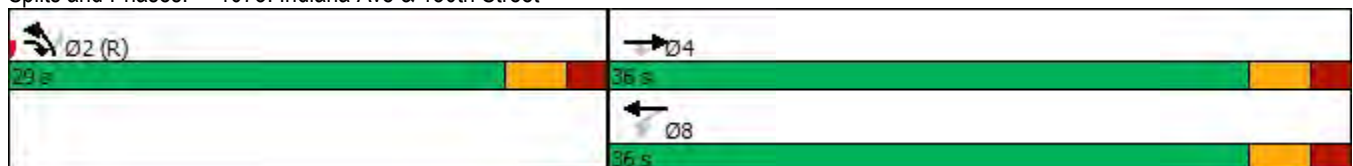


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	31.0	65.0	31.0	31.0	24.0	24.0
Actuated g/C Ratio	0.48	1.00	0.48	0.48	0.37	0.37
v/c Ratio	0.98	0.21	1.90	0.58	0.40	0.12
Control Delay	44.3	0.2	457.1	14.1	17.9	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	0.2	457.1	14.1	17.9	4.7
LOS	D	A	F	B	B	A
Approach Delay	32.2			96.0	14.8	
Approach LOS	C			F	B	
Stops (vph)	613	0	138	558	143	13
Fuel Used(gal)	25	6	26	38	6	1
CO Emissions (g/hr)	1729	391	1793	2678	397	99
NOx Emissions (g/hr)	336	76	349	521	77	19
VOC Emissions (g/hr)	401	91	416	621	92	23
Dilemma Vehicles (#)	0	0	0	64	0	0
Queue Length 50th (ft)	323	0	~128	127	63	0
Queue Length 95th (ft)	m#415	m0	#207	180	116	22
Internal Link Dist (ft)	83			5263	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	813	1450	108	1568	550	563
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	0.98	0.21	1.90	0.58	0.40	0.12

Intersection Summary

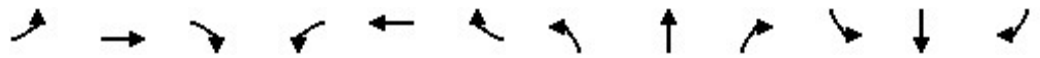
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.90  
 Intersection Signal Delay: 58.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 98.8%  
 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: 1073: Indiana Ave & 130th Street



Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
Build Conditions - Unmitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	52	598	0	0	632	45	5	5	35	200	0	131
Future Volume (vph)	52	598	0	0	632	45	5	5	35	200	0	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.80		0.97			0.98	
Frt						0.850		0.897			0.946	
Flt Protected		0.996						0.994			0.971	
Satd. Flow (prot)	0	3150	0	0	1663	1337	0	1520	0	0	1730	0
Flt Permitted		0.846						0.970			0.820	
Satd. Flow (perm)	0	2662	0	0	1663	1071	0	1482	0	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						64		39			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	60		44	44		60	14		10	10		14
Confl. Bikes (#/hr)	1			1		1						
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%	1%	0%	0%	1%	3%	20%	0%	0%	1%	0%	7%
Adj. Flow (vph)	58	664	0	0	702	50	6	6	39	222	0	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	722	0	0	702	50	0	51	0	0	368	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4		3	3			2		1	6	
Permitted Phases	4				3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0							14.0	

Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
Build Conditions - Unmitigated

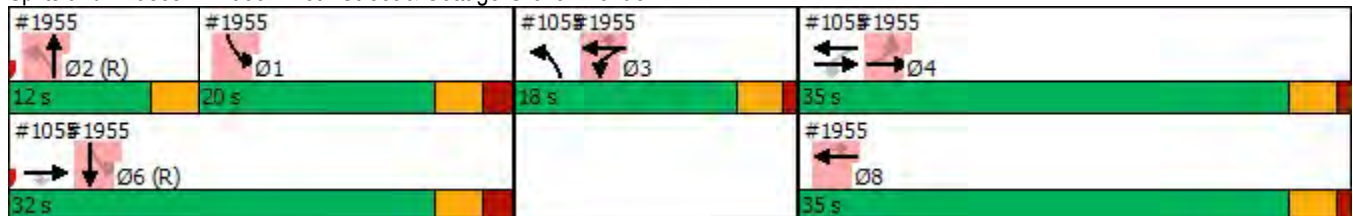


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			49.0	49.0		9.0				27.0
Actuated g/C Ratio		0.36			0.58	0.58		0.11				0.32
v/c Ratio		0.74			0.73	0.08		0.27				0.66
Control Delay		29.2			12.5	0.2		19.5				27.8
Queue Delay		1.9			53.2	8.6		0.0				0.0
Total Delay		31.1			65.7	8.8		19.5				27.8
LOS		C			E	A		B				C
Approach Delay		31.1			61.9			19.5				27.8
Approach LOS		C			E			B				C
Stops (vph)		550			148	0		19				232
Fuel Used(gal)		9			3	0		0				7
CO Emissions (g/hr)		657			206	3		24				470
NOx Emissions (g/hr)		128			40	1		5				91
VOC Emissions (g/hr)		152			48	1		6				109
Dilemma Vehicles (#)		0			0	0		0				0
Queue Length 50th (ft)		173			84	0		6				136
Queue Length 95th (ft)		242			m23	m1		38				229
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		970			958	644		191				554
Starvation Cap Reductn		0			454	559		0				0
Spillback Cap Reductn		122			0	0		1				2
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.85			1.39	0.59		0.27				0.67

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 42.4      Intersection LOS: D  
 Intersection Capacity Utilization 92.4%      ICU Level of Service F  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	777	318
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	5.50	7.60
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.948	0.929
Flow Rate (vi),pc/h	911	380
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.20	0.19

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.397
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	911	Ramp Junction Speed (S), mi/h	43.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	10.4
Level of Service (LOS)	A	Density in Ramp Influence Area (DR), pc/mi/ln	9.3

**C-217**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	169	365	0	290
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	5.50	15.40	0.00	7.10
Heavy Vehicle Adjustment Factor (fHV)	0.948	0.867	1.000	0.934
Flow Rate (vi), pc/h	198	468	0	345
Weaving Flow Rate (vw), pc/h	813	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	198	Density-Based Capacity (ciWL), pc/h/ln		1371
Total Flow Rate (v), pc/h	1011	Demand Flow-Based Capacity (ciW), pc/h		2985
Volume Ratio (VR)	0.804	Weaving Segment Capacity (cw), veh/h		2484
Minimum Lane Change Rate (LCMIN), lc/h	813	Adjusted Weaving Area Capacity, pc/h		2743
Maximum Weaving Length (LMAX), ft	11590	Volume-to-Capacity Ratio (v/c)		0.37

## Speed and Density

Non-Weaving Vehicle Index (INW)	10	Average Weaving Speed (SW), mi/h	38.7
Non-Weaving Lane Change Rate (LCNW), lc/h	62	Average Non-Weaving Speed (SNW), mi/h	36.7
Weaving Lane Change Rate (LCW), lc/h	863	Average Speed (S), mi/h	38.3
Weaving Lane Change Rate (LCAII), lc/h	925	Density (D), pc/mi/ln	13.2
Weaving Intensity Factor (W)	0.267	Level of Service (LOS)	B

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	529	535
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	14.00	40.30
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fhv)	0.877	0.713
Flow Rate (vi),pc/h	670	834
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.33	0.42

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.313
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	670	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1504	Average Density (D), pc/mi/ln	17.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.9

**C-219**



# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1127	380
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	30.20	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.768	0.901
Flow Rate (vi),pc/h	1545	469
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.34	0.22

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.340
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1545	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	12.8

**C-220**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	347	463	0	400
Peak Hour Factor (PHF)	0.95	0.90	0.90	0.90
Total Trucks, %	30.20	11.70	0.00	43.60
Heavy Vehicle Adjustment Factor (fHV)	0.768	0.895	1.000	0.696
Flow Rate (vi), pc/h	476	575	0	639
Weaving Flow Rate (vw), pc/h	1214	Freeway Max Capacity (cIFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	476	Density-Based Capacity (cIWL), pc/h/ln		1442
Total Flow Rate (v), pc/h	1690	Demand Flow-Based Capacity (cIW), pc/h		3343
Volume Ratio (VR)	0.718	Weaving Segment Capacity (cw), veh/h		2260
Minimum Lane Change Rate (LCMIN), lc/h	1214	Adjusted Weaving Area Capacity, pc/h		2884
Maximum Weaving Length (LMAX), ft	10484	Volume-to-Capacity Ratio (v/c)		0.59

## Speed and Density

Non-Weaving Vehicle Index (INW)	18	Average Weaving Speed (Sw), mi/h	36.0
Non-Weaving Lane Change Rate (LCNW), lc/h	22	Average Non-Weaving Speed (SNW), mi/h	32.2
Weaving Lane Change Rate (LCW), lc/h	1253	Average Speed (S), mi/h	34.8
Weaving Lane Change Rate (LCAII), lc/h	1275	Density (D), pc/mi/ln	24.3
Weaving Intensity Factor (W)	0.427	Level of Service (LOS)	C

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	AM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	810	330
Peak Hour Factor (PHF)	0.95	0.90
Total Trucks, %	7.90	4.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.927	0.955
Flow Rate (vi),pc/h	920	384
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.29	0.19

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.308
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	920	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1304	Average Density (D), pc/mi/ln	14.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	13.4

**C-222**

# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB 130th Street Entrance Ramp to EB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Deceleration Length (LA),ft	1610	310
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1330	611
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.60	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.971
Flow Rate (vi),pc/h	1502	699
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.33	0.35

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.426
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	43.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1502	Ramp Junction Speed (S), mi/h	43.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.4

**C-223**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	750	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	379	475	0	340
Peak Hour Factor (PHF)	0.90	0.95	0.90	0.90
Total Trucks, %	1.60	2.70	0.00	3.20
Heavy Vehicle Adjustment Factor (fHV)	0.984	0.974	1.000	0.969
Flow Rate (vi), pc/h	428	513	0	390
Weaving Flow Rate (vw), pc/h	903	Freeway Max Capacity (ciFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	428	Density-Based Capacity (ciWL), pc/h/ln		1494
Total Flow Rate (v), pc/h	1331	Demand Flow-Based Capacity (ciW), pc/h		3540
Volume Ratio (VR)	0.678	Weaving Segment Capacity (cw), veh/h		2915
Minimum Lane Change Rate (LCMIN), lc/h	903	Adjusted Weaving Area Capacity, pc/h		2988
Maximum Weaving Length (LMAX), ft	9980	Volume-to-Capacity Ratio (v/c)		0.45

## Speed and Density

Non-Weaving Vehicle Index (INW)	22	Average Weaving Speed (SW), mi/h	38.1
Non-Weaving Lane Change Rate (LCNW), lc/h	109	Average Non-Weaving Speed (SNW), mi/h	35.3
Weaving Lane Change Rate (LCW), lc/h	953	Average Speed (S), mi/h	37.2
Weaving Lane Change Rate (LCAII), lc/h	1062	Density (D), pc/mi/ln	17.9
Weaving Intensity Factor (W)	0.297	Level of Service (LOS)	B

# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB I-94 Exit Ramp to EB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	940	325
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	854	755
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	1.30	6.20
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.987	0.942
Flow Rate (vi),pc/h	961	891
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.41	0.45

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.320
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	961	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	1852	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.5

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# HCS7 Freeway Diverge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB 130th Street Entrance Ramp to WB I-94	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	45.0
Segment Length (L) / Deceleration Length (LA),ft	1885	525
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	1452	495
Peak Hour Factor (PHF)	0.90	0.90
Total Trucks, %	9.60	2.50
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.976
Flow Rate (vi),pc/h	1769	564
Capacity (c), pc/h	4500	2100
Volume-to-Capacity Ratio (v/c)	0.39	0.27

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (DS)	0.349
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	Off-Ramp Influence Area Speed (SR), mi/h	44.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFD)	1.000	Outer Lanes Freeway Speed (SO), mi/h	49.4
Flow in Lanes 1 and 2 (v12), pc/h	1769	Ramp Junction Speed (S), mi/h	44.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	-	Average Density (D), pc/mi/ln	20.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.7

**C-226**

# HCS7 Freeway Weaving Report

## Project Information

Analyst	TranSmart	Date	9/28/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - WB Weaving Segment	Unit	United States Customary

## Geometric Data

Number of Lanes (N), ln	2	Segment Type	Freeway
Segment Length (Ls), ft	570	Number of Maneuver Lanes (NWL), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LCRF), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LCFR), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LCRR), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

## Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

## Demand and Capacity

	FF	RF	RR	FR
Demand Volume (Vi), veh/h	172	380	0	785
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90
Total Trucks, %	9.60	5.00	0.00	6.70
Heavy Vehicle Adjustment Factor (fHV)	0.912	0.952	1.000	0.937
Flow Rate (vi), pc/h	210	444	0	931
Weaving Flow Rate (vw), pc/h	1375	Freeway Max Capacity (cIFL), pc/h/ln		2200
Non-Weaving Flow Rate (vNW), pc/h	210	Density-Based Capacity (cIWL), pc/h/ln		1292
Total Flow Rate (v), pc/h	1585	Demand Flow-Based Capacity (cIW), pc/h		2765
Volume Ratio (VR)	0.868	Weaving Segment Capacity (cw), veh/h		2424
Minimum Lane Change Rate (LCMIN), lc/h	1375	Adjusted Weaving Area Capacity, pc/h		2585
Maximum Weaving Length (LMAX), ft	12435	Volume-to-Capacity Ratio (v/c)		0.61

## Speed and Density

Non-Weaving Vehicle Index (INW)	8	Average Weaving Speed (Sw), mi/h	35.5
Non-Weaving Lane Change Rate (LCNW), lc/h	0	Average Non-Weaving Speed (SNW), mi/h	31.3
Weaving Lane Change Rate (LCW), lc/h	1414	Average Speed (S), mi/h	34.9
Weaving Lane Change Rate (LCAII), lc/h	1414	Density (D), pc/mi/ln	22.7
Weaving Intensity Factor (W)	0.463	Level of Service (LOS)	C



# HCS7 Freeway Merge Report

## Project Information

Analyst	TranSmart	Date	9/24/2020
Agency	CTA	Analysis Year	Build
Jurisdiction	Cook County	Time Period Analyzed	PM Peak
Project Description	Red Line Extension - EB I-94 Exit Ramp to WB 130th Street	Unit	United States Customary

## Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	45.0	40.0
Segment Length (L) / Acceleration Length (LA),ft	850	340
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

## Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

## Demand and Capacity

Demand Volume (Vi)	552	325
Peak Hour Factor (PHF)	0.90	0.95
Total Trucks, %	1.80	2.70
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.982	0.974
Flow Rate (vi),pc/h	625	351
Capacity (c), pc/h	4500	2000
Volume-to-Capacity Ratio (v/c)	0.22	0.18

## Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	0
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.304
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	-
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	44.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	1.000	Outer Lanes Freeway Speed (SO), mi/h	45.0
Flow in Lanes 1 and 2 (v12), pc/h	625	Ramp Junction Speed (S), mi/h	44.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	976	Average Density (D), pc/mi/ln	11.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	10.9

**C-228**

**Attachment D**  
**2050 Build Condition (Mitigated)**

<p>460/(620) 10/(120) 665/(795)</p> <p>70/(50) 730/(800) 35/(40)</p> <p>35/(35) 1270/(1120) 10/(5)</p>	<p>40/(40) 60/(55)</p> <p>630/(475) 1130/(1135) 170/(305)</p> <p>85/(75) 705/(335) 180/(130)</p> <p>365/(370) 615/(720) 30/(70)</p>	<p>105/(100) 505/(820) 85/(155)</p> <p>130/(85) 414/(411) 130/(185)</p> <p>151/(159) 366/(391) 94/(153)</p> <p>139/(92) 1630/(655) 140/(110)</p>	<p>55/(105) 440/(500) 94/(123)</p> <p>65/(100) 500/(475) 118/(125)</p> <p>84/(113) 68/(74) 104/(103)</p>	<p>45/(65) 260/(305) 65/(70)</p> <p>31/(34) 535/(540) 73/(89)</p> <p>105/(100) 180/(105) 60/(52)</p> <p>45/(45) 484/(611) 35/(90)</p>
<b>2</b> 95TH STREET LAFAYETTE AVENUE	<b>3</b> 95TH STREET STATE STREET	<b>16</b> 103RD STREET HALSTED STREET	<b>17</b> 103RD STREET NORMAL AVENUE	<b>18</b> 103RD STREET WENTWORTH AVENUE
<p>50/(70) 540/(955) 108/(114)</p> <p>125/(131) 205/(283) 75/(144)</p> <p>170/(105) 290/(288) 75/(135)</p> <p>78/(77) 1050/(615) 40/(75)</p>	<p>85/(95) 386/(431)</p> <p>45/(105) 466/(439)</p> <p>120/(48) 65/(55) 30/(65)</p>	<p>33/(59) 135/(191) 65/(70)</p> <p>55/(31) 466/(452) 45/(48)</p> <p>50/(55) 429/(426) 20/(45)</p> <p>40/(40) 190/(125) 35/(38)</p>	<p>28/(69) 100/(235) 58/(80)</p> <p>60/(61) 311/(388) 30/(68)</p> <p>85/(95) 431/(519) 40/(90)</p> <p>95/(130) 335/(285) 65/(63)</p>	<p>58/(84) 150/(350) 50/(60)</p> <p>90/(81) 416/(409) 35/(108)</p> <p>55/(65) 380/(260) 30/(58)</p> <p>110/(55) 453/(442) 50/(95)</p>
<b>34</b> 111TH STREET HALSTED STREET	<b>35</b> 111TH STREET NORMAL AVENUE	<b>36</b> 111TH STREET WENTWORTH AVENUE	<b>37</b> 111TH STREET STATE STREET	<b>38</b> 111TH STREET MICHIGAN AVENUE
<p>85/(141) 425/(655) 84/(86)</p> <p>82/(86) 236/(440) 67/(206)</p> <p>223/(139) 301/(262) 50/(110)</p> <p>83/(66) 1050/(525) 75/(120)</p>	<p>55/(85) 75/(160) 25/(45)</p> <p>50/(60) 388/(384) 25/(40)</p> <p>10/(30) 290/(533) 25/(59)</p> <p>56/(48) 115/(105) 45/(35)</p>	<p>40/(70) 95/(225) 111/(115)</p> <p>80/(95) 300/(385) 99/(37)</p> <p>40/(40) 255/(305) 86/(59)</p> <p>41/(83) 215/(135) 35/(92)</p>	<p>34/(66) 145/(340) 99/(107)</p> <p>47/(81) 310/(354) 24/(93)</p> <p>50/(70) 297/(366) 115/(220)</p> <p>21/(25) 345/(310) 45/(32)</p>	<p>80/(80) 420/(664) 80/(80)</p> <p>20/(20) 322/(396) 23/(33)</p> <p>195/(195) 110/(130) 42/(62)</p>
<b>49</b> 115TH STREET HALSTED STREET	<b>50</b> 115TH STREET WENTWORTH AVENUE	<b>51</b> 115TH STREET STATE STREET	<b>52</b> 115TH STREET MICHIGAN AVENUE	<b>53</b> 115TH STREET INDIANA AVENUE
<p>91/(191) 047/(1)</p> <p>96/(97) 416/(490)</p>	<p>89/(131) 05/(10) 50/(20)</p> <p>87/(52) 494/(598) 0/(0) 0/(0)</p> <p>90/(45) 630/(632) 30/(0) 30/(0)</p> <p>0/(35) 0/(5) 0/(5)</p>	<p>020/(20) 010/(10) 000/(0)</p> <p>225/(255) 234/(698)</p> <p>665/(397) 30/(30)</p>	<p>225/(275)</p> <p>685/(427)</p>	<p>100/(150) 1021/(1021) 444/(0)</p> <p>245/(165) 392/(313) 85/(160)</p> <p>55/(75) 192/(324) 47/(106)</p> <p>78/(76) 933/(561) 100/(115)</p>
<b>54</b> 115TH STREET MARTIN LUTHER KING JR. DRIVE	<b>55</b> 115TH STREET COTTAGE GROVE AVENUE	<b>56</b> 115TH STREET I-94 EASTBOUND RAMP	<b>57</b> 115TH STREET I-94 WESTBOUND RAMP	<b>60</b> 119TH STREET HALSTED STREET
<p>45/(60) 53/(118) 15/(25)</p> <p>25/(25) 271/(435) 8/(28)</p> <p>55/(45) 439/(390) 20/(75)</p> <p>32/(27) 112/(72) 45/(45)</p>	<p>66/(210) 66/(210) 10/(15)</p> <p>210/(88) 215/(235) 25/(50)</p> <p>10/(10) 180/(245) 10/(15)</p> <p>25/(20) 264/(123) 45/(40)</p>	<p>465/(425) 250/(360) 64/(65)</p> <p>1004/(1099) 270/(365)</p> <p>1277/(1100) 302/(379)</p>	<p>297/(339) 1039/(1068)</p> <p>380/(430) 973/(1320)</p> <p>384/(301) 355/(340) 540/(410)</p>	<p>115/(155) 140/(205) 141/(0)</p> <p>120/(155) 567/(731) 260/(465)</p> <p>52/(68) 876/(766) 90/(120)</p> <p>50/(85) 225/(225) 285/(285)</p>
<b>61</b> 119TH STREET WENTWORTH AVENUE	<b>62</b> 119TH STREET STATE STREET	<b>64</b> 127TH STREET PAULINA STREET	<b>65</b> 127TH STREET MARSHALL AVENUE	<b>66</b> 127TH STREET ASHLAND AVENUE
























**BUILD (2050) INTERSECTION TRAFFIC VOLUMES (MITIGATED)**  
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<p>70/(70) 325/(615) 115/(260)</p> <p>105/(110) 182/(240) 62/(79)</p> <p>65/(60) 169/(249) 290/(465)</p> <p>89/(101) 475/(430) 410/(460)</p>	<p>100/(180) 320/(695) 84/(195)</p> <p>126/(85) 490/(574) 10/(15)</p> <p>190/(110) 559/(632) 90/(145)</p> <p>10/(10) 620/(330) 70/(120)</p>	<p>45/(70) 370/(680) 10/(35)</p> <p>15/(30) 152/(224) 77/(113)</p> <p>50/(85) 175/(257) 45/(170)</p> <p>89/(91) 670/(515) 40/(80)</p>	<p>(0)1/(0) (0)0/ (0)0/ (5)5/ (5)5/</p> <p>15/(20) 660/(704) 198/(316) 0/(0)</p> <p>50/(50) 5/(10) 15/(10) 5/(5)</p> <p>0/(5) 618/(807) 0/(0) 0/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0) 0/(0) 289/(313) 0/(0)</p>	<p>200/(230) 54/(99)</p> <p>71/(70) 681/(831)</p> <p>200/(290) 789/(897)</p>
<b>67</b> VERMONT STREET ASHLAND AVENUE	<b>68</b> 127TH STREET HALSTED STREET	<b>69</b> VERMONT STREET HALSTED STREET	<b>70</b> 127TH STREET/VERMONT STREET/WALLACE STREET	<b>71</b> 127TH STREET STATE STREET
<p>60/(100) 159/(306)</p> <p>217/(178) 692/(801)</p> <p>60/(90) 788/(902)</p>	<p>343/(823) 32/(187)</p> <p>144/(62) 410/(200)</p> <p>737/(728) 160/(275)</p>	<p>10/(0) 695/(755) 435/(137)</p> <p>207/(290) 0/(0) 122/(314)</p> <p>0/(0) 570/(1035) 356/(70)</p>	<p>(171)/171</p> <p>25/(374)</p> <p>102/(2) 241/(191)</p>	<p>106/(64) 6/(2) 2/(2)</p> <p>8/(2) 127/(154) 4/(2) 0/(1)</p> <p>6/(9) 11/(2) 2/(4)</p>
<b>72</b> 127TH STREET MICHIGAN AVENUE	<b>73</b> 130TH STREET INDIANA AVENUE	<b>74</b> 130TH STREET ELLIS AVENUE	<b>75</b> OLD 130TH STREET ELLIS AVENUE	<b>76</b> GREENWOOD AVENUE ELLIS AVENUE
<p>465/(77) 6/(1)</p> <p>0/(0) 0/(0)</p> <p>0/(0) 116/(66)</p>	<p>17/(20) 430/(48) 0/(1)</p> <p>77/(48) 0/(0)</p> <p>0/(0) 14/(12)</p>	<p>12/(1) 8/(14) 10/(0) 0/(1) 2/(1)</p> <p>4/(0) 4/(0) 0/(0) 2/(0)</p> <p>2/(0) 15/(7) 6/(1) 2/(0)</p> <p>8/(2) 0/(0) 14/(5)</p>	<p>0/(1) 0/(14) 0/(0) 0/(1) 0/(1)</p> <p>0/(0) 2/(0) 0/(0)</p> <p>0/(2) 15/(0) 0/(5)</p>	<p>0/(0) 0/(0) 0/(0)</p> <p>0/(0) 0/(0) 0/(0)</p> <p>0/(1) 10/(2) 4/(0) 4/(1)</p> <p>0/(0) 0/(3) 4/(1)</p>
<b>77</b> 130TH PLACE GREENWOOD AVENUE	<b>78</b> 131ST STREET GREENWOOD AVENUE	<b>79</b> 132ND STREET GREENWOOD AVENUE	<b>80</b> 132ND STREET BEAUBIEN WOODS	<b>81</b> 132ND STREET DOTY AVENUE
<p>330/(325)</p> <p>801/(552)</p> <p>459/(719) 318/(611)</p>	<p>400/(785) 810/(552)</p> <p>459/(719)</p> <p>365/(475)</p>	<p>463/(380)</p> <p>747/(957)</p> <p>529/(854) 290/(340)</p>	<p>380/(495) 747/(957)</p> <p>535/(755)</p>	
<b>82</b> 130TH STREET EB: I-94 EB ON-RAMP WB: I-94 EB OFF-RAMP (1 OF 4)	<b>83</b> 130TH STREET EB: I-94 EB OFF-RAMP WB: I-94 EB ON-RAMP (2 OF 4)	<b>84</b> 130TH STREET EB: I-94 WB ON-RAMP WB: I-94 WB OFF-RAMP (3 OF 4)	<b>85</b> 130TH STREET EB: I-94 WB OFF-RAMP WB: I-94 WB ON-RAMP (4 OF 4)	

**BUILD (2050) INTERSECTION TRAFFIC VOLUMES (MITIGATED)**  
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Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	570	356	435	695	10	122	0	207	0	0	0
Future Volume (vph)	0	570	356	435	695	10	122	0	207	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	12	12	12	12	16	12
Storage Length (ft)	175		295	370		170	0		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	209			155			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850			0.850		0.850				
Fl <sub>t</sub> Protected				0.950			0.950					
Satd. Flow (prot)	1800	3109	1520	1644	3138	1366	1449	1443	0	0	2040	0
Fl <sub>t</sub> Permitted				0.356			0.757					
Satd. Flow (perm)	1800	3109	1520	616	3138	1366	1155	1443	0	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30				30
Link Distance (ft)		5340			1172			141				331
Travel Time (s)		104.0			22.8			3.2				7.5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	10%	4%	4%	9%	12%	18%	0%	6%	100%	0%	0%
Adj. Flow (vph)	0	594	371	453	724	10	127	0	216	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	371	453	724	10	127	216	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.03	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
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)	50	50	50	50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA				
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	43.0	43.0	43.0	7.0	43.0	43.0	6.0	6.0		6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	47.0	47.0	47.0	10.0	47.0	47.0	10.0	10.0		10.0	10.0	
Total Split (s)	47.0	47.0	47.0	10.0	57.0	57.0	28.0	28.0		28.0	28.0	
Total Split (%)	55.3%	55.3%	55.3%	11.8%	67.1%	67.1%	32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0		24.0	24.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	0.0	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	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0			4.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)		43.4	43.4	58.1	57.1	57.1	19.9	19.9				
Actuated g/C Ratio		0.51	0.51	0.68	0.67	0.67	0.23	0.23				
v/c Ratio		0.37	0.48	0.82	0.34	0.01	0.47	0.64				
Control Delay		13.5	16.2	25.6	7.0	5.9	32.9	37.6				
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total Delay		13.5	16.2	25.6	7.0	5.9	32.9	37.6				
LOS		B	B	C	A	A	C	D				
Approach Delay		14.6			14.1			35.9				
Approach LOS		B			B			D				
90th %ile Green (s)	43.0	43.0	43.0	7.0	53.0	53.0	24.0	24.0		24.0	24.0	
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max		Hold	Hold	
70th %ile Green (s)	43.0	43.0	43.0	7.2	53.2	53.2	23.8	23.8		23.8	23.8	
70th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap		Hold	Hold	
50th %ile Green (s)	43.0	43.0	43.0	10.6	56.6	56.6	20.4	20.4		20.4	20.4	
50th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap		Hold	Hold	
30th %ile Green (s)	43.0	43.0	43.0	13.3	59.3	59.3	17.7	17.7		17.7	17.7	
30th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Gap	Gap		Hold	Hold	
10th %ile Green (s)	45.0	45.0	45.0	15.4	63.4	63.4	13.6	13.6		13.6	13.6	
10th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap		Hold	Hold	
Stops (vph)		327	223	160	280	5	104	184				
Fuel Used(gal)		26	17	8	10	0	2	3				
CO Emissions (g/hr)		1818	1159	551	710	11	107	198				
NOx Emissions (g/hr)		354	225	107	138	2	21	38				
VOC Emissions (g/hr)		421	269	128	165	2	25	46				
Dilemma Vehicles (#)		34	0	0	41	0	0	0				
Queue Length 50th (ft)		96	123	93	77	2	60	107				
Queue Length 95th (ft)		134	197	#274	122	7	m106	m170				
Internal Link Dist (ft)		5260			1092			61			251	
Turn Bay Length (ft)			295	370		170						
Base Capacity (vph)		1587	775	550	2108	917	326	407				
Starvation Cap Reductn		0	0	0	0	0	0	0				
Spillback Cap Reductn		0	0	0	0	0	0	0				
Storage Cap Reductn		0	0	0	0	0	0	0				
Reduced v/c Ratio		0.37	0.48	0.82	0.34	0.01	0.39	0.53				

Intersection Summary

Area Type: Other

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated

Cycle Length: 85

Actuated Cycle Length: 85

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 95.2%

ICU Level of Service F

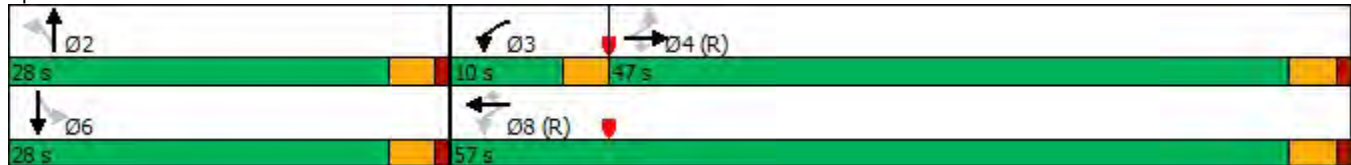
Analysis Period (min) 15

# 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: 1: Ellis Avenue & 130th Street



HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	570	356	435	695	10	122	0	207	0	0	0
Future Volume (veh/h)	0	570	356	435	695	10	122	0	207	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1800	1660	1814	1744	1674	1632	1547	1800	1716	396	1872	1800
Adj Flow Rate, veh/h	0	594	371	453	724	10	127	0	216	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	10	4	4	9	12	18	0	6	100	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	85	1893	923	512	2284	993	361	0	286	0	351	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.60	0.60	0.08	0.72	0.72	0.19	0.00	0.19	0.00	0.00	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	8.6	9.5	28.2	4.7	3.4	32.8	0.0	46.2	0.0	0.0	0.0
Ln Grp LOS	A	A	A	C	A	A	C	A	D	A	A	A
Approach Vol, veh/h		965			1187			343				0
Approach Delay, s/veh		8.9			13.7			41.2				0.0
Approach LOS		A			B			D				
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2	3	4		6		8			
Case No			6.0	1.2	5.0		8.0		3.0			
Phs Duration (G+Y+Rc), s			20.0	10.0	55.0		20.0		65.0			
Change Period (Y+Rc), s			4.0	3.0	4.0		4.0		4.0			
Max Green (Gmax), s			24.0	7.0	43.0		24.0		53.0			
Max Allow Headway (MAH), s			7.5	4.3	4.4		0.0		4.2			
Max Q Clear (g_c+I1), s			13.4	9.0	12.8		0.0		9.1			
Green Ext Time (g_e), s			2.6	0.0	5.0		0.0		3.8			
Prob of Phs Call (p_c)			1.00	1.00	1.00		0.00		1.00			
Prob of Max Out (p_x)			0.56	1.00	0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5	3	7		1					
Mvmt Sat Flow, veh/h			1474	1661	734		0					
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			0		3153		1872		3180			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1525		1537		0		1383			
Left Lane Group Data												
Assigned Mvmt	0	5	3	7	0	1	0	0				
Lane Assignment			LL (Pr/Pm)	L								



HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	1	1	1	0	0	0	0
Grp Vol (v), veh/h	0	127	453	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1474	1661	734	0	0	0	0
Q Serve Time (g_s), s	0.0	6.5	7.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	6.5	7.0	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1474	573	734	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	16.0	53.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	16.0	43.2	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	6.5	43.2	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	16.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	361	512	85	0	0	0	0
V/C Ratio (X)	0.00	0.35	0.88	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	501	512	85	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	30.7	11.6	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	16.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.8	28.2	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	2.3	3.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	2.4	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	1.71	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	4.5	9.2	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	2.45	0.64	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	594	0	0	0	724
Grp Sat Flow (s), veh/h/ln	0	0	0	1577	0	1872	0	1590
Q Serve Time (g_s), s	0.0	0.0	0.0	7.9	0.0	0.0	0.0	7.1
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	7.9	0.0	0.0	0.0	7.1
Lane Grp Cap (c), veh/h	0	0	0	1893	0	351	0	2284
V/C Ratio (X)	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.32
Avail Cap (c_a), veh/h	0	0	0	1893	0	529	0	2284
Upstream Filter (I)	0.00	0.00	0.00	0.46	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	8.4	0.0	0.0	0.0	4.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	8.6	0.0	0.0	0.0	4.7
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1

HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.72	0.00	1.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	4.1	0.0	0.0	0.0	3.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.08
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data























Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R				R
Lanes in Grp	0	1	0	1	0	0	0	1
Grp Vol (v), veh/h	0	216	0	371	0	0	0	10
Grp Sat Flow (s), veh/h/ln	0	1525	0	1537	0	0	0	1383
Q Serve Time (g_s), s	0.0	11.4	0.0	10.8	0.0	0.0	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	11.4	0.0	10.8	0.0	0.0	0.0	0.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	286	0	923	0	0	0	993
V/C Ratio (X)	0.00	0.75	0.00	0.40	0.00	0.00	0.00	0.01
Avail Cap (c_a), veh/h	0	431	0	923	0	0	0	993
Upstream Filter (I)	0.00	1.00	0.00	0.46	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	32.7	0.0	8.9	0.0	0.0	0.0	3.4
Incr Delay (d2), s/veh	0.0	13.5	0.0	0.6	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	46.2	0.0	9.5	0.0	0.0	0.0	3.4
1st-Term Q (Q1), veh/ln	0.0	4.1	0.0	3.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.2	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.72	0.00	1.62	0.00	1.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	8.9	0.0	5.2	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	4.28	0.00	0.46	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	414	130	94	366	151	140	1630	139	85	505	105
Future Volume (vph)	130	414	130	94	366	151	140	1630	139	85	505	105
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99	0.98		0.99		0.97			0.96
Frt		0.964			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1613	1877	0	1710	1814	0	1506	3099	1324	1425	2956	1324
Flt Permitted	0.114			0.114			0.376			0.089		
Satd. Flow (perm)	191	1877	0	203	1814	0	590	3099	1283	134	2956	1265
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			21				83			113
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304			1099	
Travel Time (s)		15.1			46.3			120.5			25.0	
Confl. Peds. (#/hr)	42		39	39		42	20		8	8		20
Confl. Bikes (#/hr)									1	1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	6%	4%	3%	0%	6%	5%	6%	3%	4%	8%	8%	4%
Adj. Flow (vph)	140	445	140	101	394	162	151	1753	149	91	543	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	585	0	101	556	0	151	1753	149	91	543	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

AM Peak  
Build Conditions - Mitigated



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)	10.0	10.0		4.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		8.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	9.0	40.0		9.0	40.0		7.0	49.0	49.0	7.0	49.0	49.0
Total Split (%)	8.6%	38.1%		8.6%	38.1%		6.7%	46.7%	46.7%	6.7%	46.7%	46.7%
Maximum Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0			11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0			18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	43.0	35.0		43.0	35.0		50.0	45.0	45.0	50.0	45.0	45.0
Actuated g/C Ratio	0.41	0.33		0.41	0.33		0.48	0.43	0.43	0.48	0.43	0.43
v/c Ratio	0.88	0.92		0.60	0.90		0.48	1.32	0.25	0.81	0.43	0.19
Control Delay	69.3	54.4		33.6	51.6		21.7	177.6	10.1	66.0	22.3	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	54.4		33.6	51.6		21.7	177.6	10.1	66.0	22.3	4.3
LOS	E	D		C	D		C	F	B	E	C	A
Approach Delay		57.3			48.9			154.0			24.9	
Approach LOS		E			D			F			C	
90th %ile Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
90th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
70th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
50th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
30th %ile Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
30th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
10th %ile Green (s)	6.0	35.0		6.0	35.0		4.0	45.0	45.0	4.0	45.0	45.0
10th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
Stops (vph)	72	466		57	439		86	1282	42	40	340	13
Fuel Used(gal)	3	11		2	16		7	133	6	2	9	1
CO Emissions (g/hr)	203	798		171	1123		481	9327	438	146	594	74
NOx Emissions (g/hr)	39	155		33	219		94	1815	85	28	116	14
VOC Emissions (g/hr)	47	185		40	260		112	2162	101	34	138	17
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	56	367		40	342		54	~804	26	31	131	0
Queue Length 95th (ft)	#162	#581		#79	#548		92	#942	68	#98	177	33
Internal Link Dist (ft)		583			1956			5224			1019	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	159	636		169	618		315	1328	597	112	1266	606
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

AM Peak  
 Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.88	0.92		0.60	0.90		0.48	1.32	0.25	0.81	0.43	0.19

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.32
Intersection Signal Delay:	97.7
Intersection LOS:	F
Intersection Capacity Utilization	107.2%
ICU Level of Service	G
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.	

Splits and Phases: 1016: Halsted Street & 103rd Street

























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Min green cannot be greater than Max Green.

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	310	24	115	297	50	45	345	25	25	145	34
Future Volume (vph)	47	310	24	115	297	50	45	345	25	25	145	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		1
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.994				0.993
Satd. Flow (prot)	1520	1600	1360	1520	1600	1360	0	1590	1360	0	1589	1360
Fl <sub>t</sub> Permitted	0.567			0.950				0.946				0.911
Satd. Flow (perm)	907	1600	1360	1520	1600	1360	0	1514	1360	0	1458	1360
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			67			101			101
Link Speed (mph)		30			30			30				30
Link Distance (ft)		559			386			1340				2394
Travel Time (s)		12.7			8.8			30.5				54.4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	51	333	26	124	319	54	48	371	27	27	156	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	333	26	124	319	54	0	419	27	0	183	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		6
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	36.9%	36.9%	36.9%	13.8%	50.8%	50.8%	44.6%	44.6%	44.6%	44.6%	44.6%	44.6%
Maximum Green (s)	20.0	20.0	20.0	6.0	29.0	29.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	6.0	29.0	29.0		24.0	24.0		24.0	24.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	5%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	



Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

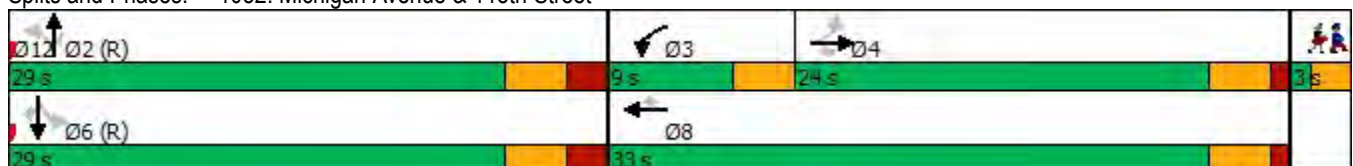
AM Peak  
Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.31	0.31	0.31	0.09	0.45	0.45		0.37	0.37		0.37	0.37
v/c Ratio	0.18	0.68	0.05	0.89	0.45	0.08		0.75	0.05		0.34	0.07
Control Delay	14.1	20.2	0.2	82.9	14.5	5.1		22.3	0.4		15.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	14.1	20.2	0.2	82.9	14.5	5.1		22.3	0.4		15.2	2.3
LOS	B	C	A	F	B	A		C	A		B	A
Approach Delay	18.2			30.5			21.0			13.0		
Approach LOS	B			C			C			B		
Stops (vph)	19	168	0	97	140	10		311	1		111	5
Fuel Used(gal)	0	4	0	3	3	0		28	2		5	1
CO Emissions (g/hr)	31	248	7	221	240	28		1950	110		327	53
NOx Emissions (g/hr)	6	48	1	43	47	6		379	21		64	10
VOC Emissions (g/hr)	7	58	2	51	56	7		452	25		76	12
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	9	58	0	55	58	0		134	0		51	0
Queue Length 95th (ft)	23	102	m0	m#106	m125	m8		#274	m0		80	3
Internal Link Dist (ft)	479			306			1260			2314		
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	279	492	499	140	713	643		559	565		538	565
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
Reduced v/c Ratio	0.18	0.68	0.05	0.89	0.45	0.08		0.75	0.05		0.34	0.07

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 22.1      Intersection LOS: C  
 Intersection Capacity Utilization 70.3%      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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1052: Michigan Avenue & 115th Street



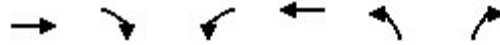
Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM 6th Edition methodology does not support exclusive ped or hold phases.

Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

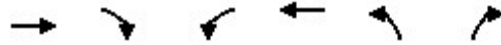
AM Peak  
Build Conditions - Mitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↗		↖	↘					
Traffic Volume (vph)	544	0	30	750	0	0				
Future Volume (vph)	544	0	30	750	0	0				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt										
Flt Protected				0.998						
Satd. Flow (prot)	1600	1714	0	1437	1943	0				
Flt Permitted				0.965						
Satd. Flow (perm)	1600	1714	0	1390	1943	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)										
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%				
Parking (#/hr)				0						
Adj. Flow (vph)	585	0	32	806	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	585	0	0	838	0	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm	Perm	NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag										
							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0						
Actuated g/C Ratio	0.73			0.36						
v/c Ratio	0.50			1.66						

Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

AM Peak  
 Build Conditions - Mitigated

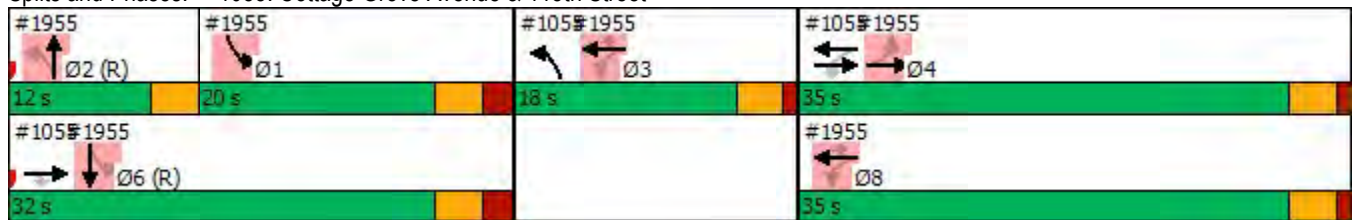


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	3.5			328.2						
Queue Delay	3.0			1.8						
Total Delay	6.5			330.0						
LOS	A			F						
Approach Delay	6.5			330.0						
Approach LOS	A			F						
Stops (vph)	97			574						
Fuel Used(gal)	1			70						
CO Emissions (g/hr)	95			4916						
NOx Emissions (g/hr)	19			956						
VOC Emissions (g/hr)	22			1139						
Dilemma Vehicles (#)	0			0						
Queue Length 50th (ft)	42			~658						
Queue Length 95th (ft)	m67			#878						
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1167			506						
Starvation Cap Reductn	459			0						
Spillback Cap Reductn	0			93						
Storage Cap Reductn	0			0						
Reduced v/c Ratio	0.83			2.03						

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 135  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.66  
 Intersection Signal Delay: 197.0 Intersection LOS: F  
 Intersection Capacity Utilization 70.7% ICU Level of Service C  
 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: 1055: Cottage Grove Avenue & 115th Street



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HCM 6th Edition methodology does not support clustered intersections.

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	392	85	47	192	55	100	933	78	60	442	100
Future Volume (vph)	245	392	85	47	192	55	100	933	78	60	442	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98		0.99	1.00	0.99		0.98	1.00		1.00	0.99	
Frt			0.850		0.967			0.988				0.972
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1550	1556	1347	1596	1725	0	1535	3090	0	1509	2871	0
Flt Permitted	0.445			0.337			0.354			0.120		
Satd. Flow (perm)	711	1556	1327	565	1725	0	559	3090	0	190	2871	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87		16			11			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		946			3955			5338			2655	
Travel Time (s)		21.5			89.9			121.3			60.3	
Confl. Peds. (#/hr)	33		3	3		33	42		8	8		42
Confl. Bikes (#/hr)							1					1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	3%	8%	6%	0%	7%	5%	4%	5%	11%	2%	6%	9%
Adj. Flow (vph)	250	400	87	48	196	56	102	952	80	61	451	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	400	87	48	252	0	102	1032	0	61	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (%)	11.1%	35.6%	35.6%	11.1%	35.6%		11.1%	42.2%		11.1%	42.2%	
Maximum Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.6	32.0	31.0	34.0	27.0		40.8	36.0		40.8	36.0	
Actuated g/C Ratio	0.40	0.36	0.34	0.38	0.30		0.45	0.40		0.45	0.40	
v/c Ratio	0.74	0.72	0.17	0.17	0.48		0.32	0.83		0.35	0.47	
Control Delay	36.6	36.0	6.4	17.2	27.6		15.7	32.1		18.2	20.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.6	36.0	6.4	17.2	27.6		15.7	32.1		18.2	20.9	
LOS	D	D	A	B	C		B	C		B	C	
Approach Delay		32.7			26.0			30.6			20.6	
Approach LOS		C			C			C			C	
90th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	7.0	27.0	27.0	7.0	27.0		7.0	34.0		7.0	34.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
30th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		7.0	34.0		7.0	34.0	
30th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Max	Coord		Max	Coord	
10th %ile Green (s)	7.0	37.0	37.0	0.0	27.0		0.0	44.0		0.0	44.0	
10th %ile Term Code	Max	MaxR	MaxR	Skip	MaxR		Skip	Coord		Skip	Coord	
Stops (vph)	184	322	15	29	184		55	849		31	369	
Fuel Used(gal)	5	8	1	2	10		5	53		2	16	
CO Emissions (g/hr)	325	527	57	124	701		334	3730		114	1088	
NOx Emissions (g/hr)	63	103	11	24	136		65	726		22	212	
VOC Emissions (g/hr)	75	122	13	29	162		78	865		26	252	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	95	209	0	16	109		30	279		18	116	
Queue Length 95th (ft)	#192	#365	33	37	181		59	#402		39	165	
Internal Link Dist (ft)		866			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	337	553	514	282	528		318	1242		174	1169	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	



Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

AM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.74	0.72	0.17	0.17	0.48		0.32	0.83		0.35	0.47	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	28.5
Intersection LOS:	C
Intersection Capacity Utilization	86.7%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1060: Halsted Street & 119th Street



HCM 6th Signalized Intersection Capacity Analysis  
1060: Halsted Street & 119th Street

AM Peak  
Build Conditions - Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	392	85	47	192	55	100	933	78	60	442	100
Future Volume (veh/h)	245	392	85	47	192	55	100	933	78	60	442	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.98		0.97	0.99		0.97	0.98		0.93	0.99		0.93
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1758	1688	1716	1800	1770	1730	1744	1730	1646	1701	1716	1674
Adj Flow Rate, veh/h	250	400	87	48	196	56	102	952	80	61	451	102
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	8	6	0	7	5	4	5	11	2	6	9
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	374	565	456	250	394	112	380	1203	101	217	999	224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.07	0.33	0.32	0.04	0.30	0.30	0.06	0.39	0.39	0.05	0.38	0.38
Unsig. Movement Delay												
Ln Grp Delay, s/veh	31.5	33.5	22.9	22.6	0.0	29.1	16.5	30.3	30.2	19.8	22.8	23.0
Ln Grp LOS	C	C	C	C	A	C	B	C	C	B	C	C
Approach Vol, veh/h		737			300			1134			614	
Approach Delay, s/veh		31.5			28.1			29.0			22.6	
Approach LOS		C			C			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0			
Phs Duration (G+Y+Rc), s		8.5	39.5	7.9	34.1	9.5	38.5	10.0	32.0			
Change Period (Y+Rc), s		3.0	4.0	3.0	5.0	3.0	4.0	3.0	5.0			
Max Green (Gmax), s		7.0	34.0	7.0	27.0	7.0	34.0	7.0	27.0			
Max Allow Headway (MAH), s		4.4	4.3	4.4	4.4	4.4	4.4	4.4	4.4			
Max Q Clear (g_c+I1), s		4.0	26.8	3.7	20.6	5.3	13.8	8.0	13.1			
Green Ext Time (g_e), s		0.0	2.9	0.0	1.2	0.0	2.3	0.0	0.8			
Prob of Phs Call (p_c)		0.78	1.00	0.70	1.00	0.92	1.00	1.00	1.00			
Prob of Max Out (p_x)		1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1620		1714		1661		1674				
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3047		1688		2603		1312			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			256		1410		582		375			
<b>Left Lane Group Data</b>												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis  
1060: Halsted Street & 119th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	61	0	48	0	102	0	250	0
Grp Sat Flow (s), veh/h/ln	1620	0	1714	0	1661	0	1674	0
Q Serve Time (g_s), s	2.0	0.0	1.7	0.0	3.3	0.0	6.0	0.0
Cycle Q Clear Time (g_c), s	2.0	0.0	1.7	0.0	3.3	0.0	6.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	520	0	912	0	823	0	1098	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	33.5	0.0	26.0	0.0	33.5	0.0	26.1	0.0
Perm LT Serve Time (g_u), s	9.8	0.0	9.5	0.0	21.8	0.0	14.9	0.0
Perm LT Q Serve Time (g_ps), s	3.2	0.0	0.9	0.0	1.7	0.0	10.3	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	217	0	250	0	380	0	374	0
V/C Ratio (X)	0.28	0.00	0.19	0.00	0.27	0.00	0.67	0.00
Avail Cap (c_a), veh/h	244	0	291	0	390	0	374	0
Upstream Filter (I)	0.93	0.00	0.92	0.00	0.64	0.00	1.00	0.00
Uniform Delay (d1), s/veh	19.2	0.0	22.2	0.0	16.3	0.0	27.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.3	0.0	0.2	0.0	4.5	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.8	0.0	22.6	0.0	16.5	0.0	31.5	0.0
1st-Term Q (Q1), veh/ln	0.7	0.0	0.7	0.0	1.2	0.0	2.2	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.80	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	1.4	0.0	1.3	0.0	2.2	0.0	4.8	0.0
%ile Storage Ratio (RQ%)	0.31	0.00	0.53	0.00	0.48	0.00	0.88	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	513	0	400	0	281	0	0
Grp Sat Flow (s), veh/h/ln	0	1643	0	1688	0	1630	0	0
Q Serve Time (g_s), s	0.0	24.8	0.0	18.6	0.0	11.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	24.8	0.0	18.6	0.0	11.5	0.0	0.0
Lane Grp Cap (c), veh/h	0	649	0	565	0	626	0	0
V/C Ratio (X)	0.00	0.79	0.00	0.71	0.00	0.45	0.00	0.00
Avail Cap (c_a), veh/h	0	649	0	565	0	626	0	0
Upstream Filter (I)	0.00	0.64	0.00	1.00	0.00	0.93	0.00	0.00
Uniform Delay (d1), s/veh	0.0	24.0	0.0	26.1	0.0	20.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	6.3	0.0	7.3	0.0	2.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.3	0.0	33.5	0.0	22.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	9.1	0.0	7.2	0.0	4.2	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	1.2	0.0	0.4	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis  
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AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.41	0.00	1.57	0.00	1.74	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	14.5	0.0	13.1	0.0	8.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.39	0.00	0.08	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	519	0	87	0	272	0	252
Grp Sat Flow (s), veh/h/ln	0	1660	0	1410	0	1556	0	1687
Q Serve Time (g_s), s	0.0	24.8	0.0	4.0	0.0	11.8	0.0	11.1
Cycle Q Clear Time (g_c), s	0.0	24.8	0.0	4.0	0.0	11.8	0.0	11.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.15	0.00	1.00	0.00	0.37	0.00	0.22
Lane Grp Cap (c), veh/h	0	655	0	456	0	597	0	506
V/C Ratio (X)	0.00	0.79	0.00	0.19	0.00	0.46	0.00	0.50
Avail Cap (c_a), veh/h	0	655	0	456	0	597	0	506
Upstream Filter (I)	0.00	0.64	0.00	1.00	0.00	0.93	0.00	0.92
Uniform Delay (d1), s/veh	0.0	24.0	0.0	22.0	0.0	20.7	0.0	25.9
Incr Delay (d2), s/veh	0.0	6.3	0.0	0.9	0.0	2.3	0.0	3.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.2	0.0	22.9	0.0	23.0	0.0	29.1
1st-Term Q (Q1), veh/ln	0.0	9.2	0.0	1.3	0.0	4.1	0.0	4.3
2nd-Term Q (Q2), veh/ln	0.0	1.1	0.0	0.1	0.0	0.4	0.0	0.4
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.41	0.00	1.80	0.00	1.74	0.00	1.72
%ile Back of Q (95%), veh/ln	0.0	14.6	0.0	2.5	0.0	7.9	0.0	8.2
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	0.07	0.00	0.08	0.00	0.06
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Lanes, Volumes, Timings  
1062: State Street & 119th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	210	215	25	10	180	10	45	264	25	10	66	66
Future Volume (vph)	210	215	25	10	180	10	45	264	25	10	66	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		0.99	0.95		1.00	0.96		1.00	0.96		0.99	
Frt			0.850			0.850			0.850		0.937	
Flt Protected		0.976			0.997			0.993			0.997	
Satd. Flow (prot)	0	1568	1360	0	1494	1428	0	1640	1347	0	1815	0
Flt Permitted		0.740			0.976			0.941			0.975	
Satd. Flow (perm)	0	1181	1295	0	1462	1373	0	1553	1294	0	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			29			29			29			69
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	11		17	17		11	4		17	17		4
Confl. Bikes (#/hr)	1		1	1		1	1					1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	9%	5%	33%	11%	0%	6%	1%	6%	0%	0%	8%
Adj. Flow (vph)	219	224	26	10	188	10	47	275	26	10	69	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	26	0	198	10	0	322	26	0	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	50.7%	50.7%	50.7%	50.7%	50.7%	50.7%	49.3%	49.3%	49.3%	49.3%	49.3%	49.3%
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0	33.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	

Lanes, Volumes, Timings  
1062: State Street & 119th Street

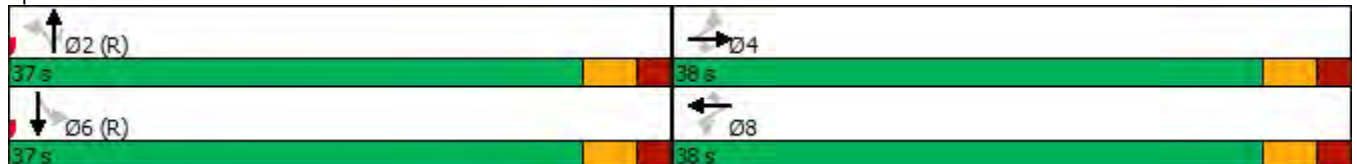
AM Peak  
Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		33.0	33.0		33.0	33.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.44	0.44		0.44	0.44		0.43	0.43		0.43	
v/c Ratio		0.85	0.04		0.31	0.02		0.49	0.05		0.19	
Control Delay		37.4	4.8		15.3	1.6		18.7	5.1		8.2	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		37.4	4.8		15.3	1.6		18.7	5.1		8.2	
LOS		D	A		B	A		B	A		A	
Approach Delay		35.6			14.6			17.7			8.2	
Approach LOS		D			B			B			A	
Stops (vph)		346	7		118	1		215	7		48	
Fuel Used(gal)		10	0		2	0		15	1		3	
CO Emissions (g/hr)		668	23		136	3		1067	77		242	
NOx Emissions (g/hr)		130	4		27	1		208	15		47	
VOC Emissions (g/hr)		155	5		32	1		247	18		56	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		177	0		57	0		105	0		21	
Queue Length 95th (ft)		#351	12		103	3		175	13		54	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		519	586		643	620		662	568		796	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.85	0.04		0.31	0.02		0.49	0.05		0.19	

Intersection Summary





















Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 23.1      Intersection LOS: C  
 Intersection Capacity Utilization 90.0%      ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1062: State Street & 119th Street



HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

AM Peak  
Build Conditions - Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	215	25	10	180	10	45	264	25	10	66	66
Future Volume (veh/h)	210	215	25	10	180	10	45	264	25	10	66	66
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.96	1.00		0.96	0.98		0.96	0.99		0.96
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1800	1674	1730	1337	1646	1800	1716	1786	1716	1800	1872	1688
Adj Flow Rate, veh/h	219	224	26	10	188	10	47	275	26	10	69	69
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	9	5	33	11	0	6	1	6	0	0	8
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	72	9	619	50	474	645	124	662	595	71	359	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43	0.43
Unsig. Movement Delay												
Ln Grp Delay, s/veh	2078.8	0.0	12.1	16.3	0.0	11.9	16.6	0.0	12.7	14.1	0.0	0.0
Ln Grp LOS	F	A	B	B	A	B	B	A	B	B	A	A
Approach Vol, veh/h		469			208			348			148	
Approach Delay, s/veh		1964.3			16.1			16.3			14.1	
Approach LOS		F			B			B			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			7.0		7.0		8.0		7.0			
Phs Duration (G+Y+Rc), s			37.0		38.0		37.0		38.0			
Change Period (Y+Rc), s			5.0		5.0		5.0		5.0			
Max Green (Gmax), s			32.0		33.0		32.0		33.0			
Max Allow Headway (MAH), s			4.4		4.6		4.5		4.4			
Max Q Clear (g_c+I1), s			11.5		35.0		6.1		35.0			
Green Ext Time (g_e), s			1.4		0.0		0.6		0.0			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			163		0		46		0			
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			1552		21		842		1078			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1395		1408		776		1465			
<b>Left Lane Group Data</b>												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment			L+T		L+T		L+T+R		L+T			

HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	322	0	443	0	148	0	198
Grp Sat Flow (s), veh/h/ln	0	1715	0	21	0	1663	0	1078
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	9.5	0.0	33.0	0.0	4.1	0.0	33.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1251	0	1203	0	1083	0	1148
Shared LT Sat Flow (s_sh), veh/h/ln	0	1769	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	32.0	0.0	33.0	0.0	32.0	0.0	33.0
Perm LT Serve Time (g_u), s	0.0	27.9	0.0	0.0	0.0	22.5	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	10.8	0.0	0.4	0.0	18.6	0.0	21.6
Serve Time pre Blk (g_fs), s	0.0	9.5	0.0	0.4	0.0	4.1	0.0	5.7
Prop LT Inside Lane (P_L)	0.00	0.15	0.00	0.49	0.00	0.07	0.00	0.05
Lane Grp Cap (c), veh/h	0	787	0	81	0	761	0	525
V/C Ratio (X)	0.00	0.41	0.00	5.48	0.00	0.19	0.00	0.38
Avail Cap (c_a), veh/h	0	787	0	81	0	761	0	525
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	15.0	0.0	33.8	0.0	13.5	0.0	14.2
Incr Delay (d2), s/veh	0.0	1.6	0.0	2045.0	0.0	0.6	0.0	2.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.6	0.0	2078.8	0.0	14.1	0.0	16.3
1st-Term Q (Q1), veh/ln	0.0	3.6	0.0	1.4	0.0	1.5	0.0	2.0
2nd-Term Q (Q2), veh/ln	0.0	0.3	0.0	45.9	0.0	0.1	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.75	0.00	1.80	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	7.0	0.0	83.0	0.0	2.9	0.0	4.1
%ile Storage Ratio (RQ%)	0.00	0.07	0.00	1.75	0.00	0.03	0.00	0.25
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	90.6	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
<b>Lane Assignment</b>								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data



















Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R				R
Lanes in Grp	0	1	0	1	0	0	0	1
Grp Vol (v), veh/h	0	26	0	26	0	0	0	10
Grp Sat Flow (s), veh/h/ln	0	1395	0	1408	0	0	0	1465
Q Serve Time (g_s), s	0.0	0.8	0.0	0.8	0.0	0.0	0.0	0.3
Cycle Q Clear Time (g_c), s	0.0	0.8	0.0	0.8	0.0	0.0	0.0	0.3
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.47	0.00	1.00
Lane Grp Cap (c), veh/h	0	595	0	619	0	0	0	645
V/C Ratio (X)	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.02
Avail Cap (c_a), veh/h	0	595	0	619	0	0	0	645
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.6	0.0	12.0	0.0	0.0	0.0	11.8
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.7	0.0	12.1	0.0	0.0	0.0	11.9
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.17	0.00	0.17	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	794.8
HCM 6th LOS	F

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1004	270	302	1277	0	0	0	0	349	250	465
Future Volume (vph)	0	1004	270	302	1277	0	0	0	0	349	250	465
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		1.00		1.00							0.99	0.99
Frt		0.968									0.940	0.850
Flt Protected				0.950						0.950	0.993	
Satd. Flow (prot)	0	4305	0	1644	3226	0	0	0	0	1468	2714	1375
Flt Permitted				0.125						0.950	0.993	
Satd. Flow (perm)	0	4305	0	216	3226	0	0	0	0	1468	2714	1356
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76									70	78
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			474			954	
Travel Time (s)		30.9			7.3			10.8			21.7	
Confl. Peds. (#/hr)	6		4	4		6	2					2
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	11%	7%	4%	6%	0%	0%	0%	0%	6%	4%	8%
Adj. Flow (vph)	0	1024	276	308	1303	0	0	0	0	356	255	474
Shared Lane Traffic (%)										21%		47%
Lane Group Flow (vph)	0	1300	0	308	1303	0	0	0	0	281	553	251
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4
Detector Phase		2		1	6					4	4	4

Lanes, Volumes, Timings  
1064: S Paulina ST & 127th Street

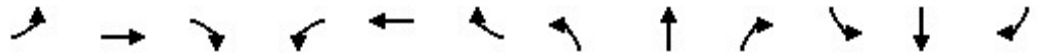
AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		46.0		24.0	70.0					35.0	35.0	35.0
Total Split (s)		47.0		26.0	73.0					32.0	32.0	32.0
Total Split (%)		44.8%		24.8%	69.5%					30.5%	30.5%	30.5%
Maximum Green (s)		41.0		21.5	67.0					26.0	26.0	26.0
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										2.0	2.0	2.0
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		46.9		70.5	69.0					24.0	24.0	24.0
Actuated g/C Ratio		0.45		0.67	0.66					0.23	0.23	0.23
v/c Ratio		0.66		0.80	0.62					0.84	0.82	0.68
Control Delay		24.7		29.0	19.5					60.4	44.1	34.7
Queue Delay		0.0		4.1	49.7					0.0	0.0	0.0
Total Delay		24.7		33.1	69.2					60.4	44.1	34.7
LOS		C		C	E					E	D	C
Approach Delay		24.7			62.3						46.1	
Approach LOS		C			E						D	
90th %ile Green (s)		41.0		21.5	67.0					26.0	26.0	26.0
90th %ile Term Code		Coord		Max	Coord					Max	Max	Max
70th %ile Green (s)		41.0		21.5	67.0					26.0	26.0	26.0
70th %ile Term Code		Coord		Max	Coord					Max	Max	Max
50th %ile Green (s)		42.9		19.6	67.0					26.0	26.0	26.0
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		49.0		15.6	69.1					23.9	23.9	23.9
30th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
10th %ile Green (s)		60.4		9.8	74.7					18.3	18.3	18.3
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		936		245	921					248	444	157
Fuel Used(gal)		25		4	13					7	11	4
CO Emissions (g/hr)		1753		272	934					475	793	310
NOx Emissions (g/hr)		341		53	182					92	154	60
VOC Emissions (g/hr)		406		63	216					110	184	72
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		248		166	373					193	176	114
Queue Length 95th (ft)		314		m179	m408					#334	248	213
Internal Link Dist (ft)		1279			242			394			874	
Turn Bay Length (ft)				216						360		360

Lanes, Volumes, Timings  
 1064: S Paulina ST & 127th Street

AM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1963		437	2118					363	724	394
Starvation Cap Reductn		0		70	1082					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		0.66		0.84	1.26					0.77	0.76	0.64

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 89 (85%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 45.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 115.3%  
 ICU Level of Service H  
 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: 1064: S Paulina ST & 127th Street



HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.













Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 				
Traffic Volume (vph)	380	973	0	0	1039	297	540	355	384	0	0	0
Future Volume (vph)	380	973	0	0	1039	297	540	355	384	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Fr <sub>t</sub>					0.967			0.922				
Fl <sub>t</sub> Protected	0.950						0.950					
Satd. Flow (prot)	3016	3138	0	0	4486	0	1644	3031	0	0	0	0
Fl <sub>t</sub> Permitted	0.950						0.950					
Satd. Flow (perm)	3013	3138	0	0	4486	0	1644	3031	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					72							
Link Speed (mph)		30			30			30				30
Link Distance (ft)		322			336			554				548
Travel Time (s)		7.3			7.6			12.6				12.5
Confl. Peds. (#/hr)	4						4					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	9%	0%	0%	6%	4%	4%	3%	5%	0%	0%	0%
Adj. Flow (vph)	400	1024	0	0	1094	313	568	374	404	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1024	0	0	1407	0	568	778	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				
Switch Phase												

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	27.5	70.5			43.0		34.5	34.5				
Total Split (s)	27.0	66.0			39.0		39.0	39.0				
Total Split (%)	25.7%	62.9%			37.1%		37.1%	37.1%				
Maximum Green (s)	21.0	60.0			33.0		33.0	33.0				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	18.7	60.0			35.3		33.0	33.0				
Actuated g/C Ratio	0.18	0.57			0.34		0.31	0.31				
v/c Ratio	0.75	0.57			0.90		1.10	0.88dr				
Control Delay	54.0	11.8			40.1		105.3	41.5				
Queue Delay	0.0	0.7			6.8		7.2	0.0				
Total Delay	54.0	12.5			46.9		112.5	41.5				
LOS	D	B			D		F	D				
Approach Delay		24.1			46.9			71.5				
Approach LOS		C			D			E				
90th %ile Green (s)	21.0	60.0			33.0		33.0	33.0				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	21.0	60.0			33.0		33.0	33.0				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	19.5	60.0			34.5		33.0	33.0				
50th %ile Term Code	Gap	Coord			Coord		Max	Max				
30th %ile Green (s)	17.4	60.0			36.6		33.0	33.0				
30th %ile Term Code	Gap	Coord			Coord		Max	Max				
10th %ile Green (s)	14.4	60.0			39.6		33.0	33.0				
10th %ile Term Code	Gap	Coord			Coord		Max	Max				
Stops (vph)	311	361			869		451	658				
Fuel Used(gal)	7	7			19		16	13				
CO Emissions (g/hr)	479	474			1344		1146	914				
NOx Emissions (g/hr)	93	92			261		223	178				
VOC Emissions (g/hr)	111	110			311		266	212				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	114	102			230		~435	252				
Queue Length 95th (ft)	m162	121			m#397		#645	329				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											
Base Capacity (vph)	603	1793			1557		516	952				

Lanes, Volumes, Timings  
 1065: Marshfield Ave & 127th Street

AM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	396			127		0	0				
Spillback Cap Reductn	0	65			31		257	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.66	0.73			0.98		2.19	0.82				

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 7 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 47.1  
 Intersection LOS: D  
 Intersection Capacity Utilization 115.3%  
 ICU Level of Service H  
 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.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

























Splits and Phases: 1065: Marshfield Ave & 127th Street





HCM 6th Signalized Intersection Capacity Analysis  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Conditions - Mitigated

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			  		 	 					
Traffic Volume (veh/h)	380	973	0	0	1039	297	540	355	384	0	0	0	
Future Volume (veh/h)	380	973	0	0	1039	297	540	355	384	0	0	0	
Number	5	2	12	1	6	16	3	8	18				
Initial Q, veh	0	0	0	0	0	0	0	0	0				
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00				
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach		No			No			No					
Lanes Open During Work Zone													
Adj Sat Flow, veh/h/ln	1660	1674	0	0	1716	1744	1744	1758	1730				
Adj Flow Rate, veh/h	400	1024	0	0	1094	313	568	374	404				
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95				
Percent Heavy Veh, %	10	9	0	0	6	4	4	3	5				
Opposing Right Turn Influence	Yes			No			Yes						
Cap, veh/h	476	1817	0	0	1298	371	522	525	468				
HCM Platoon Ratio	1.33	1.33	1.00	1.00	2.00	2.00	1.00	1.00	1.00				
Prop Arrive On Green	0.21	0.76	0.00	0.00	0.72	0.72	0.31	0.31	0.31				
Unsig. Movement Delay													
Ln Grp Delay, s/veh	46.3	7.9	0.0	0.0	15.7	18.7	101.5	37.4	50.2				
Ln Grp LOS	D	A	A	A	B	B	F	D	D				
Approach Vol, veh/h		1424			1407			1346					
Approach Delay, s/veh		18.7			16.7			68.3					
Approach LOS		B			B			E					
Timer:		1	2	3	4	5	6	7	8				
Assigned Phs			2	8		5	6						
Case No			4.0	10.0		2.0	8.0						
Phs Duration (G+Y+Rc), s			66.0	39.0		22.3	43.7						
Change Period (Y+Rc), s			6.0	6.0		6.0	6.0						
Max Green (Gmax), s			60.0	33.0		21.0	33.0						
Max Allow Headway (MAH), s			8.3	6.4		4.9	8.4						
Max Q Clear (g_c+I1), s			16.2	35.0		15.2	24.7						
Green Ext Time (g_e), s			23.4	0.0		1.1	7.5						
Prob of Phs Call (p_c)			1.00	1.00		1.00	1.00						
Prob of Max Out (p_x)			0.00	1.00		0.71	0.00						
Left-Turn Movement Data													
Assigned Mvmt				3		5	1						
Mvmt Sat Flow, veh/h				1661		3066	0						
Through Movement Data													
Assigned Mvmt			2	8			6						
Mvmt Sat Flow, veh/h			3264	1670			3769						
Right-Turn Movement Data													
Assigned Mvmt			12	18			16						
Mvmt Sat Flow, veh/h			0	1490			1034						
Left Lane Group Data													
Assigned Mvmt	0	0	3	0	5	1	0	0					
Lane Assignment			L		L (Prot)								

HCM 6th Signalized Intersection Capacity Analysis  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	0	1	0	2	0	0	0
Grp Vol (v), veh/h	0	0	568	0	400	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1661	0	1533	0	0	0
Q Serve Time (g_s), s	0.0	0.0	33.0	0.0	13.2	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	33.0	0.0	13.2	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1661	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	37.7	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	522	0	476	0	0	0
V/C Ratio (X)	0.00	0.00	1.09	0.00	0.84	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	522	0	613	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.66	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	36.0	0.0	40.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	65.5	0.0	5.9	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	101.5	0.0	46.3	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	13.0	0.0	4.7	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	9.5	0.0	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.42	0.00	1.59	1.00	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	32.0	0.0	8.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	1.68	0.00	0.79	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T	T			T		
Lanes in Grp	0	2	1	0	0	2	0	0
Grp Vol (v), veh/h	0	1024	374	0	0	945	0	0
Grp Sat Flow (s), veh/h/ln	0	1590	1670	0	0	1561	0	0
Q Serve Time (g_s), s	0.0	14.2	20.8	0.0	0.0	22.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.2	20.8	0.0	0.0	22.7	0.0	0.0
Lane Grp Cap (c), veh/h	0	1817	525	0	0	1121	0	0
V/C Ratio (X)	0.00	0.56	0.71	0.00	0.00	0.84	0.00	0.00
Avail Cap (c_a), veh/h	0	1817	525	0	0	1121	0	0
Upstream Filter (I)	0.00	0.66	1.00	0.00	0.00	0.37	0.00	0.00
Uniform Delay (d1), s/veh	0.0	7.1	31.8	0.0	0.0	12.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	5.6	0.0	0.0	3.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.9	37.4	0.0	0.0	15.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.4	8.2	0.0	0.0	3.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.8	0.0	0.0	0.5	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis  
1065: Marshfield Ave & 127th Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.70	1.54	0.00	0.00	1.48	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	6.1	14.0	0.0	0.0	6.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.60	0.73	0.00	0.00	0.74	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment			T+R			T+R		
Lanes in Grp	0	0	1	0	0	1	0	0
Grp Vol (v), veh/h	0	0	404	0	0	462	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1490	0	0	1526	0	0
Q Serve Time (g_s), s	0.0	0.0	26.8	0.0	0.0	22.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	26.8	0.0	0.0	22.7	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	1.00	0.00	0.00	0.68	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	468	0	0	548	0	0
V/C Ratio (X)	0.00	0.00	0.86	0.00	0.00	0.84	0.00	0.00
Avail Cap (c_a), veh/h	0	0	468	0	0	548	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.00	0.37	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	33.9	0.0	0.0	12.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	16.3	0.0	0.0	6.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	50.2	0.0	0.0	18.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	9.5	0.0	0.0	3.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	2.1	0.0	0.0	0.9	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.48	0.00	0.00	1.46	0.00	0.00
%ile Back of Q (95%), veh/ln	0.0	0.0	17.2	0.0	0.0	6.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.89	0.00	0.00	0.79	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	567	260	90	876	52	285	225	50	54	140	115
Future Volume (vph)	120	567	260	90	876	52	285	225	50	54	140	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	1.00		0.99	1.00		1.00	0.99	
Frt			0.850		0.992			0.973			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3167	1311	1605	3232	0	1451	3226	0	1550	2789	0
Flt Permitted	0.103			0.407			0.421			0.573		
Satd. Flow (perm)	170	3167	1282	685	3232	0	639	3226	0	931	2789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277		6			26			122	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		336			5379			1555			925	
Travel Time (s)		7.6			122.3			35.3			21.0	
Confl. Peds. (#/hr)	3		12	12		3	9		6	6		9
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 (%)	2%	8%	5%	3%	5%	3%	10%	3%	2%	3%	7%	4%
Parking (#/hr)			0									
Adj. Flow (vph)	128	603	277	96	932	55	303	239	53	57	149	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	603	277	96	987	0	303	292	0	57	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	13.5	42.0	12.5	12.5	41.0		12.5	38.0		12.5	38.0	
Total Split (s)	13.5	42.0	26.0	12.5	41.0		26.0	38.0		12.5	24.5	
Total Split (%)	12.9%	40.0%	24.8%	11.9%	39.0%		24.8%	36.2%		11.9%	23.3%	
Maximum Green (s)	9.0	36.0	21.5	8.0	35.0		21.5	32.0		8.0	18.5	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	52.5	42.3	63.5	44.3	35.0		42.0	30.7		25.0	16.2	
Actuated g/C Ratio	0.50	0.40	0.60	0.42	0.33		0.40	0.29		0.24	0.15	
v/c Ratio	0.50	0.47	0.31	0.27	0.91		0.74	0.30		0.22	0.51	
Control Delay	22.8	26.7	4.5	16.7	47.1		30.1	22.8		22.0	25.3	
Queue Delay	0.0	0.5	0.1	0.0	9.8		0.7	0.0		0.0	0.2	
Total Delay	22.8	27.2	4.6	16.7	56.9		30.8	22.8		22.0	25.5	
LOS	C	C	A	B	E		C	C		C	C	
Approach Delay		20.4			53.4			26.9			24.9	
Approach LOS		C			D			C			C	
90th %ile Green (s)	9.0	36.0	21.5	8.0	35.0		21.5	32.0		8.0	18.5	
90th %ile Term Code	MaxR	Coord	Max	Max	Coord		Max	Hold		Max	Max	
70th %ile Green (s)	9.8	36.0	21.5	8.8	35.0		21.5	31.2		8.0	17.7	
70th %ile Term Code	MaxR	Coord	Max	Max	Coord		Max	Hold		Max	Gap	
50th %ile Green (s)	12.5	38.8	21.5	8.7	35.0		21.5	28.7		7.8	15.0	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Min	
30th %ile Green (s)	14.8	42.2	19.2	7.6	35.0		19.2	27.3		6.9	15.0	
30th %ile Term Code	MaxR	Coord	Gap	Gap	Coord		Gap	Hold		Gap	Min	
10th %ile Green (s)	19.1	58.6	14.9	0.0	35.0		14.9	34.4		0.0	15.0	
10th %ile Term Code	MaxR	Coord	Gap	Skip	Coord		Gap	Hold		Skip	Min	
Stops (vph)	75	503	93	50	826		229	221		40	126	
Fuel Used(gal)	1	7	1	4	52		6	6		1	4	
CO Emissions (g/hr)	90	513	100	304	3661		452	407		60	269	
NOx Emissions (g/hr)	17	100	19	59	712		88	79		12	52	
VOC Emissions (g/hr)	21	119	23	71	849		105	94		14	62	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	44	208	36	32	330		169	83		23	48	
Queue Length 95th (ft)	m#88	m268	m66	65	#457		251	122		47	87	
Internal Link Dist (ft)		256			5299			1475			845	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	258	1276	907	365	1081		421	1016		275	591	
Starvation Cap Reductn	0	306	118	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	89		17	0		0	38	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.50	0.62	0.35	0.26	0.99		0.75	0.29		0.21	0.49	

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	16 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	34.0
Intersection LOS:	C
Intersection Capacity Utilization	86.3%
ICU Level of Service	E
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: 1066: S Ashland & 127th Street



HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	567	260	90	876	52	285	225	50	54	140	115
Future Volume (veh/h)	120	567	260	90	876	52	285	225	50	54	140	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.98
Parking Bus Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1772	1688	1730	1758	1730	1758	1660	1758	1843	1758	1702	1744
Adj Flow Rate, veh/h	128	603	277	96	932	55	303	239	53	57	149	122
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	8	5	3	5	3	10	3	2	3	7	4
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	288	1356	785	388	1222	72	413	784	170	294	262	198
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Prop Arrive On Green	0.17	0.85	0.85	0.05	0.39	0.39	0.06	0.09	0.09	0.04	0.15	0.15
Unsig. Movement Delay												
Ln Grp Delay, s/veh	21.9	5.9	3.5	17.9	35.6	35.4	37.5	39.1	39.3	36.0	50.6	54.2
Ln Grp LOS	C	A	A	B	D	D	D	D	D	D	D	D
Approach Vol, veh/h		1008			1083			595			328	
Approach Delay, s/veh		7.3			33.9			38.3			49.5	
Approach LOS		A			C			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	3.0	1.1	4.0	1.1	4.0	1.1	4.0			
Phs Duration (G+Y+Rc), s		9.8	50.4	23.0	21.8	13.5	46.7	8.6	36.2			
Change Period (Y+Rc), s		4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0			
Max Green (Gmax), s		8.0	36.0	21.5	18.5	9.0	35.0	8.0	32.0			
Max Allow Headway (MAH), s		4.4	8.4	4.4	8.5	4.4	8.3	4.4	8.4			
Max Q Clear (g_c+I1), s		5.6	6.9	18.1	11.1	6.4	29.0	5.0	10.8			
Green Ext Time (g_e), s		0.1	15.2	0.4	1.8	0.1	4.7	0.0	3.8			
Prob of Phs Call (p_c)		0.94	1.00	1.00	1.00	1.00	1.00	0.81	1.00			
Prob of Max Out (p_x)		1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.10			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1674		1581		1688		1674				
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3207		1738		3152		2723			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1308		1316		186		592			
<b>Left Lane Group Data</b>												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	96	0	303	0	128	0	57	0
Grp Sat Flow (s), veh/h/ln	1674	0	1581	0	1688	0	1674	0
Q Serve Time (g_s), s	3.6	0.0	16.1	0.0	4.4	0.0	3.0	0.0
Cycle Q Clear Time (g_c), s	3.6	0.0	16.1	0.0	4.4	0.0	3.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	624	0	1030	0	570	0	1066	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	40.7	0.0	17.8	0.0	41.9	0.0	15.8	0.0
Perm LT Serve Time (g_u), s	39.5	0.0	6.7	0.0	13.7	0.0	15.8	0.0
Perm LT Q Serve Time (g_ps), s	0.2	0.0	5.6	0.0	7.2	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	388	0	413	0	288	0	294	0
V/C Ratio (X)	0.25	0.00	0.73	0.00	0.45	0.00	0.19	0.00
Avail Cap (c_a), veh/h	431	0	458	0	288	0	357	0
Upstream Filter (I)	0.90	0.00	0.88	0.00	0.80	0.00	1.00	0.00
Uniform Delay (d1), s/veh	17.6	0.0	32.7	0.0	18.0	0.0	35.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.8	0.0	4.0	0.0	0.3	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	17.9	0.0	37.5	0.0	21.9	0.0	36.0	0.0
1st-Term Q (Q1), veh/ln	1.4	0.0	6.7	0.0	1.5	0.0	1.2	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.5	0.0	0.3	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	1.57	0.00	1.80	0.00	1.80	0.00
%ile Back of Q (95%), veh/ln	2.5	0.0	11.4	0.0	3.3	0.0	2.2	0.0
%ile Storage Ratio (RQ%)	0.76	0.00	1.29	0.00	0.69	0.00	0.48	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	603	0	138	0	486	0	145
Grp Sat Flow (s), veh/h/ln	0	1603	0	1617	0	1643	0	1670
Q Serve Time (g_s), s	0.0	4.9	0.0	8.3	0.0	27.0	0.0	8.5
Cycle Q Clear Time (g_c), s	0.0	4.9	0.0	8.3	0.0	27.0	0.0	8.5
Lane Grp Cap (c), veh/h	0	1356	0	244	0	637	0	481
V/C Ratio (X)	0.00	0.44	0.00	0.57	0.00	0.76	0.00	0.30
Avail Cap (c_a), veh/h	0	1356	0	285	0	637	0	509
Upstream Filter (I)	0.00	0.80	0.00	1.00	0.00	0.90	0.00	0.88
Uniform Delay (d1), s/veh	0.0	5.1	0.0	41.4	0.0	28.0	0.0	37.7
Incr Delay (d2), s/veh	0.0	0.8	0.0	9.2	0.0	7.6	0.0	1.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.9	0.0	50.6	0.0	35.6	0.0	39.1
1st-Term Q (Q1), veh/ln	0.0	1.2	0.0	3.3	0.0	10.3	0.0	3.7
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.6	0.0	1.4	0.0	0.2



HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.46	0.00	1.78
%ile Back of Q (95%), veh/ln	0.0	2.4	0.0	7.0	0.0	17.0	0.0	6.9
%ile Storage Ratio (RQ%)	0.00	0.29	0.00	0.21	0.00	0.08	0.00	0.12
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		T+R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	277	0	133	0	501	0	147
Grp Sat Flow (s), veh/h/ln	0	1308	0	1437	0	1694	0	1645
Q Serve Time (g_s), s	0.0	4.1	0.0	9.1	0.0	27.0	0.0	8.8
Cycle Q Clear Time (g_c), s	0.0	4.1	0.0	9.1	0.0	27.0	0.0	8.8
Prot RT Sat Flow (s_R), veh/h/ln	0.0	1319.3	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.92	0.00	0.11	0.00	0.36
Lane Grp Cap (c), veh/h	0	785	0	216	0	657	0	473
V/C Ratio (X)	0.00	0.35	0.00	0.62	0.00	0.76	0.00	0.31
Avail Cap (c_a), veh/h	0	785	0	253	0	657	0	501
Upstream Filter (I)	0.00	0.80	0.00	1.00	0.00	0.90	0.00	0.88
Uniform Delay (d1), s/veh	0.0	2.5	0.0	41.7	0.0	28.0	0.0	37.8
Incr Delay (d2), s/veh	0.0	1.0	0.0	12.4	0.0	7.4	0.0	1.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	3.5	0.0	54.2	0.0	35.4	0.0	39.3
1st-Term Q (Q1), veh/ln	0.0	0.7	0.0	3.2	0.0	10.7	0.0	3.8
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.7	0.0	1.4	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	1.45	0.00	1.77
%ile Back of Q (95%), veh/ln	0.0	1.6	0.0	7.1	0.0	17.4	0.0	7.0
%ile Storage Ratio (RQ%)	0.00	0.19	0.00	0.22	0.00	0.09	0.00	0.13
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (vph)	190	559	90	10	490	126	70	620	10	84	320	100
Future Volume (vph)	190	559	90	10	490	126	70	620	10	84	320	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		0.99	1.00		0.99	0.99	
Frt		0.984			0.970			0.998			0.964	
Flt Protected		0.989			0.999		0.950			0.950		
Satd. Flow (prot)	0	3011	0	0	2991	0	1545	3288	0	1559	2994	0
Flt Permitted		0.641			0.937		0.372			0.273		
Satd. Flow (perm)	0	1950	0	0	2805	0	602	3288	0	446	2994	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			43			2			45	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	9		11	11		9	11		14	14		11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	6%	18%	50%	6%	6%	7%	3%	50%	6%	7%	2%
Adj. Flow (vph)	204	601	97	11	527	135	75	667	11	90	344	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	902	0	0	673	0	75	678	0	90	452	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		5	2		1	6	

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	6.5	37.0		21.0	21.0		6.5	31.0		6.5	21.0	
Total Split (s)	6.5	51.0		44.5	44.5		10.0	32.0		7.0	29.0	
Total Split (%)	7.2%	56.7%		49.4%	49.4%		11.1%	35.6%		7.8%	32.2%	
Maximum Green (s)	3.0	45.0		38.5	38.5		6.5	26.0		3.5	23.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		11						14				
Act Effct Green (s)		43.6			43.6		32.5	25.0		27.9	22.7	
Actuated g/C Ratio		0.51			0.51		0.38	0.29		0.32	0.26	
v/c Ratio		0.90			0.47		0.25	0.71		0.48	0.55	
Control Delay		34.0			14.5		19.8	32.6		28.7	28.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		34.0			14.5		19.8	32.6		28.7	28.3	
LOS		C			B		B	C		C	C	
Approach Delay		34.0			14.5			31.3			28.4	
Approach LOS		C			B			C			C	
90th %ile Green (s)	0.0	45.0		45.0	45.0		6.5	26.0		3.5	23.0	
90th %ile Term Code	Skip	Max		Hold	Hold		Max	Max		Max	Max	
70th %ile Green (s)	0.0	45.0		45.0	45.0		6.5	26.0		3.5	23.0	
70th %ile Term Code	Skip	Max		Hold	Hold		Max	Max		Max	Max	
50th %ile Green (s)	0.0	45.0		45.0	45.0		6.5	26.0		3.5	23.0	
50th %ile Term Code	Skip	Max		Hold	Hold		Max	Max		Max	Hold	
30th %ile Green (s)	0.0	45.0		45.0	45.0		6.5	26.0		3.5	23.0	
30th %ile Term Code	Skip	Max		Hold	Hold		Max	Max		Max	Hold	
10th %ile Green (s)	0.0	37.4		37.4	37.4		0.0	20.9		0.0	20.9	
10th %ile Term Code	Skip	Gap		Hold	Hold		Skip	Gap		Skip	Hold	
Stops (vph)		673			358		42	543		63	316	
Fuel Used(gal)		45			10		1	9		4	22	
CO Emissions (g/hr)		3126			719		53	657		303	1513	
NOx Emissions (g/hr)		608			140		10	128		59	294	
VOC Emissions (g/hr)		724			167		12	152		70	351	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		233			116		27	180		32	105	
Queue Length 95th (ft)		#375			163		56	244		64	155	
Internal Link Dist (ft)		5299			1243			370			5258	
Turn Bay Length (ft)							135			130		

Lanes, Volumes, Timings  
 1068: Halsted Street & 127th Street

AM Peak  
 Build Conditions - Mitigated

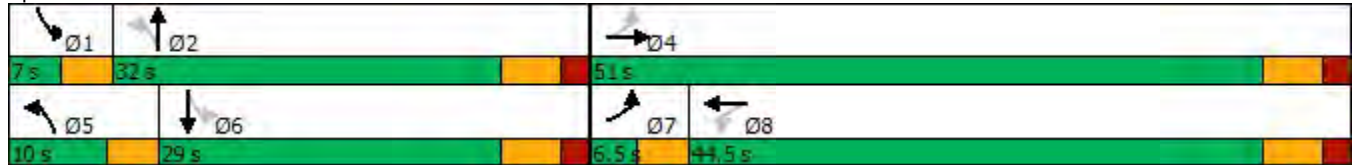


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)		1039			1450		299	1004		189	840	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.87			0.46		0.25	0.68		0.48	0.54	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	86.1
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	27.7
Intersection LOS:	C
Intersection Capacity Utilization:	87.1%
ICU Level of Service:	E
Analysis Period (min):	15
90th %ile Actuated Cycle:	90
70th %ile Actuated Cycle:	90
50th %ile Actuated Cycle:	90
30th %ile Actuated Cycle:	90
10th %ile Actuated Cycle:	70.3
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1068: Halsted Street & 127th Street



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HCM 6th Edition methodology does not support a perm + prot left-turn type from a shared lane. Left-turn bay is needed for phases 7.

Lanes, Volumes, Timings  
1070: Vermont St & S Wallance St & 127th Street

AM Peak  
Build Conditions - Mitigated



Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	618	198	660	15	5	15	5	50	10	0	5	5
Future Volume (vph)	618	198	660	15	5	15	5	50	10	0	5	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	12	14	14	12	12	16	12	12
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00			0.99				0.99		
Frt			0.997				0.865			0.930		
Flt Protected		0.950				0.950				0.977		
Satd. Flow (prot)	2956	1478	1581	0	0	1722	1589	0	0	1826	0	0
Flt Permitted		0.257				0.742				0.896		
Satd. Flow (perm)	2956	398	1581	0	0	1338	1589	0	0	1675	0	0
Right Turn on Red				No				No				No
Satd. Flow (RTOR)												
Link Speed (mph)	30		30				30			30		
Link Distance (ft)	1323		3930				1256			658		
Travel Time (s)	30.1		89.3				28.5			15.0		
Confl. Peds. (#/hr)		7		6		3						3
Confl. Bikes (#/hr)		1										
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 (%)	8%	8%	6%	0%	0%	8%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	687	220	733	17	6	17	6	56	11	0	6	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	687	220	750	0	0	23	62	0	0	23	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right	Right
Median Width(ft)	10		10				14			0		
Link Offset(ft)	0		0				0			0		
Crosswalk Width(ft)	16		16				16			16		
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.07	0.99	0.99	1.07	1.07	0.91	1.07	1.07
Turning Speed (mph)		15		9	15	15		9	15		9	9
Turn Type	NA	custom	NA		Perm	Perm	NA		Perm	NA		
Protected Phases	8	7	4				2			6		
Permitted Phases		4	7		2	2			6			
Minimum Split (s)	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0		
Total Split (s)	38.0	32.0	70.0		20.0	20.0	20.0		20.0	20.0		
Total Split (%)	42.2%	35.6%	77.8%		22.2%	22.2%	22.2%		22.2%	22.2%		
Maximum Green (s)	33.0	29.0	65.0		16.0	16.0	16.0		16.0	16.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	2.0	0.0	2.0		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		
Total Lost Time (s)	5.0	3.0	5.0				4.0	4.0		4.0		
Lead/Lag	Lag	Lead										
Lead-Lag Optimize?												
Walk Time (s)	9.0		18.0		5.0	5.0	5.0					
Flash Dont Walk (s)	9.0		9.0		9.0	9.0	9.0					
Pedestrian Calls (#/hr)	0		0		0	0	0					
Act Effect Green (s)	33.0	67.0	65.0				16.0	16.0		16.0		



Lane Group	NER
Lane Configurations	
Traffic Volume (vph)	289
Future Volume (vph)	289
Ideal Flow (vphpl)	1800
Lane Width (ft)	14
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	0.865
Flt Protected	
Satd. Flow (prot)	1524
Flt Permitted	
Satd. Flow (perm)	1524
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	9%
Adj. Flow (vph)	321
Shared Lane Traffic (%)	
Lane Group Flow (vph)	321
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	0.99
Turning Speed (mph)	9
Turn Type	Over
Protected Phases	7
Permitted Phases	
Minimum Split (s)	9.0
Total Split (s)	32.0
Total Split (%)	35.6%
Maximum Green (s)	29.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	0.0
Total Lost Time (s)	3.0
Lead/Lag	Lead
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	29.0

Lanes, Volumes, Timings  
 1070: Vermont St & S Wallance St & 127th Street

AM Peak  
 Build Conditions - Mitigated



Lane Group	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2
Actuated g/C Ratio	0.37	0.74	0.72			0.18	0.18			0.18		
v/c Ratio	0.63	0.34	0.66			0.10	0.22			0.08		
Control Delay	26.8	5.0	10.1			32.3	34.1			31.8		
Queue Delay	0.0	0.0	0.0			0.0	0.0			0.0		
Total Delay	26.8	5.0	10.1			32.3	34.1			31.8		
LOS	C	A	B			C	C			C		
Approach Delay	26.8		8.9				33.6			31.8		
Approach LOS	C		A				C			C		
Stops (vph)	493	55	339			19	48			19		
Fuel Used(gal)	12	7	24			0	1			0		
CO Emissions (g/hr)	871	459	1673			31	84			24		
NOx Emissions (g/hr)	170	89	326			6	16			5		
VOC Emissions (g/hr)	202	106	388			7	19			6		
Dilemma Vehicles (#)	0	0	0			0	0			0		
Queue Length 50th (ft)	166	31	189			11	31			11		
Queue Length 95th (ft)	227	52	301			33	67			33		
Internal Link Dist (ft)	1243		3850				1176			578		
Turn Bay Length (ft)												
Base Capacity (vph)	1083	644	1141			237	282			297		
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	0.63	0.34	0.66			0.10	0.22			0.08		

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Pretimed
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	19.9
Intersection LOS:	B
Intersection Capacity Utilization:	79.0%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 1070: Vermont St & S Wallance St & 127th Street







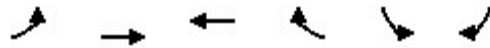
Lane Group	NER
Actuated g/C Ratio	0.32
v/c Ratio	0.65
Control Delay	33.7
Queue Delay	0.0
Total Delay	33.7
LOS	C
Approach Delay	
Approach LOS	
Stops (vph)	245
Fuel Used(gal)	6
CO Emissions (g/hr)	451
NOx Emissions (g/hr)	88
VOC Emissions (g/hr)	105
Dilemma Vehicles (#)	0
Queue Length 50th (ft)	155
Queue Length 95th (ft)	249
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	491
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.65
Intersection Summary	

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HCM 6th Edition methodology does not support more than 4 approaches.

Lanes, Volumes, Timings  
1071: 127th Street & State Street

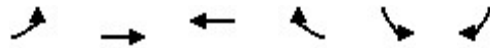
AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↗	↗
Traffic Volume (vph)	200	789	681	71	54	200
Future Volume (vph)	200	789	681	71	54	200
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.986			0.850
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	3010	2997	0	1520	1360
Flt Permitted		0.628			0.950	
Satd. Flow (perm)	0	1909	2997	0	1520	1360
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			31			215
Link Speed (mph)		30	30		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	14.5		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	215	848	732	76	58	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1063	808	0	58	215
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (%)	67.7%	67.7%	67.7%		32.3%	32.3%
Maximum Green (s)	40.0	40.0	40.0		17.0	17.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Efect Green (s)		40.0	40.0		17.0	17.0

Lanes, Volumes, Timings  
1071: 127th Street & State Street

AM Peak  
Build Conditions - Mitigated

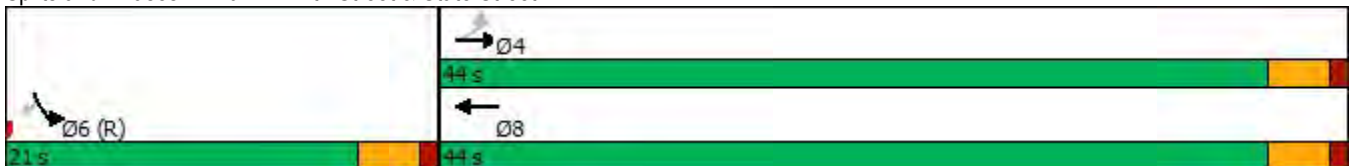


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.62	0.62		0.26	0.26
v/c Ratio		0.91	0.44		0.15	0.42
Control Delay		24.4	4.9		19.7	6.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		24.4	4.9		19.7	6.1
LOS		C	A		B	A
Approach Delay		24.4	4.9		9.0	
Approach LOS		C	A		A	
Stops (vph)		740	170		42	31
Fuel Used(gal)		39	5		3	9
CO Emissions (g/hr)		2748	379		189	613
NOx Emissions (g/hr)		535	74		37	119
VOC Emissions (g/hr)		637	88		44	142
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		167	42		18	0
Queue Length 95th (ft)		#325	56		44	46
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1174	1856		397	514
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.91	0.44		0.15	0.42

Intersection Summary

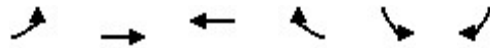
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 43 (66%), Referenced to phase 2: and 6:SBL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 15.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 90.8%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1071: 127th Street & State Street



HCM 6th Signalized Intersection Capacity Analysis  
1071: 127th Street & State Street

AM Peak  
Build Conditions - Mitigated



Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations		↕↕	↕↔		↗	↗			
Traffic Volume (veh/h)	200	789	681	71	54	200			
Future Volume (veh/h)	200	789	681	71	54	200			
Number	7	4	8	18	1	16			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No	No		No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1730	1730	1730	1730	1730	1730			
Adj Flow Rate, veh/h	215	848	732	76	58	215			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	5	5	5	5	5	5			
Opposing Right Turn Influence	Yes				Yes				
Cap, veh/h	357	1263	1849	192	431	383			
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00			
Prop Arrive On Green	0.62	0.62	1.00	1.00	0.26	0.26			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	12.3	12.1	1.2	1.1	19.0	26.6			
Ln Grp LOS	B	B	A	A	B	C			
Approach Vol, veh/h		1063	808		273				
Approach Delay, s/veh		12.2	1.2		25.0				
Approach LOS		B	A		C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs		6			4				8
Case No		9.0			8.0				8.0
Phs Duration (G+Y+Rc), s		21.0			44.0				44.0
Change Period (Y+Rc), s		4.0			4.0				4.0
Max Green (Gmax), s		17.0			40.0				40.0
Max Allow Headway (MAH), s		4.0			5.8				5.3
Max Q Clear (g_c+I1), s		10.2			20.4				2.0
Green Ext Time (g_e), s		0.5			8.5				6.0
Prob of Phs Call (p_c)		1.00			1.00				1.00
Prob of Max Out (p_x)		0.00			0.00				0.00
<b>Left-Turn Movement Data</b>									
Assigned Mvmt		1			7				3
Mvmt Sat Flow, veh/h		1647			447				0
<b>Through Movement Data</b>									
Assigned Mvmt		6			4				8
Mvmt Sat Flow, veh/h		0			2131				3092
<b>Right-Turn Movement Data</b>									
Assigned Mvmt		16			14				18
Mvmt Sat Flow, veh/h		1466			0				312
<b>Left Lane Group Data</b>									
Assigned Mvmt		1	0	0	7	0	0	0	3
Lane Assignment		L			L+T				

HCM 6th Signalized Intersection Capacity Analysis  
1071: 127th Street & State Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	1	0	0	1	0	0	0	0
Grp Vol (v), veh/h	58	0	0	444	0	0	0	0
Grp Sat Flow (s), veh/h/ln	1647	0	0	1003	0	0	0	0
Q Serve Time (g_s), s	1.8	0.0	0.0	16.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	1.8	0.0	0.0	18.4	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	1647	0	0	685	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	16.6	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	1.9	0.0	0.0	0.0	40.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	431	0	0	700	0	0	0	0
V/C Ratio (X)	0.13	0.00	0.00	0.63	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	431	0	0	700	0	0	0	0
Upstream Filter (I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	18.4	0.0	0.0	7.9	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	4.3	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.0	0.0	0.0	12.3	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.6	0.0	0.0	3.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	0.00	1.80	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	1.3	0.0	0.0	6.9	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	6	0	0	4	0	0	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	1
Grp Vol (v), veh/h	0	0	0	619	0	0	0	400
Grp Sat Flow (s), veh/h/ln	0	0	0	1495	0	0	0	1643
Q Serve Time (g_s), s	0.0	0.0	0.0	17.7	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	17.7	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	920	0	0	0	1011
V/C Ratio (X)	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.40
Avail Cap (c_a), veh/h	0	0	0	920	0	0	0	1011
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	3.9	0.0	0.0	0.0	1.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	12.1	0.0	0.0	0.0	1.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.3

HCM 6th Signalized Intersection Capacity Analysis  
1071: 127th Street & State Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.71	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.6
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data













Assigned Mvmt	16	0	0	14	0	0	0	18
Lane Assignment	R							T+R
Lanes in Grp	1	0	0	0	0	0	0	1
Grp Vol (v), veh/h	215	0	0	0	0	0	0	408
Grp Sat Flow (s), veh/h/ln	1466	0	0	0	0	0	0	1674
Q Serve Time (g_s), s	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
Lane Grp Cap (c), veh/h	383	0	0	0	0	0	0	1030
V/C Ratio (X)	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Avail Cap (c_a), veh/h	383	0	0	0	0	0	0	1030
Upstream Filter (I)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.8	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	26.6	0.0	0.0	0.0	0.0	0.0	0.0	1.1
1st-Term Q (Q1), veh/ln	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.80	0.00	0.00	1.00	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.6
%ile Storage Ratio (RQ%)	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Build Conditions - Mitigated

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	737	160	32	343	410	144
Future Volume (vph)	737	160	32	343	410	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00			0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1568	1382	1660	3196	1565	1400
Flt Permitted			0.160		0.950	
Satd. Flow (perm)	1568	1344	279	3196	1565	1371
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						158
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5340	2671	
Travel Time (s)	3.7			104.0	60.7	
Confl. Peds. (#/hr)		4	4			8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	3%	7%	2%	2%
Adj. Flow (vph)	810	176	35	377	451	158
Shared Lane Traffic (%)						
Lane Group Flow (vph)	810	176	35	377	451	158
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	55.0	35.0	55.0	55.0	35.0	35.0
Total Split (%)	61.1%	38.9%	61.1%	61.1%	38.9%	38.9%
Maximum Green (s)	50.0	30.0	50.0	50.0	30.0	30.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0



Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

AM Peak  
Build Conditions - Mitigated

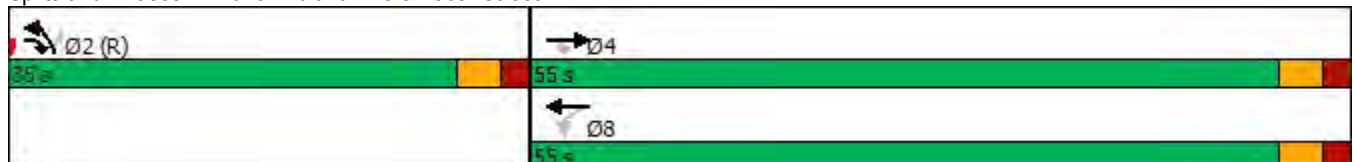


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	50.0	80.0	50.0	50.0	30.0	30.0
Actuated g/C Ratio	0.56	0.89	0.56	0.56	0.33	0.33
v/c Ratio	0.93	0.15	0.23	0.21	0.87	0.28
Control Delay	37.8	0.6	14.8	10.5	47.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.6	14.8	10.5	47.0	5.2
LOS	D	A	B	B	D	A
Approach Delay	31.1			10.8	36.1	
Approach LOS	C			B	D	
Stops (vph)	595	11	18	162	354	19
Fuel Used(gal)	24	3	1	15	14	3
CO Emissions (g/hr)	1672	233	102	1061	1008	228
NOx Emissions (g/hr)	325	45	20	206	196	44
VOC Emissions (g/hr)	387	54	24	246	234	53
Dilemma Vehicles (#)	0	0	0	19	0	0
Queue Length 50th (ft)	396	0	10	53	238	0
Queue Length 95th (ft)	#669	0	30	77	#411	41
Internal Link Dist (ft)	83			5260	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	871	1207	155	1775	521	562
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	0.93	0.15	0.23	0.21	0.87	0.28

Intersection Summary







Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 28.5  
 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.

Splits and Phases: 1073: Indiana Ave & 130th Street



HCM 6th Signalized Intersection Capacity Analysis  
1073: Indiana Ave & 130th Street

AM Peak  
Build Conditions - Mitigated

									
Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑	↑	↑	↑↑	↑	↑			
Traffic Volume (veh/h)	737	160	32	343	410	144			
Future Volume (veh/h)	737	160	32	343	410	144			
Number	4	14	3	8	5	12			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)		1.00	1.00		1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1646	1702	1758	1702	1772	1772			
Adj Flow Rate, veh/h	810	176	35	377	451	158			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	11	7	3	7	2	2			
Opposing Right Turn Influence			Yes		Yes				
Cap, veh/h	914	1279	151	1796	563	501			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.56	0.56	0.56	0.56	0.33	0.33			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	29.8	0.9	40.3	10.3	38.8	24.0			
Ln Grp LOS	C	A	D	B	D	C			
Approach Vol, veh/h	986			412	609				
Approach Delay, s/veh	24.7			12.9	34.9				
Approach LOS	C			B	C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4				8
Case No			9.0		7.0				6.0
Phs Duration (G+Y+Rc), s			35.0		55.0				55.0
Change Period (Y+Rc), s			5.0		5.0				5.0
Max Green (Gmax), s			30.0		50.0				50.0
Max Allow Headway (MAH), s			4.5		4.4				4.6
Max Q Clear (g_c+I1), s			23.9		40.8				46.0
Green Ext Time (g_e), s			1.5		3.5				0.8
Prob of Phs Call (p_c)			1.00		1.00				1.00
Prob of Max Out (p_x)			0.00		0.00				0.00
<b>Left-Turn Movement Data</b>									
Assigned Mvmt			5		7				3
Mvmt Sat Flow, veh/h			1688		0				566
<b>Through Movement Data</b>									
Assigned Mvmt			2		4				8
Mvmt Sat Flow, veh/h			0		1646				3318
<b>Right-Turn Movement Data</b>									
Assigned Mvmt			12		14				18
Mvmt Sat Flow, veh/h			1502		1437				0
<b>Left Lane Group Data</b>									
Assigned Mvmt		0	5	0	7	0	0	0	3
Lane Assignment			L						L

HCM 6th Signalized Intersection Capacity Analysis  
1073: Indiana Ave & 130th Street

AM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	1	0	0	0	0	0	1
Grp Vol (v), veh/h	0	451	0	0	0	0	0	35
Grp Sat Flow (s), veh/h/ln	0	1688	0	0	0	0	0	566
Q Serve Time (g_s), s	0.0	21.9	0.0	0.0	0.0	0.0	0.0	5.2
Cycle Q Clear Time (g_c), s	0.0	21.9	0.0	0.0	0.0	0.0	0.0	44.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1688	0	0	0	0	0	566
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
Time to First Blk (g_f), s	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	563	0	0	0	0	0	151
V/C Ratio (X)	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.23
Avail Cap (c_a), veh/h	0	563	0	0	0	0	0	151
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	27.3	0.0	0.0	0.0	0.0	0.0	36.7
Incr Delay (d2), s/veh	0.0	11.5	0.0	0.0	0.0	0.0	0.0	3.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	38.8	0.0	0.0	0.0	0.0	0.0	40.3
1st-Term Q (Q1), veh/ln	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.7
2nd-Term Q (Q2), veh/ln	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.51	0.00	1.00	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	15.5	0.0	0.0	0.0	0.0	0.0	1.5
%ile Storage Ratio (RQ%)	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.37
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	0	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	2
Grp Vol (v), veh/h	0	0	0	810	0	0	0	377
Grp Sat Flow (s), veh/h/ln	0	0	0	1646	0	0	0	1617
Q Serve Time (g_s), s	0.0	0.0	0.0	38.8	0.0	0.0	0.0	5.3
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	38.8	0.0	0.0	0.0	5.3
Lane Grp Cap (c), veh/h	0	0	0	914	0	0	0	1796
V/C Ratio (X)	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.21
Avail Cap (c_a), veh/h	0	0	0	914	0	0	0	1796
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	17.5	0.0	0.0	0.0	10.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	12.3	0.0	0.0	0.0	0.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	29.8	0.0	0.0	0.0	10.3
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	13.1	0.0	0.0	0.0	1.7
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.1

HCM 6th Signalized Intersection Capacity Analysis  
1073: Indiana Ave & 130th Street

AM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.41	0.00	0.00	0.00	1.80
%ile Back of Q (95%), veh/ln	0.0	0.0	0.0	22.8	0.0	0.0	0.0	3.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	6.09	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	0	0	18
Lane Assignment		R		R				
Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	158	0	176	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1502	0	1437	0	0	0	0
Q Serve Time (g_s), s	0.0	7.1	0.0	1.4	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	7.1	0.0	1.4	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1442.1	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	501	0	1279	0	0	0	0
V/C Ratio (X)	0.00	0.32	0.00	0.14	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	501	0	1279	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	22.4	0.0	0.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	0.0	0.2	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	24.0	0.0	0.9	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	2.4	0.0	1.6	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.80	0.00	1.80	0.00	0.00	0.00	1.00
%ile Back of Q (95%), veh/ln	0.0	4.8	0.0	3.1	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.82	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

AM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	87	494	0	30	630	90	0	0	0	50	5	89
Future Volume (vph)	87	494	0	30	630	90	0	0	0	50	5	89
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.88					0.96	
Frt						0.850					0.917	
Flt Protected		0.993			0.998						0.983	
Satd. Flow (prot)	0	3073	0	0	1615	1377	0	1800	0	0	1579	0
Flt Permitted		0.742			0.822						0.929	
Satd. Flow (perm)	0	2285	0	0	1330	1213	0	1800	0	0	1486	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						100						99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	33		13	13		33	29		13	13		29
Confl. Bikes (#/hr)	1		1	1		1						
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 (%)	4%	3%	0%	0%	4%	0%	0%	0%	0%	5%	0%	11%
Adj. Flow (vph)	97	549	0	33	700	100	0	0	0	56	6	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	646	0	0	733	100	0	0	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm				pm+pt	NA	
Protected Phases		4			3	8		2		1	6	
Permitted Phases	4			3	8	3	3	8	2	2	6	
Minimum Split (s)	16.0	16.0					12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0					12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%					14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0					9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0					3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0					0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)												14.0

Lane Group	Ø3	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	3	8
Permitted Phases		
Minimum Split (s)	18.0	35.0
Total Split (s)	18.0	35.0
Total Split (%)	21%	41%
Maximum Green (s)	14.0	31.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)	2.0	18.0
























Lane Group	Ø3	Ø8
Flash Dont Walk (s)	12.0	13.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Stops (vph)		
Fuel Used(gal)		
CO Emissions (g/hr)		
NOx Emissions (g/hr)		
VOC Emissions (g/hr)		
Dilemma Vehicles (#)		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		



HCM 6th Edition methodology does not support clustered intersections.

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1035	70	137	755	0	314	0	290	0	0	0
Future Volume (vph)	0	1035	70	137	755	0	314	0	290	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	13	12	12	12	12	12	12	12	16	12
Storage Length (ft)	175		295	370		170	0		0	0		0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (ft)	209			155			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850					0.850				
Fl <sub>t</sub> Protected				0.950			0.950					
Satd. Flow (prot)	1800	3320	1581	1644	3320	1800	1710	1500	0	0	2040	0
Fl <sub>t</sub> Permitted				0.130			0.757					
Satd. Flow (perm)	1800	3320	1581	225	3320	1800	1363	1500	0	0	2040	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			30				30
Link Distance (ft)		5343			1170			134				331
Travel Time (s)		104.1			22.8			3.0				7.5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	4%	3%	0%	0%	0%	2%	0%	0%	0%
Adj. Flow (vph)	0	1078	73	143	786	0	327	0	302	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1078	73	143	786	0	327	302	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.03	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
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)	50	50	50	50	50	50	50	50		50	50	
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	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA				
Protected Phases		4		3	8			2				6
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	33.0	33.0	33.0	7.0	43.0	43.0	6.0	6.0		6.0	6.0	

Lanes, Volumes, Timings  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	37.0	37.0	37.0	10.0	47.0	47.0	10.0	10.0		10.0	10.0	
Total Split (s)	37.0	37.0	37.0	10.0	47.0	47.0	38.0	38.0		38.0	38.0	
Total Split (%)	43.5%	43.5%	43.5%	11.8%	55.3%	55.3%	44.7%	44.7%		44.7%	44.7%	
Maximum Green (s)	33.0	33.0	33.0	7.0	43.0	43.0	34.0	34.0		34.0	34.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	1.0	0.0	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)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0		6.0	6.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effct Green (s)		37.7	37.7	49.4	48.4		28.6	28.6				
Actuated g/C Ratio		0.44	0.44	0.58	0.57		0.34	0.34				
v/c Ratio		0.73	0.10	0.55	0.42		0.71	0.60				
Control Delay		24.6	16.6	19.0	12.2		33.1	27.8				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		24.6	16.6	19.0	12.2		33.1	27.8				
LOS		C	B	B	B		C	C				
Approach Delay		24.1			13.2			30.5				
Approach LOS		C			B			C				
90th %ile Green (s)	33.0	33.0	33.0	7.0	43.0	43.0	34.0	34.0		34.0	34.0	
90th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max		Hold	Hold	
70th %ile Green (s)	33.0	33.0	33.0	7.0	43.0	43.0	34.0	34.0		34.0	34.0	
70th %ile Term Code	Coord	Coord	Coord	Max	Coord	Coord	Max	Max		Hold	Hold	
50th %ile Green (s)	34.6	34.6	34.6	9.3	46.9	46.9	30.1	30.1		30.1	30.1	
50th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap		Hold	Hold	
30th %ile Green (s)	40.1	40.1	40.1	8.0	51.1	51.1	25.9	25.9		25.9	25.9	
30th %ile Term Code	Coord	Coord	Coord	Gap	Coord	Coord	Gap	Gap		Hold	Hold	
10th %ile Green (s)	48.0	48.0	48.0	7.0	58.0	58.0	19.0	19.0		19.0	19.0	
10th %ile Term Code	Coord	Coord	Coord	Min	Coord	Coord	Gap	Gap		Hold	Hold	
Stops (vph)		823	42	65	413		262	228				
Fuel Used(gal)		51	3	2	13		4	3				
CO Emissions (g/hr)		3586	227	168	883		272	224				
NOx Emissions (g/hr)		698	44	33	172		53	44				
VOC Emissions (g/hr)		831	53	39	205		63	52				
Dilemma Vehicles (#)		60	0	0	44		0	0				
Queue Length 50th (ft)		259	24	34	121		146	129				
Queue Length 95th (ft)		353	52	#86	182		224	194				
Internal Link Dist (ft)		5263			1090			54			251	
Turn Bay Length (ft)			295	370								
Base Capacity (vph)		1473	701	258	1890		545	600				
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		0.73	0.10	0.55	0.42		0.60	0.50				

Intersection Summary

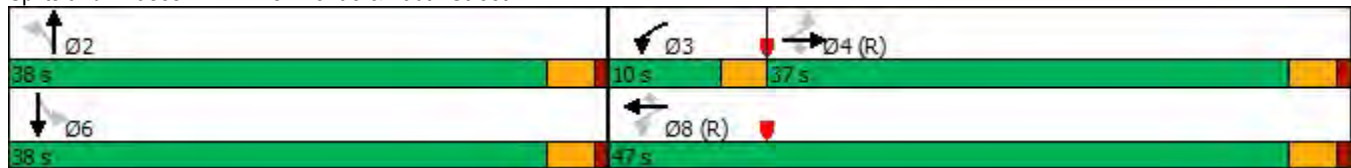
Area Type: Other

Lanes, Volumes, Timings  
 1: Ellis Avenue & 130th Street

PM Peak  
 Build Conditions - Mitigated

Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 21.9 Intersection LOS: C  
 Intersection Capacity Utilization 92.3% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Ellis Avenue & 130th Street



HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1035	70	137	755	0	314	0	290	0	0	0
Future Volume (veh/h)	0	1035	70	137	755	0	314	0	290	0	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1800	1758	1872	1744	1758	1800	1800	1800	1772	1800	1872	1800
Adj Flow Rate, veh/h	0	1078	73	143	786	0	327	0	302	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	0	4	3	0	0	0	2	0	0	0
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	85	1713	814	352	2096	957	562	0	424	0	521	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.00	0.51	0.51	0.08	0.63	0.00	0.28	0.00	0.28	0.00	0.00	0.00
Unsig. Movement Delay												
Ln Grp Delay, s/veh	0.0	16.0	10.7	11.6	8.2	0.0	30.8	0.0	35.4	0.0	0.0	0.0
Ln Grp LOS	A	B	B	B	A	A	C	A	D	A	A	A
Approach Vol, veh/h		1151			929			629				0
Approach Delay, s/veh		15.7			8.7			33.0				0.0
Approach LOS		B			A			C				
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2	3	4		6		8			
Case No			6.0	1.2	5.0		8.0		3.0			
Phs Duration (G+Y+Rc), s			27.6	9.8	47.6		27.6		57.4			
Change Period (Y+Rc), s			4.0	3.0	4.0		4.0		4.0			
Max Green (Gmax), s			34.0	7.0	33.0		34.0		43.0			
Max Allow Headway (MAH), s			7.5	4.3	4.2		0.0		4.2			
Max Q Clear (g_c+I1), s			17.1	5.1	21.7		0.0		11.7			
Green Ext Time (g_e), s			6.5	0.1	4.5		0.0		4.0			
Prob of Phs Call (p_c)			1.00	0.97	1.00		0.00		1.00			
Prob of Max Out (p_x)			0.40	1.00	0.00		0.00		0.00			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt			5	3	7		1					
Mvmt Sat Flow, veh/h			1714	1661	700		0					
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			0		3340		1872		3340			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1525		1586		0		1525			
<b>Left Lane Group Data</b>												
Assigned Mvmt	0	5	3	7	0	1	0	0				
Lane Assignment		LL (Pr/Pm)			L							

HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	1	1	1	0	0	0	0
Grp Vol (v), veh/h	0	327	143	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1714	1661	700	0	0	0	0
Q Serve Time (g_s), s	0.0	14.5	3.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.5	3.1	0.0	0.0	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1714	481	700	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	23.6	45.6	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	23.6	23.9	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	14.5	9.2	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	23.6	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	562	352	85	0	0	0	0
V/C Ratio (X)	0.00	0.58	0.41	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	770	356	85	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	27.4	10.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	3.4	0.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	30.8	11.6	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.7	0.9	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	6.3	1.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	3.13	0.07	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment				T		T		T
Lanes in Grp	0	0	0	2	0	1	0	2
Grp Vol (v), veh/h	0	0	0	1078	0	0	0	786
Grp Sat Flow (s), veh/h/ln	0	0	0	1670	0	1872	0	1670
Q Serve Time (g_s), s	0.0	0.0	0.0	19.7	0.0	0.0	0.0	9.7
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	19.7	0.0	0.0	0.0	9.7
Lane Grp Cap (c), veh/h	0	0	0	1713	0	521	0	2096
V/C Ratio (X)	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.37
Avail Cap (c_a), veh/h	0	0	0	1713	0	749	0	2096
Upstream Filter (I)	0.00	0.00	0.00	0.64	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	14.9	0.0	0.0	0.0	7.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	16.0	0.0	0.0	0.0	8.2
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	6.7	0.0	0.0	0.0	2.9
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1

HCM 6th Signalized Intersection Capacity Analysis  
1: Ellis Avenue & 130th Street

PM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	7.0	0.0	0.0	0.0	3.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data























Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R				R
Lanes in Grp	0	1	0	1	0	0	0	1
Grp Vol (v), veh/h	0	302	0	73	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1525	0	1586	0	0	0	1525
Q Serve Time (g_s), s	0.0	15.1	0.0	2.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	15.1	0.0	2.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	424	0	814	0	0	0	957
V/C Ratio (X)	0.00	0.71	0.00	0.09	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	610	0	814	0	0	0	957
Upstream Filter (I)	0.00	1.00	0.00	0.64	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	27.6	0.0	10.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	7.8	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	35.4	0.0	10.7	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.3	0.0	0.6	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.2	0.0	0.7	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	3.12	0.00	0.06	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	411	185	153	391	159	110	655	92	155	820	100
Future Volume (vph)	85	411	185	153	391	159	110	655	92	155	820	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	12	12	16	12	10	10	9	9	10	9
Storage Length (ft)	60		260	55		260	92		130	115		130
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	90			85			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99	0.99		0.99		0.95	0.99		0.94
Frt		0.953			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	1879	0	1676	1880	0	1550	3040	1363	1509	3069	1337
Flt Permitted	0.119			0.105			0.179			0.266		
Satd. Flow (perm)	209	1879	0	184	1880	0	289	3040	1296	418	3069	1251
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			22				93			83
Link Speed (mph)		30			30			30				30
Link Distance (ft)		663			2036			5304				668
Travel Time (s)		15.1			46.3			120.5				15.2
Confl. Peds. (#/hr)	24		45	45		24	36		24	24		36
Confl. Bikes (#/hr)						1				1		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	5%	1%	2%	4%	3%
Adj. Flow (vph)	91	442	199	165	420	171	118	704	99	167	882	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	641	0	165	591	0	118	704	99	167	882	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			10				10
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	0.91	1.07	1.07	0.91	1.07	1.17	1.17	1.22	1.22	1.17	1.22
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	1
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50	50	50	50	50
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)	50	50		50	50		50	50	50	50	50	50
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
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6



Lanes, Volumes, Timings  
1016: Halsted Street & 103rd Street

PM Peak  
Build Conditions - Mitigated



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)	10.0	10.0		4.0	11.0		5.0	31.0	31.0	5.0	31.0	31.0
Minimum Split (s)	13.0	47.0		8.0	34.0		8.0	46.0	46.0	8.0	46.0	46.0
Total Split (s)	10.0	43.0		10.0	43.0		7.0	45.0	45.0	7.0	45.0	45.0
Total Split (%)	9.5%	41.0%		9.5%	41.0%		6.7%	42.9%	42.9%	6.7%	42.9%	42.9%
Maximum Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	1.0	1.0	0.0	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)	3.0	5.0		3.0	5.0		3.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max		None	Max		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		24.0			11.0			31.0	31.0		31.0	31.0
Flash Dont Walk (s)		18.0			18.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	47.0	38.0		47.0	38.0		46.0	41.0	41.0	46.0	41.0	41.0
Actuated g/C Ratio	0.45	0.36		0.45	0.36		0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio	0.48	0.92		0.91	0.85		0.68	0.59	0.18	0.75	0.74	0.20
Control Delay	23.9	51.6		69.6	43.2		40.1	27.9	5.8	43.0	31.9	8.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	51.6		69.6	43.2		40.1	27.9	5.8	43.0	31.9	8.0
LOS	C	D		E	D		D	C	A	D	C	A
Approach Delay		48.2			49.0			27.1			31.3	
Approach LOS		D			D			C			C	
90th %ile Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
90th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
70th %ile Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
70th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
50th %ile Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
50th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
30th %ile Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
30th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
10th %ile Green (s)	7.0	38.0		7.0	38.0		4.0	41.0	41.0	4.0	41.0	41.0
10th %ile Term Code	MaxR	Ped		Max	MaxR		Max	Coord	Coord	Max	Coord	Coord
Stops (vph)	46	503		78	464		65	503	14	99	683	22
Fuel Used(gal)	1	12		5	16		6	34	4	3	13	1
CO Emissions (g/hr)	77	847		351	1128		406	2348	279	190	935	56
NOx Emissions (g/hr)	15	165		68	219		79	457	54	37	182	11
VOC Emissions (g/hr)	18	196		81	261		94	544	65	44	217	13
Dilemma Vehicles (#)	0	0		0	0		0	0	0	0	0	0
Queue Length 50th (ft)	33	395		62	350		44	194	2	65	262	10
Queue Length 95th (ft)	62	#622		#188	#547		#100	255	36	#140	338	46
Internal Link Dist (ft)		583			1956			5224			588	
Turn Bay Length (ft)	60			55			92		130	115		130
Base Capacity (vph)	191	695		181	694		174	1187	562	224	1198	539
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0

Lanes, Volumes, Timings  
 1016: Halsted Street & 103rd Street

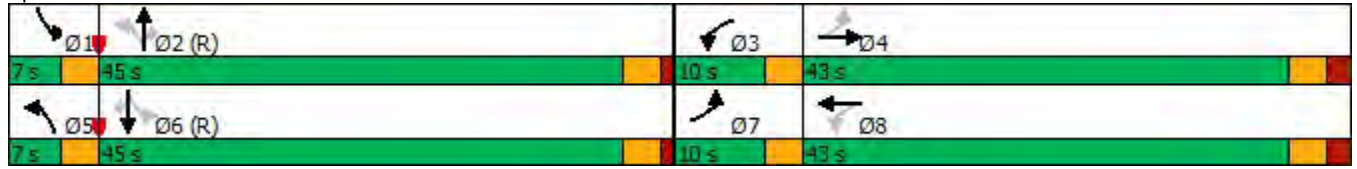
PM Peak  
 Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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
Reduced v/c Ratio	0.48	0.92		0.91	0.85		0.68	0.59	0.18	0.75	0.74	0.20

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	37.4
Intersection LOS:	D
Intersection Capacity Utilization	103.1%
ICU Level of Service	G
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1016: Halsted Street & 103rd Street

























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Min green cannot be greater than Max Green.

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

PM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	354	93	220	366	70	32	310	25	70	340	66
Future Volume (vph)	81	354	93	220	366	70	32	310	25	70	340	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	10	10	12	10	10
Storage Length (ft)	55		120	95		75	0		85	0		90
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			95			25			25		
Lane Util. 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
Fr <sub>t</sub>			0.850			0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.995			0.992	
Satd. Flow (prot)	1550	1631	1386	1550	1631	1386	0	1623	1386	0	1618	1386
Fl <sub>t</sub> Permitted	0.529			0.950				0.934			0.808	
Satd. Flow (perm)	863	1631	1386	1550	1631	1386	0	1523	1386	0	1318	1386
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			62			82			82
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			386			1340			2394	
Travel Time (s)		12.7			8.8			30.5			54.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	87	381	100	237	394	75	34	333	27	75	366	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	381	100	237	394	75	0	367	27	0	441	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4			8	2		2	6		6
Minimum Split (s)	24.0	24.0	24.0	9.0	33.0	33.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	24.0	24.0	24.0	16.0	40.0	40.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	30.0%	30.0%	30.0%	20.0%	50.0%	50.0%	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%
Maximum Green (s)	20.0	20.0	20.0	13.0	36.0	36.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	1.0	1.0	1.0	0.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0		5.0	5.0		5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0		18.0	18.0	12.0	12.0	12.0	12.0	12.0	12.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	20.0	20.0	20.0	13.0	36.0	36.0		32.0	32.0		32.0	32.0

Lane Group	Ø12
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	12
Permitted Phases	
Minimum Split (s)	3.0
Total Split (s)	3.0
Total Split (%)	4%
Maximum Green (s)	1.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	

Lanes, Volumes, Timings  
1052: Michigan Avenue & 115th Street

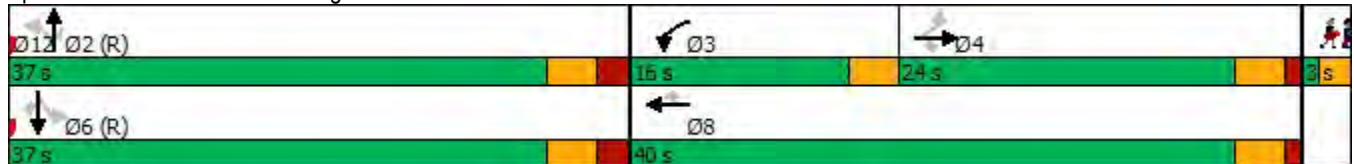
PM Peak  
Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.25	0.25	0.25	0.16	0.45	0.45		0.40	0.40		0.40	0.40
v/c Ratio	0.40	0.94	0.24	0.94	0.54	0.11		0.60	0.04		0.84	0.12
Control Delay	31.8	63.1	7.8	80.4	19.4	5.2		24.1	0.1		38.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	31.8	63.1	7.8	80.4	19.4	5.2		24.1	0.1		38.2	3.8
LOS	C	E	A	F	B	A		C	A		D	A
Approach Delay	48.6			38.4			22.5			33.4		
Approach LOS	D			D			C			C		
Stops (vph)	68	300	20	184	259	15		263	0		340	8
Fuel Used(gal)	1	8	1	6	5	1		24	2		14	1
CO Emissions (g/hr)	88	541	46	415	354	40		1710	109		951	103
NOx Emissions (g/hr)	17	105	9	81	69	8		333	21		185	20
VOC Emissions (g/hr)	20	125	11	96	82	9		396	25		220	24
Dilemma Vehicles (#)	0	0	0	0	0	0		0	0		0	0
Queue Length 50th (ft)	36	186	2	118	137	3		141	0		193	0
Queue Length 95th (ft)	80	#351	38	#254	221	26		230	0		#362	20
Internal Link Dist (ft)	479			306			1260			2314		
Turn Bay Length (ft)	55		120	95		75			85			90
Base Capacity (vph)	215	407	417	251	733	657		609	603		527	603
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
Reduced v/c Ratio	0.40	0.94	0.24	0.94	0.54	0.11		0.60	0.04		0.84	0.12

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 37.0 Intersection LOS: D  
 Intersection Capacity Utilization 89.6% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1052: Michigan Avenue & 115th Street



Lane Group	Ø12
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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HCM 6th Edition methodology does not support exclusive ped or hold phases.



Lanes, Volumes, Timings  
1055: Cottage Grove Avenue & 115th Street

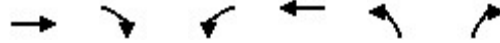
PM Peak  
Build Conditions - Mitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Lane Configurations	↑	↑		↑	↑					
Traffic Volume (vph)	828	0	0	702	5	35				
Future Volume (vph)	828	0	0	702	5	35				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	12	10	16	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt					0.881					
Flt Protected					0.994					
Satd. Flow (prot)	1631	1748	0	1468	1734	0				
Flt Permitted					0.994					
Satd. Flow (perm)	1631	1748	0	1468	1734	0				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)					38					
Link Speed (mph)	30			30	30					
Link Distance (ft)	105			1228	505					
Travel Time (s)	2.4			27.9	11.5					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%				
Parking (#/hr)				0						
Adj. Flow (vph)	890	0	0	755	5	38				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	890	0	0	755	43	0				
Enter Blocked Intersection	No	No	No	No	No	No				
Lane Alignment	Left	Right	Left	Left	Left	Right				
Median Width(ft)	0			0	16					
Link Offset(ft)	0			0	0					
Crosswalk Width(ft)	16			16	16					
Two way Left Turn Lane										
Headway Factor	1.17	1.07	1.07	1.33	0.91	1.07				
Turning Speed (mph)		9	15		15	9				
Turn Type	NA	Perm		NA	Prot					
Protected Phases	6 4			4	3		1	2	6	8
Permitted Phases		6 4	4							
Minimum Split (s)			16.0	16.0	18.0		20.0	12.0	32.0	35.0
Total Split (s)			35.0	35.0	18.0		20.0	12.0	32.0	35.0
Total Split (%)			41.2%	41.2%	21.2%		24%	14%	38%	41%
Maximum Green (s)			31.0	31.0	14.0		15.0	9.0	27.0	31.0
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)			1.0	1.0	1.0		2.0	0.0	2.0	1.0
Lost Time Adjust (s)				0.0	0.0					
Total Lost Time (s)				4.0	4.0					
Lead/Lag							Lag	Lead		
Lead-Lag Optimize?										
Walk Time (s)					2.0				14.0	18.0
Flash Dont Walk (s)					12.0				13.0	13.0
Pedestrian Calls (#/hr)					0				0	0
Act Effct Green (s)	62.0			31.0	14.0					
Actuated g/C Ratio	0.73			0.36	0.16					
v/c Ratio	0.75			1.41	0.14					

Lanes, Volumes, Timings  
 1055: Cottage Grove Avenue & 115th Street

PM Peak  
 Build Conditions - Mitigated

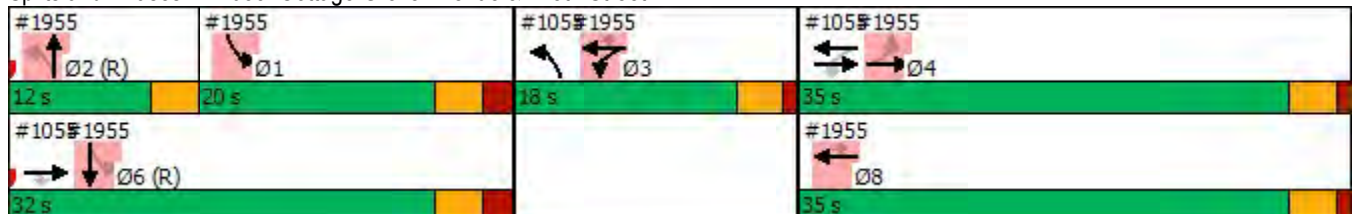


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2	Ø6	Ø8
Control Delay	7.7			221.9	13.2					
Queue Delay	5.2			0.9	0.0					
Total Delay	12.9			222.8	13.2					
LOS	B			F	B					
Approach Delay	12.9			222.8	13.3					
Approach LOS	B			F	B					
Stops (vph)	285			543	14					
Fuel Used(gal)	4			48	0					
CO Emissions (g/hr)	248			3378	24					
NOx Emissions (g/hr)	48			657	5					
VOC Emissions (g/hr)	57			783	6					
Dilemma Vehicles (#)	0			0	0					
Queue Length 50th (ft)	144			~549	2					
Queue Length 95th (ft)	174			#761	30					
Internal Link Dist (ft)	25			1148	425					
Turn Bay Length (ft)										
Base Capacity (vph)	1189			535	317					
Starvation Cap Reductn	236			0	0					
Spillback Cap Reductn	0			55	0					
Storage Cap Reductn	0			0	0					
Reduced v/c Ratio	0.93			1.57	0.14					

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 106.8  
 Intersection LOS: F  
 Intersection Capacity Utilization 56.8%  
 ICU Level of Service B  
 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.

Splits and Phases: 1055: Cottage Grove Avenue & 115th Street

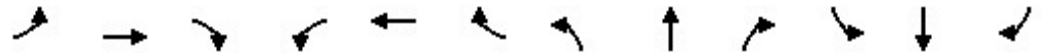


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HCM 6th Edition methodology does not support clustered intersections.

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	313	160	106	324	75	115	561	76	120	1021	150
Future Volume (vph)	165	313	160	106	324	75	115	561	76	120	1021	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	14	12	10	11	12	9	10	12
Storage Length (ft)	140		0	60		0	120		0	115		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	195			95			95			90		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	1.00	0.99		0.99	1.00		0.99	0.99	
Frt			0.850		0.972			0.982				0.981
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1580	1600	1400	1596	1792	0	1580	3122	0	1539	2999	0
Flt Permitted	0.186			0.343			0.100			0.291		
Satd. Flow (perm)	306	1600	1371	574	1792	0	165	3122	0	469	2999	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163		11			18			20	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		752			3955			5338			2655	
Travel Time (s)		17.1			89.9			121.3			60.3	
Confl. Peds. (#/hr)	28		8	8		28	59		11	11		59
Confl. Bikes (#/hr)						3	1		2			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	5%	2%	0%	4%	0%	1%	4%	0%	0%	3%	3%
Adj. Flow (vph)	168	319	163	108	331	77	117	572	78	122	1042	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	319	163	108	408	0	117	650	0	122	1195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.17	1.17	1.17	1.17	0.99	1.07	1.17	1.12	1.07	1.22	1.17	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		

Lanes, Volumes, Timings  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	4.0	4.0	7.0	4.0		7.0	18.0		7.0	18.0	
Minimum Split (s)	10.0	32.0	32.0	10.0	32.0		10.0	38.0		10.0	38.0	
Total Split (s)	11.0	33.0	33.0	10.0	32.0		10.0	44.0		13.0	47.0	
Total Split (%)	11.0%	33.0%	33.0%	10.0%	32.0%		10.0%	44.0%		13.0%	47.0%	
Maximum Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	40.0		10.0	43.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	1.0	-1.0	0.0	1.0	0.0		1.0	0.0		1.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	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	None	Max	Max	None	Max		None	C-Max		None	C-Max	
Walk Time (s)		4.0	4.0		4.0			18.0			18.0	
Flash Dont Walk (s)		23.0	23.0		23.0			16.0			16.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	36.0	29.0	28.0	34.0	27.0		47.0	41.0		51.0	43.0	
Actuated g/C Ratio	0.36	0.29	0.28	0.34	0.27		0.47	0.41		0.51	0.43	
v/c Ratio	0.84	0.69	0.33	0.42	0.83		0.72	0.50		0.38	0.92	
Control Delay	59.0	40.4	6.4	26.1	49.5		42.4	23.1		15.6	39.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	59.0	40.4	6.4	26.1	49.5		42.4	23.1		15.6	39.1	
LOS	E	D	A	C	D		D	C		B	D	
Approach Delay		36.7			44.6			26.1			36.9	
Approach LOS		D			D			C			D	
90th %ile Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	40.0		10.0	43.0	
90th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
70th %ile Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	40.0		10.0	43.0	
70th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Max	Coord	
50th %ile Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	40.5		9.5	43.0	
50th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Gap	Coord	
30th %ile Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	41.7		8.3	43.0	
30th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Gap	Coord	
10th %ile Green (s)	8.0	28.0	28.0	7.0	27.0		7.0	43.0		7.0	43.0	
10th %ile Term Code	Max	MaxR	MaxR	Max	MaxR		Max	Coord		Min	Coord	
Stops (vph)	105	275	22	74	346		59	447		58	1008	
Fuel Used(gal)	4	6	1	4	18		6	32		3	39	
CO Emissions (g/hr)	247	414	89	296	1278		427	2236		223	2735	
NOx Emissions (g/hr)	48	81	17	58	249		83	435		43	532	
VOC Emissions (g/hr)	57	96	21	69	296		99	518		52	634	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	72	180	0	44	239		36	155		38	363	
Queue Length 95th (ft)	#160	279	48	82	#396		#118	211		69	#510	
Internal Link Dist (ft)		672			3875			5258			2575	
Turn Bay Length (ft)	140			60			120			115		
Base Capacity (vph)	199	464	501	256	491		162	1291		340	1300	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	

Lanes, Volumes, Timings  
 1060: Halsted Street & 119th Street

PM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.84	0.69	0.33	0.42	0.83		0.72	0.50		0.36	0.92	

Intersection Summary























Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.92
Intersection Signal Delay:	35.5
Intersection LOS:	D
Intersection Capacity Utilization	89.2%
ICU Level of Service	E
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1060: Halsted Street & 119th Street



HCM 6th Signalized Intersection Capacity Analysis  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	313	160	106	324	75	115	561	76	120	1021	150
Future Volume (veh/h)	165	313	160	106	324	75	115	561	76	120	1021	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.99		0.97	0.99		0.96	1.00		0.91	0.98		0.91
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1786	1730	1772	1800	1814	1800	1786	1744	1800	1728	1758	1758
Adj Flow Rate, veh/h	168	319	163	108	331	77	117	572	78	122	1042	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	5	2	0	4	0	1	4	0	0	3	3
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	226	508	413	273	380	88	217	1250	170	377	1247	183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.07	0.29	0.28	0.06	0.27	0.27	0.06	0.43	0.43	0.06	0.43	0.43
Unsig. Movement Delay												
Ln Grp Delay, s/veh	41.2	36.4	31.7	26.8	0.0	49.3	23.8	22.0	22.1	16.0	31.1	31.4
Ln Grp LOS	D	D	C	C	A	D	C	C	C	B	C	C
Approach Vol, veh/h		650			516			767			1317	
Approach Delay, s/veh		36.5			44.6			22.3			29.8	
Approach LOS		D			D			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0			
Phs Duration (G+Y+Rc), s		9.8	47.2	9.7	33.3	9.7	47.3	11.0	32.0			
Change Period (Y+Rc), s		3.0	4.0	3.0	5.0	3.0	4.0	3.0	5.0			
Max Green (Gmax), s		10.0	40.0	7.0	28.0	7.0	43.0	8.0	27.0			
Max Allow Headway (MAH), s		4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4			
Max Q Clear (g_c+I1), s		6.2	16.1	6.6	18.0	5.8	34.2	9.0	24.4			
Green Ext Time (g_e), s		0.1	2.8	0.0	1.5	0.0	3.9	0.0	0.5			
Prob of Phs Call (p_c)		0.97	1.00	0.95	1.00	0.96	1.00	0.99	1.00			
Prob of Max Out (p_x)		1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1646		1714		1701		1701				
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			2892		1730		2882		1409			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			393		1457		422		328			
<b>Left Lane Group Data</b>												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Mitigated

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	122	0	108	0	117	0	168	0
Grp Sat Flow (s), veh/h/ln	1646	0	1714	0	1701	0	1701	0
Q Serve Time (g_s), s	4.2	0.0	4.6	0.0	3.8	0.0	7.0	0.0
Cycle Q Clear Time (g_c), s	4.2	0.0	4.6	0.0	3.8	0.0	7.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	747	0	917	0	471	0	975	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	42.2	0.0	26.0	0.0	42.2	0.0	26.0	0.0
Perm LT Serve Time (g_u), s	28.2	0.0	11.4	0.0	10.0	0.0	3.6	0.0
Perm LT Q Serve Time (g_ps), s	2.7	0.0	2.0	0.0	10.0	0.0	3.6	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	377	0	273	0	217	0	226	0
V/C Ratio (X)	0.32	0.00	0.40	0.00	0.54	0.00	0.74	0.00
Avail Cap (c_a), veh/h	431	0	279	0	221	0	226	0
Upstream Filter (I)	0.51	0.00	0.70	0.00	0.94	0.00	1.00	0.00
Uniform Delay (d1), s/veh	15.8	0.0	26.1	0.0	21.4	0.0	28.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.7	0.0	2.4	0.0	12.5	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	16.0	0.0	26.8	0.0	23.8	0.0	41.2	0.0
1st-Term Q (Q1), veh/ln	1.5	0.0	1.9	0.0	1.4	0.0	2.9	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.1	0.0	0.8	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	1.5	0.0	1.9	0.0	1.6	0.0	3.7	0.0
%ile Storage Ratio (RQ%)	0.34	0.00	0.79	0.00	0.33	0.00	0.67	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	327	0	319	0	603	0	0
Grp Sat Flow (s), veh/h/ln	0	1657	0	1730	0	1670	0	0
Q Serve Time (g_s), s	0.0	13.9	0.0	16.0	0.0	32.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	13.9	0.0	16.0	0.0	32.1	0.0	0.0
Lane Grp Cap (c), veh/h	0	716	0	508	0	723	0	0
V/C Ratio (X)	0.00	0.46	0.00	0.63	0.00	0.83	0.00	0.00
Avail Cap (c_a), veh/h	0	716	0	508	0	723	0	0
Upstream Filter (I)	0.00	0.94	0.00	1.00	0.00	0.51	0.00	0.00
Uniform Delay (d1), s/veh	0.0	20.1	0.0	30.6	0.0	25.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.0	0.0	5.8	0.0	5.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	22.0	0.0	36.4	0.0	31.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	5.2	0.0	6.5	0.0	12.2	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.8	0.0	1.2	0.0	0.0



HCM 6th Signalized Intersection Capacity Analysis  
1060: Halsted Street & 119th Street

PM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.6	0.0	7.4	0.0	13.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.27	0.00	0.13	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

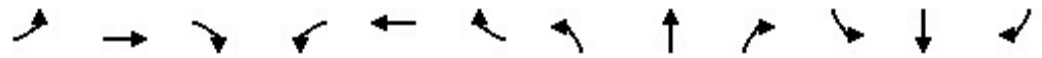
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	323	0	163	0	592	0	408
Grp Sat Flow (s), veh/h/ln	0	1628	0	1457	0	1634	0	1736
Q Serve Time (g_s), s	0.0	14.1	0.0	9.0	0.0	32.2	0.0	22.4
Cycle Q Clear Time (g_c), s	0.0	14.1	0.0	9.0	0.0	32.2	0.0	22.4
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.24	0.00	1.00	0.00	0.26	0.00	0.19
Lane Grp Cap (c), veh/h	0	704	0	413	0	707	0	469
V/C Ratio (X)	0.00	0.46	0.00	0.39	0.00	0.84	0.00	0.87
Avail Cap (c_a), veh/h	0	704	0	413	0	707	0	469
Upstream Filter (I)	0.00	0.94	0.00	1.00	0.00	0.51	0.00	0.70
Uniform Delay (d1), s/veh	0.0	20.1	0.0	28.9	0.0	25.2	0.0	34.8
Incr Delay (d2), s/veh	0.0	2.0	0.0	2.8	0.0	6.2	0.0	14.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	22.1	0.0	31.7	0.0	31.4	0.0	49.3
1st-Term Q (Q1), veh/ln	0.0	5.2	0.0	3.1	0.0	12.0	0.0	9.3
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.3	0.0	1.2	0.0	1.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.6	0.0	3.4	0.0	13.2	0.0	11.2
%ile Storage Ratio (RQ%)	0.00	0.03	0.00	0.12	0.00	0.13	0.00	0.07
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗		↖	↗		↕	
Traffic Volume (vph)	88	235	50	15	245	10	40	123	20	15	210	195
Future Volume (vph)	88	235	50	15	245	10	40	123	20	15	210	195
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	12	10	10	12	10	10	12	16	12
Storage Length (ft)	0		70	0		215	0		75	0		0
Storage Lanes	0		1	0		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. 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
Ped Bike Factor		1.00	0.94		1.00	0.95		1.00	0.97		0.99	
Frt			0.850			0.850			0.850		0.937	
Flt Protected		0.987			0.997			0.988			0.998	
Satd. Flow (prot)	0	1634	1428	0	1614	1428	0	1600	1428	0	1870	0
Flt Permitted		0.818			0.971			0.850			0.989	
Satd. Flow (perm)	0	1348	1347	0	1570	1360	0	1376	1390	0	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			34			34			94
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1331			477			2671			2164	
Travel Time (s)		30.3			10.8			60.7			49.2	
Confl. Peds. (#/hr)	19		25	25		19	3		6	6		3
Confl. Bikes (#/hr)	1		2	1		1	1		1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	0%	4%	0%	0%	5%	0%	0%	0%	2%
Adj. Flow (vph)	92	245	52	16	255	10	42	128	21	16	219	203
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	337	52	0	271	10	0	170	21	0	438	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.07	1.17	1.17	1.07	1.17	1.17	1.07	0.91	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Minimum Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	32.0	32.0	32.0	32.0	32.0	32.0
Yellow Time (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
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)		5.0	5.0		5.0	5.0		5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	14.0	14.0	14.0	14.0	14.0	14.0	23.0	23.0	23.0	23.0	23.0	23.0

Lanes, Volumes, Timings  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		23.0	23.0		23.0	23.0		32.0	32.0		32.0	
Actuated g/C Ratio		0.35	0.35		0.35	0.35		0.49	0.49		0.49	
v/c Ratio		0.71	0.10		0.49	0.02		0.25	0.03		0.46	
Control Delay		18.5	1.9		20.1	1.2		10.8	2.5		10.2	
Queue Delay		0.0	0.0		0.0	0.0		0.0	0.0		0.0	
Total Delay		18.5	1.9		20.1	1.2		10.8	2.5		10.2	
LOS		B	A		C	A		B	A		B	
Approach Delay		16.3			19.4			9.9			10.2	
Approach LOS		B			B			A			B	
Stops (vph)		271	12		198	1		89	3		304	
Fuel Used(gal)		6	1		3	0		8	1		11	
CO Emissions (g/hr)		425	42		218	3		535	60		792	
NOx Emissions (g/hr)		83	8		42	1		104	12		154	
VOC Emissions (g/hr)		98	10		51	1		124	14		183	
Dilemma Vehicles (#)		0	0		0	0		0	0		0	
Queue Length 50th (ft)		120	3		82	0		36	0		187	
Queue Length 95th (ft)		#231	m4		146	3		71	7		253	
Internal Link Dist (ft)		1251			397			2591			2084	
Turn Bay Length (ft)			70			215			75			
Base Capacity (vph)		476	508		555	503		677	701		959	
Starvation Cap Reductn		0	0		0	0		0	0		0	
Spillback Cap Reductn		0	0		0	0		0	0		0	
Storage Cap Reductn		0	0		0	0		0	0		0	
Reduced v/c Ratio		0.71	0.10		0.49	0.02		0.25	0.03		0.46	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

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

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 14.0

Intersection LOS: B

Intersection Capacity Utilization 88.9%

ICU Level of Service E

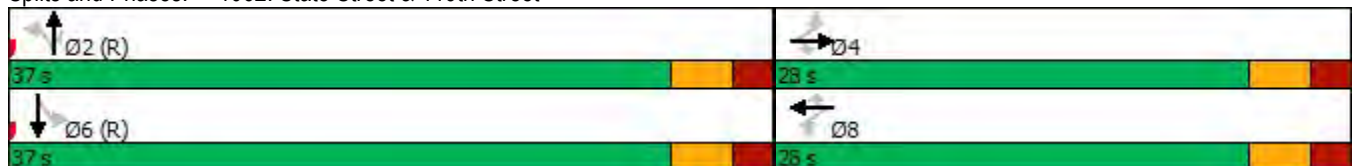
Analysis Period (min) 15

# 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: 1062: State Street & 119th Street



HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	235	50	15	245	10	40	123	20	15	210	195
Future Volume (veh/h)	88	235	50	15	245	10	40	123	20	15	210	195
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	0.99		0.94	0.99		0.94	1.00		0.97	1.00		0.99
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1800	1772	1800	1800	1744	1800	1800	1730	1800	1800	1872	1772
Adj Flow Rate, veh/h	92	245	52	16	255	10	42	128	21	16	219	203
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	0	0	4	0	0	5	0	0	0	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	71	122	509	59	376	510	213	599	731	69	441	391
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.12	0.12	0.12	0.35	0.35	0.35	0.49	0.49	0.49	0.49	0.49	0.49
Unsig. Movement Delay												
Ln Grp Delay, s/veh	386.5	0.0	19.9	23.3	0.0	13.7	9.9	0.0	8.6	13.1	0.0	0.0
Ln Grp LOS	F	A	B	C	A	B	A	A	A	B	A	A
Approach Vol, veh/h		389			281			191			438	
Approach Delay, s/veh		337.5			23.0			9.7			13.1	
Approach LOS		F			C			A			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			7.0		7.0		8.0		7.0			
Phs Duration (G+Y+Rc), s			37.0		28.0		37.0		28.0			
Change Period (Y+Rc), s			5.0		5.0		5.0		5.0			
Max Green (Gmax), s			32.0		23.0		32.0		23.0			
Max Allow Headway (MAH), s			4.6		4.5		4.5		4.4			
Max Q Clear (g_c+I1), s			5.6		25.0		13.3		25.0			
Green Ext Time (g_e), s			0.8		0.0		1.9		0.0			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			292		0		24		0			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			1217		344		895		1062			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1485		1439		794		1441			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment			L+T		L+T		L+T+R		L+T			

HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Mitigated

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	170	0	337	0	438	0	271
Grp Sat Flow (s), veh/h/ln	0	1509	0	344	0	1713	0	1062
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.6	0.0	23.0	0.0	11.3	0.0	23.0
Perm LT Sat Flow (s_l), veh/h/ln	0	978	0	1118	0	1252	0	1087
Shared LT Sat Flow (s_sh), veh/h/ln	0	1559	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	32.0	0.0	23.0	0.0	32.0	0.0	23.0
Perm LT Serve Time (g_u), s	0.0	20.7	0.0	0.0	0.0	28.4	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	6.0	0.0	4.5	0.0	19.6	0.0	14.0
Serve Time pre Blk (g_fs), s	0.0	3.6	0.0	4.5	0.0	11.3	0.0	7.7
Prop LT Inside Lane (P_L)	0.00	0.25	0.00	0.27	0.00	0.04	0.00	0.06
Lane Grp Cap (c), veh/h	0	812	0	192	0	901	0	435
V/C Ratio (X)	0.00	0.21	0.00	1.75	0.00	0.49	0.00	0.62
Avail Cap (c_a), veh/h	0	812	0	192	0	901	0	435
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.3	0.0	27.1	0.0	11.2	0.0	16.7
Incr Delay (d2), s/veh	0.0	0.6	0.0	359.5	0.0	1.9	0.0	6.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.9	0.0	386.5	0.0	13.1	0.0	23.3
1st-Term Q (Q1), veh/ln	0.0	1.2	0.0	3.3	0.0	3.7	0.0	2.8
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	19.2	0.0	0.5	0.0	0.8
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.3	0.0	22.5	0.0	4.2	0.0	3.6
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.45	0.00	0.05	0.00	0.21
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	36.2	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
<b>Lane Assignment</b>								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis  
1062: State Street & 119th Street

PM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R				R
Lanes in Grp	0	1	0	1	0	0	0	1
Grp Vol (v), veh/h	0	21	0	52	0	0	0	10
Grp Sat Flow (s), veh/h/ln	0	1485	0	1439	0	0	0	1441
Q Serve Time (g_s), s	0.0	0.5	0.0	2.1	0.0	0.0	0.0	0.3
Cycle Q Clear Time (g_c), s	0.0	0.5	0.0	2.1	0.0	0.0	0.0	0.3
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.46	0.00	1.00
Lane Grp Cap (c), veh/h	0	731	0	509	0	0	0	510
V/C Ratio (X)	0.00	0.03	0.00	0.10	0.00	0.00	0.00	0.02
Avail Cap (c_a), veh/h	0	731	0	509	0	0	0	510
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.5	0.0	19.5	0.0	0.0	0.0	13.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.6	0.0	19.9	0.0	0.0	0.0	13.7
1st-Term Q (Q1), veh/ln	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.05	0.00	0.25	0.00	0.00	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	111.9
HCM 6th LOS	F

Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑					↖	↑↑	↖
Traffic Volume (vph)	0	1099	365	379	1100	0	0	0	0	651	360	425
Future Volume (vph)	0	1099	365	379	1100	0	0	0	0	651	360	425
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	14
Storage Length (ft)	0		85	216		0	0		0	360		360
Storage Lanes	0		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91
Ped Bike Factor		0.99		1.00								
Frt		0.963									0.980	0.850
Flt Protected				0.950						0.950	0.981	
Satd. Flow (prot)	0	4565	0	1676	3320	0	0	0	0	1541	2911	1442
Flt Permitted				0.088						0.950	0.981	
Satd. Flow (perm)	0	4565	0	155	3320	0	0	0	0	1541	2911	1442
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68									13	88
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1359			322			590			708	
Travel Time (s)		30.9			7.3			13.4			16.1	
Confl. Peds. (#/hr)	15		11	11		15						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	3%	3%	2%	3%	0%	0%	0%	0%	1%	3%	3%
Adj. Flow (vph)	0	1121	372	387	1122	0	0	0	0	664	367	434
Shared Lane Traffic (%)										43%		23%
Lane Group Flow (vph)	0	1493	0	387	1122	0	0	0	0	378	753	334
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			34			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1		1	1					1	1	1
Detector Template												
Leading Detector (ft)		50		50	50					50	50	50
Trailing Detector (ft)		0		0	0					0	0	0
Detector 1 Position(ft)		0		0	0					0	0	0
Detector 1 Size(ft)		50		50	50					50	50	50
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
Turn Type		NA		pm+pt	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				6						4		4

Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		15.0		3.0	15.0					8.0	8.0	8.0
Minimum Split (s)		41.5		39.0	80.5					34.5	34.5	34.5
Total Split (s)		33.0		43.0	76.0					39.0	39.0	39.0
Total Split (%)		28.7%		37.4%	66.1%					33.9%	33.9%	33.9%
Maximum Green (s)		27.0		38.5	70.0					33.0	33.0	33.0
Yellow Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
All-Red Time (s)		1.5		1.0	1.5					1.5	1.5	1.5
Lost Time Adjust (s)		0.0		0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0		4.5	6.0					6.0	6.0	6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		7.0		3.5	7.0					3.0	3.0	3.0
Minimum Gap (s)		3.5		0.2	3.5					0.2	0.2	0.2
Time Before Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Time To Reduce (s)		20.0		0.0	20.0					0.0	0.0	0.0
Recall Mode		C-Max		None	C-Max					None	None	None
Walk Time (s)										1.5	1.5	1.5
Flash Dont Walk (s)										27.0	27.0	27.0
Pedestrian Calls (#/hr)										0	0	0
Act Effct Green (s)		41.0		72.2	70.7					32.3	32.3	32.3
Actuated g/C Ratio		0.36		0.63	0.61					0.28	0.28	0.28
v/c Ratio		0.89		0.90	0.55					0.87	0.91	0.71
Control Delay		42.8		37.7	21.0					61.1	55.6	36.4
Queue Delay		3.4		3.2	50.5					0.0	0.0	0.0
Total Delay		46.2		40.8	71.5					61.1	55.6	36.4
LOS		D		D	E					E	E	D
Approach Delay		46.2			63.7						52.6	
Approach LOS		D			E						D	
90th %ile Green (s)		29.3		36.2	70.0					33.0	33.0	33.0
90th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
70th %ile Green (s)		35.6		29.9	70.0					33.0	33.0	33.0
70th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
50th %ile Green (s)		40.1		25.4	70.0					33.0	33.0	33.0
50th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
30th %ile Green (s)		44.7		20.8	70.0					33.0	33.0	33.0
30th %ile Term Code		Coord		Gap	Coord					Max	Max	Max
10th %ile Green (s)		55.2		13.8	73.5					29.5	29.5	29.5
10th %ile Term Code		Coord		Gap	Coord					Gap	Gap	Gap
Stops (vph)		1118		335	916					330	662	222
Fuel Used(gal)		34		6	13					8	16	5
CO Emissions (g/hr)		2406		399	876					592	1124	381
NOx Emissions (g/hr)		468		78	171					115	219	74
VOC Emissions (g/hr)		558		92	203					137	261	88
Dilemma Vehicles (#)		0		0	0					0	0	0
Queue Length 50th (ft)		369		232	369					291	305	180
Queue Length 95th (ft)		#586		m283	m447					#474	#429	302
Internal Link Dist (ft)		1279			242			510			628	



Lanes, Volumes, Timings  
1064: S Paulina St & 127th Street

PM Peak  
Build Conditions - Mitigated

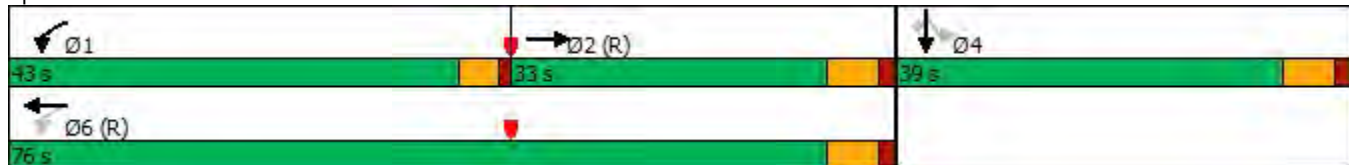


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)				216						360		360
Base Capacity (vph)		1670		606	2040					442	844	476
Starvation Cap Reductn		0		131	1135					0	0	0
Spillback Cap Reductn		111		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.96		0.81	1.24					0.86	0.89	0.70

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 85 (74%), Referenced to phase 2:EBT and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 54.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 116.6%  
 ICU Level of Service H  
 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: 1064: S Paulina St & 127th Street

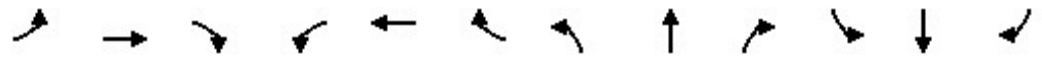


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HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Lanes, Volumes, Timings  
1065: Marshfield Ave & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↑↑		↖	↑↑				
Traffic Volume (vph)	430	1320	0	0	1068	339	410	340	301	0	0	0
Future Volume (vph)	430	1320	0	0	1068	339	410	340	301	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	216		216	0		130	0		0	0		0
Storage Lanes	0		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Flt					0.964			0.930				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	3252	3353	0	0	4635	0	1676	3120	0	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	3247	3353	0	0	4635	0	1676	3120	0	0	0	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)					82							
Link Speed (mph)		30			30			30				30
Link Distance (ft)		322			336			554				548
Travel Time (s)		7.3			7.6			12.6				12.5
Confl. Peds. (#/hr)	7		5	5		7						
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	2%	1%	3%	0%	0%	0%
Adj. Flow (vph)	453	1389	0	0	1124	357	432	358	317	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	453	1389	0	0	1481	0	432	675	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		34			24			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	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				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Prot	NA			NA		Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases							8					
Detector Phase	5	2			6		8	8				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	3.0	15.0			15.0		10.0	10.0				
Minimum Split (s)	26.5	80.5			54.0		34.5	34.5				
Total Split (s)	25.0	76.0			51.0		39.0	39.0				
Total Split (%)	21.7%	66.1%			44.3%		33.9%	33.9%				
Maximum Green (s)	19.0	70.0			45.0		33.0	33.0				
Yellow Time (s)	4.5	4.5			4.5		4.5	4.5				
All-Red Time (s)	1.5	1.5			1.5		1.5	1.5				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	7.0			7.0		5.0	5.0				
Minimum Gap (s)	0.2	3.5			3.5		0.2	0.2				
Time Before Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Time To Reduce (s)	0.0	20.0			20.0		0.0	0.0				
Recall Mode	None	C-Max			C-Max		None	None				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							21.5	21.5				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	18.6	70.2			45.6		32.8	32.8				
Actuated g/C Ratio	0.16	0.61			0.40		0.29	0.29				
v/c Ratio	0.86	0.68			0.78		0.91	0.76				
Control Delay	54.1	6.6			28.7		63.7	43.9				
Queue Delay	0.0	14.1			18.4		7.3	0.0				
Total Delay	54.1	20.7			47.1		71.0	43.9				
LOS	D	C			D		E	D				
Approach Delay		28.9			47.1			54.5				
Approach LOS		C			D			D				
90th %ile Green (s)	19.0	70.0			45.0		33.0	33.0				
90th %ile Term Code	Max	Coord			Coord		Max	Max				
70th %ile Green (s)	19.0	70.0			45.0		33.0	33.0				
70th %ile Term Code	Max	Coord			Coord		Max	Max				
50th %ile Green (s)	19.0	70.0			45.0		33.0	33.0				
50th %ile Term Code	Max	Coord			Coord		Max	Max				
30th %ile Green (s)	19.0	70.0			45.0		33.0	33.0				
30th %ile Term Code	Max	Coord			Coord		Max	Max				
10th %ile Green (s)	16.9	71.0			48.1		32.0	32.0				
10th %ile Term Code	Gap	Coord			Coord		Gap	Gap				
Stops (vph)	379	689			757		363	573				
Fuel Used(gal)	8	9			16		9	12				
CO Emissions (g/hr)	553	622			1125		636	815				
NOx Emissions (g/hr)	108	121			219		124	159				
VOC Emissions (g/hr)	128	144			261		147	189				
Dilemma Vehicles (#)	0	0			0		0	0				
Queue Length 50th (ft)	149	266			224		307	239				
Queue Length 95th (ft)	m166	m15			m281		#494	310				
Internal Link Dist (ft)		242			256			474			468	
Turn Bay Length (ft)	216											

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PM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)	537	2046			1888		480	895				
Starvation Cap Reductn	0	665			261		0	0				
Spillback Cap Reductn	0	127			441		31	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.84	1.01			1.02		0.96	0.75				

Intersection Summary
























Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 41.4 Intersection LOS: D  
 Intersection Capacity Utilization 116.6% ICU Level of Service H  
 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: 1065: Marshfield Ave & 127th Street



HCM 6th Signalized Intersection Capacity Analysis  
1065: Marshfield Ave & 127th Street

PM Peak  
Build Conditions - Mitigated

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 	 				
Traffic Volume (veh/h)	430	1320	0	0	1068	339	410	340	301	0	0	0
Future Volume (veh/h)	430	1320	0	0	1068	339	410	340	301	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q, veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1772	1772	0	0	1772	1786	1772	1786	1758			
Adj Flow Rate, veh/h	453	1389	0	0	1124	357	432	358	317			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	1	2	1	3			
Opposing Right Turn Influence	Yes			No			Yes					
Cap, veh/h	514	2069	0	0	1466	466	474	482	421			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Prop Arrive On Green	0.11	0.41	0.00	0.00	0.81	0.81	0.28	0.28	0.28			
Unsig. Movement Delay												
Ln Grp Delay, s/veh	56.3	25.0	0.0	0.0	9.7	11.4	62.0	44.8	46.3			
Ln Grp LOS	E	C	A	A	A	B	E	D	D			
Approach Vol, veh/h		1842			1481			1107				
Approach Delay, s/veh		32.7			10.3			51.9				
Approach LOS		C			B			D				
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2	8		5	6					
Case No			4.0	10.0		2.0	8.0					
Phs Duration (G+Y+Rc), s			76.7	38.3		24.1	52.6					
Change Period (Y+Rc), s			6.0	6.0		6.0	6.0					
Max Green (Gmax), s			70.0	33.0		19.0	45.0					
Max Allow Headway (MAH), s			8.3	6.4		4.9	8.4					
Max Q Clear (g_c+I1), s			40.6	30.4		17.7	19.9					
Green Ext Time (g_e), s			23.6	1.9		0.4	20.9					
Prob of Phs Call (p_c)			1.00	1.00		1.00	1.00					
Prob of Max Out (p_x)			0.00	1.00		1.00	0.00					
<b>Left-Turn Movement Data</b>												
Assigned Mvmt				3		5	1					
Mvmt Sat Flow, veh/h				1688		3274	0					
<b>Through Movement Data</b>												
Assigned Mvmt			2	8			6					
Mvmt Sat Flow, veh/h			3455	1715			3776					
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12	18			16					
Mvmt Sat Flow, veh/h			0	1498			1149					
<b>Left Lane Group Data</b>												
Assigned Mvmt		0	0	3	0	5	1	0	0			
Lane Assignment				L		L (Prot)						

HCM 6th Signalized Intersection Capacity Analysis  
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Lanes in Grp	0	0	1	0	2	0	0	0
Grp Vol (v), veh/h	0	0	432	0	453	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1688	0	1637	0	0	0
Q Serve Time (g_s), s	0.0	0.0	28.4	0.0	15.7	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	28.4	0.0	15.7	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1688	0	0	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	46.6	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	474	0	514	0	0	0
V/C Ratio (X)	0.00	0.00	0.91	0.00	0.88	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	484	0	541	0	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.33	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	39.9	0.0	50.4	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	22.1	0.0	5.9	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	62.0	0.0	56.3	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	11.7	0.0	6.7	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	2.9	0.0	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	14.6	0.0	7.1	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.75	0.00	0.66	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T	T			T		
Lanes in Grp	0	2	1	0	0	2	0	0
Grp Vol (v), veh/h	0	1389	354	0	0	1002	0	0
Grp Sat Flow (s), veh/h/ln	0	1683	1697	0	0	1612	0	0
Q Serve Time (g_s), s	0.0	38.6	21.8	0.0	0.0	17.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	38.6	21.8	0.0	0.0	17.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	2069	477	0	0	1307	0	0
V/C Ratio (X)	0.00	0.67	0.74	0.00	0.00	0.77	0.00	0.00
Avail Cap (c_a), veh/h	0	2069	487	0	0	1307	0	0
Upstream Filter (I)	0.00	0.33	1.00	0.00	0.00	0.35	0.00	0.00
Uniform Delay (d1), s/veh	0.0	24.4	37.5	0.0	0.0	8.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	7.2	0.0	0.0	1.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	25.0	44.8	0.0	0.0	9.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	16.2	9.0	0.0	0.0	2.8	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.2	1.0	0.0	0.0	0.3	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	16.4	9.9	0.0	0.0	3.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	1.52	0.51	0.00	0.00	0.36	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment			T+R			T+R		
Lanes in Grp	0	0	1	0	0	1	0	0
Grp Vol (v), veh/h	0	0	321	0	0	479	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1516	0	0	1541	0	0
Q Serve Time (g_s), s	0.0	0.0	22.2	0.0	0.0	17.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	22.2	0.0	0.0	17.9	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.00	0.99	0.00	0.00	0.75	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	426	0	0	625	0	0
V/C Ratio (X)	0.00	0.00	0.75	0.00	0.00	0.77	0.00	0.00
Avail Cap (c_a), veh/h	0	0	435	0	0	625	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.00	0.35	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	37.7	0.0	0.0	8.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	8.6	0.0	0.0	3.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	46.3	0.0	0.0	11.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	8.2	0.0	0.0	2.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	1.0	0.0	0.0	0.6	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	9.2	0.0	0.0	3.3	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.47	0.00	0.00	0.37	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0























Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C



Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Mitigated

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	731	465	120	766	68	285	225	85	96	205	155
Future Volume (vph)	155	731	465	120	766	68	285	225	85	96	205	155
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	11	12	12	10	12	13	10	10	10
Storage Length (ft)	120		0	85		0	240		0	120		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	80			120			125			140		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	1.00		1.00	0.99		0.99	0.99	
Frt			0.850		0.988			0.959				0.935
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1565	3386	1337	1605	3282	0	1580	3216	0	1550	2945	0
Flt Permitted	0.109			0.347			0.298			0.553		
Satd. Flow (perm)	179	3386	1292	583	3282	0	493	3216	0	894	2945	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			384		8			50				165
Link Speed (mph)		30			30			30				30
Link Distance (ft)		336			5379			1555				925
Travel Time (s)		7.6			122.3			35.3				21.0
Confl. Peds. (#/hr)	11		23	23		11	8		12	12		8
Confl. Bikes (#/hr)									1			
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 (%)	2%	1%	3%	3%	3%	0%	1%	1%	2%	3%	0%	1%
Parking (#/hr)			0									
Adj. Flow (vph)	165	778	495	128	815	72	303	239	90	102	218	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	778	495	128	887	0	303	329	0	102	383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.17	1.07	1.22	1.12	1.07	1.07	1.17	1.07	1.03	1.17	1.17	1.17
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50		50	50		50	50	
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)	50	50	50	50	50		50	50		50	50	
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	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2	3	1	6		3	8		7	4	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	3	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	3.0	15.0	3.0	3.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (s)	15.0	44.0	20.5	12.5	41.5		20.5	43.5		15.0	38.0	
Total Split (%)	13.0%	38.3%	17.8%	10.9%	36.1%		17.8%	37.8%		13.0%	33.0%	
Maximum Green (s)	10.5	38.0	16.0	8.0	35.5		16.0	37.5		10.5	32.0	
Yellow Time (s)	3.5	4.5	3.5	3.5	4.5		3.5	4.5		3.5	4.5	
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5		1.0	1.5	
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)	4.5	6.0	4.5	4.5	6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0	3.0	3.0	7.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	0.2	4.0	0.2	0.2	4.0		0.2	4.0		0.2	4.0	
Time Before Reduce (s)	0.0	25.0	0.0	0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	15.0	0.0	0.0	15.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	C-Max	None	None	C-Max		None	None		None	None	
Walk Time (s)		14.0			13.0			5.0			5.0	
Flash Dont Walk (s)		22.0			22.0			26.0			26.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	63.9	48.2	65.7	47.1	35.5		41.7	26.2		30.8	19.8	
Actuated g/C Ratio	0.56	0.42	0.57	0.41	0.31		0.36	0.23		0.27	0.17	
v/c Ratio	0.44	0.55	0.55	0.39	0.87		0.92	0.43		0.35	0.60	
Control Delay	16.4	20.0	7.2	18.2	47.9		60.2	29.8		27.9	27.9	
Queue Delay	0.0	1.1	0.3	0.0	0.2		2.6	0.0		0.0	0.1	
Total Delay	16.4	21.2	7.4	18.2	48.1		62.8	29.8		27.9	28.0	
LOS	B	C	A	B	D		E	C		C	C	
Approach Delay		15.9			44.3			45.6			28.0	
Approach LOS		B			D			D			C	
90th %ile Green (s)	16.4	38.0	16.0	13.9	35.5		16.0	31.6		10.5	26.1	
90th %ile Term Code	MaxR	Coord	Max	Max	Coord		Max	Hold		Max	Gap	
70th %ile Green (s)	20.4	44.5	16.0	11.4	35.5		16.0	27.6		10.5	22.1	
70th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
50th %ile Green (s)	23.6	49.3	16.0	9.8	35.5		16.0	24.4		10.5	18.9	
50th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Max	Gap	
30th %ile Green (s)	25.8	52.8	16.0	8.5	35.5		16.0	23.5		9.2	16.7	
30th %ile Term Code	MaxR	Coord	Max	Gap	Coord		Max	Hold		Gap	Gap	
10th %ile Green (s)	27.8	56.5	15.7	6.8	35.5		15.7	23.7		7.0	15.0	
10th %ile Term Code	MaxR	Coord	Gap	Gap	Coord		Gap	Hold		Gap	Min	
Stops (vph)	80	549	193	69	745		244	286		70	186	
Fuel Used(gal)	1	8	3	6	47		8	7		2	6	
CO Emissions (g/hr)	96	555	207	409	3301		580	503		114	396	
NOx Emissions (g/hr)	19	108	40	80	642		113	98		22	77	
VOC Emissions (g/hr)	22	129	48	95	765		134	117		26	92	
Dilemma Vehicles (#)	0	0	0	0	0		0	0		0	0	
Queue Length 50th (ft)	26	226	131	42	323		204	105		52	78	
Queue Length 95th (ft)	m108	328	246	85	#433		#317	153		84	121	

Lanes, Volumes, Timings  
1066: S Ashland & 127th Street

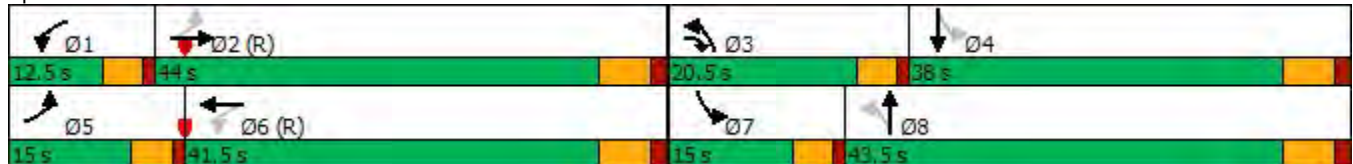
PM Peak  
Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		256			5299			1475			845	
Turn Bay Length (ft)	120			85			240			120		
Base Capacity (vph)	374	1419	909	331	1018		330	1082		306	938	
Starvation Cap Reductn	0	387	82	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	7		7	0		0	42	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.44	0.75	0.60	0.39	0.88		0.94	0.30		0.33	0.43	

Intersection Summary

Area Type: Other  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 15 (13%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 30.9 Intersection LOS: C  
 Intersection Capacity Utilization 88.0% ICU Level of Service E  
 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: 1066: S Ashland & 127th Street



HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	731	465	120	766	68	285	225	85	96	205	155
Future Volume (veh/h)	155	731	465	120	766	68	285	225	85	96	205	155
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		0.98	1.00		0.98	0.99		0.97	0.99		0.98
Parking Bus Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1772	1786	1758	1758	1758	1800	1786	1786	1843	1758	1800	1786
Adj Flow Rate, veh/h	165	778	495	128	815	72	303	239	90	102	218	165
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	3	3	3	0	1	1	2	3	0	1
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	320	1406	733	314	1194	105	390	671	245	356	380	273
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Prop Arrive On Green	0.18	0.83	0.83	0.06	0.39	0.39	0.05	0.09	0.09	0.06	0.20	0.20
Unsig. Movement Delay												
Ln Grp Delay, s/veh	22.8	7.6	8.2	19.8	34.2	34.1	42.0	44.4	44.9	33.6	48.1	50.3
Ln Grp LOS	C	A	A	B	C	C	D	D	D	C	D	D
Approach Vol, veh/h		1438			1015			632			485	
Approach Delay, s/veh		9.5			32.4			43.4			45.9	
Approach LOS		A			C			D			D	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6	7	8			
Case No		1.1	3.0	1.1	4.0	1.1	4.0	1.1	4.0			
Phs Duration (G+Y+Rc), s		11.7	53.6	20.5	29.2	15.0	50.3	11.8	37.9			
Change Period (Y+Rc), s		4.5	6.0	4.5	6.0	4.5	6.0	4.5	6.0			
Max Green (Gmax), s		8.0	38.0	16.0	32.0	10.5	35.5	10.5	37.5			
Max Allow Headway (MAH), s		4.4	8.4	4.4	8.5	4.4	8.3	4.4	8.4			
Max Q Clear (g_c+I1), s		7.3	24.7	17.5	14.7	8.5	27.2	7.5	13.0			
Green Ext Time (g_e), s		0.0	11.1	0.0	4.7	0.1	5.9	0.1	4.7			
Prob of Phs Call (p_c)		0.98	1.00	1.00	1.00	1.00	1.00	0.96	1.00			
Prob of Max Out (p_x)		1.00	0.00	1.00	0.30	0.00	0.00	1.00	0.08			
<b>Left-Turn Movement Data</b>												
Assigned Mvmt		1		3		5		7				
Mvmt Sat Flow, veh/h		1674		1701		1688		1674				
<b>Through Movement Data</b>												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3393		1884		3099		2416			
<b>Right-Turn Movement Data</b>												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1318		1354		274		881			
<b>Left Lane Group Data</b>												
Assigned Mvmt		1	0	3	0	5	0	7	0			
Lane Assignment		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)				

HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Mitigated

Lanes in Grp	1	0	1	0	1	0	1	0
Grp Vol (v), veh/h	128	0	303	0	165	0	102	0
Grp Sat Flow (s), veh/h/ln	1674	0	1701	0	1688	0	1674	0
Q Serve Time (g_s), s	5.3	0.0	15.5	0.0	6.5	0.0	5.5	0.0
Cycle Q Clear Time (g_c), s	5.3	0.0	15.5	0.0	6.5	0.0	5.5	0.0
Perm LT Sat Flow (s_l), veh/h/ln	430	0	1001	0	625	0	1031	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	44.3	0.0	25.2	0.0	45.1	0.0	23.2	0.0
Perm LT Serve Time (g_u), s	39.3	0.0	10.4	0.0	19.1	0.0	20.9	0.0
Perm LT Q Serve Time (g_ps), s	2.1	0.0	7.4	0.0	8.1	0.0	0.3	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Lane Grp Cap (c), veh/h	314	0	390	0	320	0	356	0
V/C Ratio (X)	0.41	0.00	0.78	0.00	0.51	0.00	0.29	0.00
Avail Cap (c_a), veh/h	326	0	390	0	320	0	403	0
Upstream Filter (I)	0.81	0.00	0.91	0.00	0.68	0.00	1.00	0.00
Uniform Delay (d1), s/veh	19.2	0.0	33.3	0.0	18.8	0.0	33.1	0.0
Incr Delay (d2), s/veh	0.7	0.0	8.7	0.0	4.0	0.0	0.4	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	19.8	0.0	42.0	0.0	22.8	0.0	33.6	0.0
1st-Term Q (Q1), veh/ln	2.0	0.0	7.0	0.0	2.2	0.0	2.2	0.0
2nd-Term Q (Q2), veh/ln	0.1	0.0	0.9	0.0	0.4	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
%ile Back of Q (50%), veh/ln	2.1	0.0	7.9	0.0	2.6	0.0	2.3	0.0
%ile Storage Ratio (RQ%)	0.63	0.00	0.83	0.00	0.54	0.00	0.49	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	778	0	197	0	439	0	165
Grp Sat Flow (s), veh/h/ln	0	1697	0	1710	0	1670	0	1697
Q Serve Time (g_s), s	0.0	8.3	0.0	11.9	0.0	25.2	0.0	10.5
Cycle Q Clear Time (g_c), s	0.0	8.3	0.0	11.9	0.0	25.2	0.0	10.5
Lane Grp Cap (c), veh/h	0	1406	0	345	0	643	0	471
V/C Ratio (X)	0.00	0.55	0.00	0.57	0.00	0.68	0.00	0.35
Avail Cap (c_a), veh/h	0	1406	0	476	0	643	0	553
Upstream Filter (I)	0.00	0.68	0.00	1.00	0.00	0.81	0.00	0.91
Uniform Delay (d1), s/veh	0.0	6.5	0.0	41.4	0.0	29.5	0.0	42.5
Incr Delay (d2), s/veh	0.0	1.1	0.0	6.7	0.0	4.7	0.0	1.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.6	0.0	48.1	0.0	34.2	0.0	44.4
1st-Term Q (Q1), veh/ln	0.0	1.9	0.0	5.0	0.0	10.0	0.0	4.8
2nd-Term Q (Q2), veh/ln	0.0	0.2	0.0	0.6	0.0	0.8	0.0	0.2

HCM 6th Signalized Intersection Capacity Analysis  
1066: S Ashland & 127th Street

PM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.1	0.0	5.7	0.0	10.8	0.0	5.0
%ile Storage Ratio (RQ%)	0.00	0.24	0.00	0.16	0.00	0.05	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		T+R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	495	0	186	0	448	0	164
Grp Sat Flow (s), veh/h/ln	0	1318	0	1527	0	1703	0	1600
Q Serve Time (g_s), s	0.0	22.7	0.0	12.7	0.0	25.2	0.0	11.0
Cycle Q Clear Time (g_c), s	0.0	22.7	0.0	12.7	0.0	25.2	0.0	11.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	1340.8	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	16.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	0.89	0.00	0.16	0.00	0.55
Lane Grp Cap (c), veh/h	0	733	0	308	0	656	0	444
V/C Ratio (X)	0.00	0.68	0.00	0.60	0.00	0.68	0.00	0.37
Avail Cap (c_a), veh/h	0	733	0	425	0	656	0	522
Upstream Filter (I)	0.00	0.68	0.00	1.00	0.00	0.81	0.00	0.91
Uniform Delay (d1), s/veh	0.0	4.8	0.0	41.7	0.0	29.5	0.0	42.7
Incr Delay (d2), s/veh	0.0	3.4	0.0	8.5	0.0	4.6	0.0	2.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.2	0.0	50.3	0.0	34.1	0.0	44.9
1st-Term Q (Q1), veh/ln	0.0	1.8	0.0	4.8	0.0	10.2	0.0	4.7
2nd-Term Q (Q2), veh/ln	0.0	0.7	0.0	0.7	0.0	0.8	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.5	0.0	5.5	0.0	11.0	0.0	5.0
%ile Storage Ratio (RQ%)	0.00	0.29	0.00	0.16	0.00	0.05	0.00	0.09
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔↔		↔	↔↔	
Traffic Volume (vph)	110	632	145	15	574	85	120	330	10	195	595	180
Future Volume (vph)	110	632	145	15	574	85	120	330	10	195	595	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	11	12	11	12	12	11	11	12
Storage Length (ft)	0		0	0		0	135		0	130		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			105		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.975			0.981			0.995			0.965	
Flt Protected		0.994			0.999		0.950			0.950		
Satd. Flow (prot)	0	3138	0	0	3156	0	1559	3337	0	1637	3082	0
Flt Permitted		0.685			0.923		0.160			0.504		
Satd. Flow (perm)	0	2162	0	0	2916	0	262	3337	0	866	3082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			21			3			45	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		5379			1323			450			5338	
Travel Time (s)		122.3			30.1			10.2			121.3	
Confl. Peds. (#/hr)	4		2	2		4	8		4	4		8
Confl. Bikes (#/hr)												2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	2%	2%	0%	2%	6%	6%	2%	0%	1%	3%	3%
Adj. Flow (vph)	118	680	156	16	617	91	129	355	11	210	640	194
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	954	0	0	724	0	129	366	0	210	834	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.12	1.07	1.07	1.12	1.07	1.12	1.07	1.07	1.12	1.12	1.07
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	50	50		50	50		50	50		50	50	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
1068: Halsted Street & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	3.0	15.0		15.0	15.0		3.0	15.0		3.0	15.0	
Minimum Split (s)	8.0	37.0		21.0	21.0		8.0	31.0		8.0	21.0	
Total Split (s)	8.0	49.0		41.0	41.0		8.0	33.0		8.0	33.0	
Total Split (%)	8.9%	54.4%		45.6%	45.6%		8.9%	36.7%		8.9%	36.7%	
Maximum Green (s)	4.5	43.0		35.0	35.0		4.5	27.0		4.5	27.0	
Yellow Time (s)	3.5	4.0		4.0	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		3.5	6.0		3.5	6.0	
Lead/Lag	Lead			Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0		5.0	5.0		3.0	7.0		3.0	7.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Time To Reduce (s)	0.0	20.0		20.0	20.0		0.0	24.0		0.0	24.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		9.0						7.0				
Flash Dont Walk (s)		22.0						18.0				
Pedestrian Calls (#/hr)		2						4				
Act Effct Green (s)		42.7			42.7		34.0	27.0		34.0	27.0	
Actuated g/C Ratio		0.48			0.48		0.38	0.30		0.38	0.30	
v/c Ratio		0.91			0.52		0.79	0.36		0.57	0.87	
Control Delay		35.4			17.4		53.6	25.7		26.9	39.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		35.4			17.4		53.6	25.7		26.9	39.5	
LOS		D			B		D	C		C	D	
Approach Delay		35.4			17.4			33.0			37.0	
Approach LOS		D			B			C			D	
90th %ile Green (s)	0.0	43.0		43.0	43.0		4.5	27.0		4.5	27.0	
90th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
70th %ile Green (s)	0.0	43.0		43.0	43.0		4.5	27.0		4.5	27.0	
70th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
50th %ile Green (s)	0.0	43.0		43.0	43.0		4.5	27.0		4.5	27.0	
50th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
30th %ile Green (s)	0.0	43.0		43.0	43.0		4.5	27.0		4.5	27.0	
30th %ile Term Code	Skip	Max		Hold	Hold		Max	Hold		Max	Max	
10th %ile Green (s)	0.0	41.4		41.4	41.4		4.5	27.0		4.5	27.0	
10th %ile Term Code	Skip	Gap		Hold	Hold		Max	Hold		Max	Max	
Stops (vph)		728			433		73	255		152	655	
Fuel Used(gal)		48			12		2	4		10	42	
CO Emissions (g/hr)		3328			820		149	306		701	2947	
NOx Emissions (g/hr)		647			159		29	60		136	573	
VOC Emissions (g/hr)		771			190		35	71		162	683	
Dilemma Vehicles (#)		0			0		0	0		0	0	
Queue Length 50th (ft)		245			139		45	84		78	224	
Queue Length 95th (ft)		#386			191		#121	124		131	#332	
Internal Link Dist (ft)		5299			1243			370			5258	



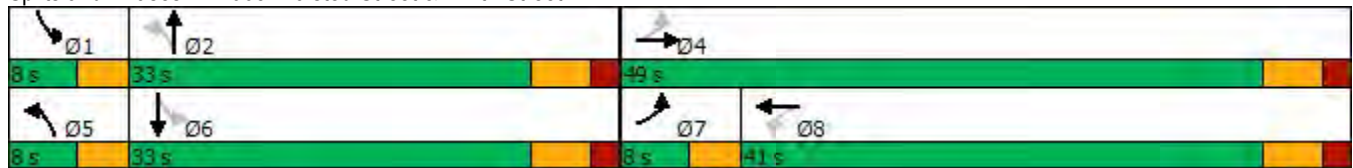
Lanes, Volumes, Timings  
 1068: Halsted Street & 127th Street

PM Peak  
 Build Conditions - Mitigated

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)							135			130		
Base Capacity (vph)		1055			1398		164	1007		366	959	
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		0.90			0.52		0.79	0.36		0.57	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	89.7
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	31.5
Intersection LOS:	C
Intersection Capacity Utilization:	95.8%
ICU Level of Service:	F
Analysis Period (min):	15
90th %ile Actuated Cycle:	90
70th %ile Actuated Cycle:	90
50th %ile Actuated Cycle:	90
30th %ile Actuated Cycle:	90
10th %ile Actuated Cycle:	88.4
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1068: Halsted Street & 127th Street



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HCM 6th Edition methodology does not support a perm + prot left-turn type from a shared lane. Left-turn bay is needed for phases 7.

Lanes, Volumes, Timings  
1070: Vermont St & S Wallance St & 127th Street

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	807	316	704	20	5	10	10	50	10	0	5
Future Volume (vph)	5	807	316	704	20	5	10	10	50	10	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	10	10	10	12	14	14	12	12	16	12
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00	1.00			0.99	0.98			0.98	
Frt				0.996				0.875			0.930	
Flt Protected			0.950				0.950				0.977	
Satd. Flow (prot)	0	3161	1565	1653	0	0	1824	1654	0	0	1812	0
Flt Permitted		0.950	0.175				0.742				0.895	
Satd. Flow (perm)	0	3002	288	1653	0	0	1406	1654	0	0	1657	0
Right Turn on Red					No				No			
Satd. Flow (RTOR)												
Link Speed (mph)		30		30				30			30	
Link Distance (ft)		1323		3930				1256			658	
Travel Time (s)		30.1		89.3				28.5			15.0	
Confl. Peds. (#/hr)	7		4		7		7		2	2		7
Confl. Bikes (#/hr)			1						2			2
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%	1%	2%	1%	6%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	897	351	782	22	6	11	11	56	11	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	903	351	804	0	0	17	67	0	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(ft)		10		10				14			0	
Link Offset(ft)		0		0				0			0	
Crosswalk Width(ft)		16		16				16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.17	1.17	1.17	1.07	0.99	0.99	1.07	1.07	0.91	1.07
Turning Speed (mph)	15		15		9	15	15		9	15		9
Turn Type	Perm	NA	custom	NA		Perm	Perm	NA		Perm	NA	
Protected Phases		8	7	4				2			6	
Permitted Phases	8		4	7		2	2			6		
Minimum Split (s)	23.0	23.0	9.0	32.0		18.0	18.0	18.0		18.0	18.0	
Total Split (s)	41.0	41.0	29.0	70.0		20.0	20.0	20.0		20.0	20.0	
Total Split (%)	45.6%	45.6%	32.2%	77.8%		22.2%	22.2%	22.2%		22.2%	22.2%	
Maximum Green (s)	36.0	36.0	26.0	65.0		16.0	16.0	16.0		16.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	0.0	2.0		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	
Total Lost Time (s)		5.0	3.0	5.0				4.0		4.0	4.0	
Lead/Lag	Lag	Lag	Lead									
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		18.0		5.0	5.0	5.0				
Flash Dont Walk (s)	9.0	9.0		9.0		9.0	9.0	9.0				
Pedestrian Calls (#/hr)	0	0		0		0	0	0				
Act Effect Green (s)		36.0	67.0	65.0			16.0	16.0			16.0	

Lanes, Volumes, Timings  
 1070: Vermont St & S Wallance St & 127th Street

PM Peak  
 Build Conditions - Mitigated



Lane Group	SBR2	NER
Lane Configurations		
Traffic Volume (vph)	5	318
Future Volume (vph)	5	318
Ideal Flow (vphpl)	1800	1800
Lane Width (ft)	12	14
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.865
Flt Protected		
Satd. Flow (prot)	0	1661
Flt Permitted		
Satd. Flow (perm)	0	1661
Right Turn on Red	No	
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	6	353
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	353
Enter Blocked Intersection	No	No
Lane Alignment	Right	Right
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor	1.07	0.99
Turning Speed (mph)	9	9
Turn Type		Over
Protected Phases		7
Permitted Phases		
Minimum Split (s)		9.0
Total Split (s)		29.0
Total Split (%)		32.2%
Maximum Green (s)		26.0
Yellow Time (s)		3.0
All-Red Time (s)		0.0
Lost Time Adjust (s)		0.0
Total Lost Time (s)		3.0
Lead/Lag		Lead
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		26.0

Lanes, Volumes, Timings  
 1070: Vermont St & S Wallance St & 127th Street

PM Peak  
 Build Conditions - Mitigated



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.40	0.74	0.72			0.18	0.18			0.18	
v/c Ratio		0.75	0.60	0.67			0.07	0.23			0.08	
Control Delay		28.0	10.3	7.7			31.7	34.1			31.8	
Queue Delay		0.0	0.0	0.0			0.0	0.0			0.0	
Total Delay		28.0	10.3	7.7			31.7	34.1			31.8	
LOS		C	B	A			C	C			C	
Approach Delay		28.0		8.5				33.6			31.8	
Approach LOS		C		A				C			C	
Stops (vph)		676	131	375			14	50			19	
Fuel Used(gal)		17	11	25			0	1			0	
CO Emissions (g/hr)		1172	774	1775			22	90			24	
NOx Emissions (g/hr)		228	151	345			4	17			5	
VOC Emissions (g/hr)		272	179	411			5	21			6	
Dilemma Vehicles (#)		0	0	0			0	0			0	
Queue Length 50th (ft)		226	28	220			8	33			11	
Queue Length 95th (ft)		302	125	381			27	71			33	
Internal Link Dist (ft)		1243		3850				1176			578	
Turn Bay Length (ft)												
Base Capacity (vph)		1200	583	1193			249	294			294	
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		0.75	0.60	0.67			0.07	0.23			0.08	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 65  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 20.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 87.4%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1070: Vermont St & S Wallance St & 127th Street





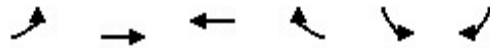
Lane Group	SBR2	NER
Actuated g/C Ratio		0.29
v/c Ratio		0.74
Control Delay		39.7
Queue Delay		0.0
Total Delay		39.7
LOS		D
Approach Delay		
Approach LOS		
Stops (vph)		277
Fuel Used(gal)		8
CO Emissions (g/hr)		527
NOx Emissions (g/hr)		102
VOC Emissions (g/hr)		122
Dilemma Vehicles (#)		0
Queue Length 50th (ft)		181
Queue Length 95th (ft)		#303
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		479
Starvation Cap Reductn		0
Spillback Cap Reductn		0
Storage Cap Reductn		0
Reduced v/c Ratio		0.74
Intersection Summary		

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HCM 6th Edition methodology does not support more than 4 approaches.

Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Build Conditions - Mitigated

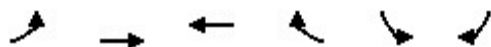


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Volume (vph)	290	897	831	70	95	230
Future Volume (vph)	290	897	831	70	95	230
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Storage Length (ft)	0			0	0	150
Storage Lanes	0			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.988			0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	3062	3062	0	1550	1386
Flt Permitted		0.572			0.950	
Satd. Flow (perm)	0	1773	3062	0	1550	1386
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			26			222
Link Speed (mph)		30	20		30	
Link Distance (ft)		3930	637		2686	
Travel Time (s)		89.3	21.7		61.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	312	965	894	75	102	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1277	969	0	102	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		10	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.17	1.17	1.17	1.17	1.17	1.17
Turning Speed (mph)	15			9	15	9
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Minimum Split (s)	44.0	44.0	44.0		21.0	21.0
Total Split (s)	70.0	70.0	70.0		20.0	20.0
Total Split (%)	77.8%	77.8%	77.8%		22.2%	22.2%
Maximum Green (s)	66.0	66.0	66.0		16.0	16.0
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)			30.0			
Flash Dont Walk (s)			10.0			
Pedestrian Calls (#/hr)			0			
Act Efect Green (s)		66.0	66.0		16.0	16.0



Lanes, Volumes, Timings  
1071: 127th Street & State Street

PM Peak  
Build Conditions - Mitigated

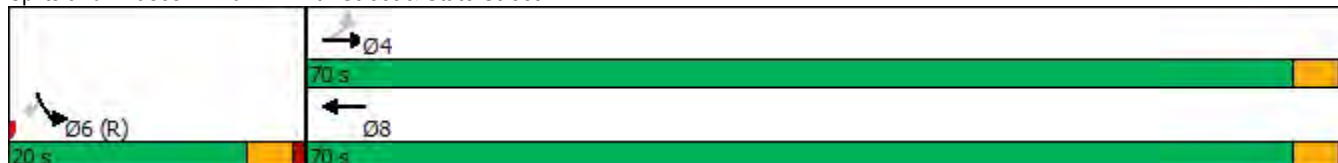


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Actuated g/C Ratio		0.73	0.73		0.18	0.18
v/c Ratio		0.98	0.43		0.37	0.58
Control Delay		29.0	5.2		37.1	12.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		29.0	5.2		37.1	12.5
LOS		C	A		D	B
Approach Delay		29.0	5.2		19.7	
Approach LOS		C	A		B	
Stops (vph)		741	306		82	47
Fuel Used(gal)		48	7		5	10
CO Emissions (g/hr)		3321	496		359	731
NOx Emissions (g/hr)		646	96		70	142
VOC Emissions (g/hr)		770	115		83	169
Dilemma Vehicles (#)		0	0		0	0
Queue Length 50th (ft)		170	90		52	12
Queue Length 95th (ft)		#540	120		100	83
Internal Link Dist (ft)		3850	557		2606	
Turn Bay Length (ft)						150
Base Capacity (vph)		1300	2252		275	428
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.98	0.43		0.37	0.58

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	0 (0%), Referenced to phase 2: and 6:SBL, Start of Green
Natural Cycle:	90
Control Type:	Pretimed
Maximum v/c Ratio:	0.98
Intersection Signal Delay:	18.9
Intersection LOS:	B
Intersection Capacity Utilization:	92.6%
ICU Level of Service:	F
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 1071: 127th Street & State Street



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HCM 6th Edition methodology supports speed limit in the range of 25 to 55 mph.

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

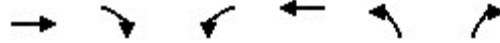
PM Peak  
Build Conditions - Mitigated



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	728	275	187	823	200	62
Future Volume (vph)	728	275	187	823	200	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	12	12	10	10
Storage Length (ft)		100	105		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						0.99
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1706	1450	1676	3288	1492	1428
Flt Permitted			0.219		0.950	
Satd. Flow (perm)	1706	1450	386	3288	1492	1409
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						68
Link Speed (mph)	30			35	30	
Link Distance (ft)	163			5343	2671	
Travel Time (s)	3.7			104.1	60.7	
Confl. Peds. (#/hr)						1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	4%	7%	0%
Adj. Flow (vph)	800	302	205	904	220	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	800	302	205	904	220	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.12	1.12	1.07	1.07	1.17	1.17
Turning Speed (mph)		9	15		15	9
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	4	2		8	2	
Permitted Phases		4	8			2
Minimum Split (s)	36.0	29.0	36.0	36.0	29.0	29.0
Total Split (s)	61.0	29.0	61.0	61.0	29.0	29.0
Total Split (%)	67.8%	32.2%	67.8%	67.8%	32.2%	32.2%
Maximum Green (s)	56.0	24.0	56.0	56.0	24.0	24.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	17.0	5.0			5.0	5.0
Flash Dont Walk (s)	14.0	19.0			19.0	19.0

Lanes, Volumes, Timings  
1073: Indiana Ave & 130th Street

PM Peak  
Build Conditions - Mitigated

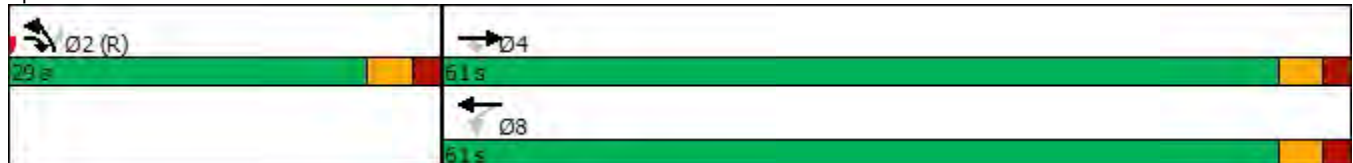


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	56.0	90.0	56.0	56.0	24.0	24.0
Actuated g/C Ratio	0.62	1.00	0.62	0.62	0.27	0.27
v/c Ratio	0.75	0.21	0.85	0.44	0.55	0.16
Control Delay	17.9	0.3	48.7	9.7	34.7	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	0.3	48.7	9.7	34.7	7.8
LOS	B	A	D	A	C	A
Approach Delay	13.1			16.9	28.3	
Approach LOS	B			B	C	
Stops (vph)	507	0	134	400	170	13
Fuel Used(gal)	20	6	10	36	7	1
CO Emissions (g/hr)	1414	391	704	2543	455	102
NOx Emissions (g/hr)	275	76	137	495	89	20
VOC Emissions (g/hr)	328	91	163	589	106	24
Dilemma Vehicles (#)	0	0	0	46	0	0
Queue Length 50th (ft)	293	0	85	127	108	0
Queue Length 95th (ft)	454	0	#238	167	182	31
Internal Link Dist (ft)	83			5263	2591	
Turn Bay Length (ft)		100	105			
Base Capacity (vph)	1061	1450	240	2045	397	425
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	0.75	0.21	0.85	0.44	0.55	0.16

Intersection Summary

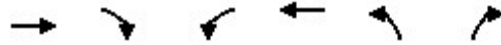
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 16.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 98.8%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1073: Indiana Ave & 130th Street



HCM 6th Signalized Intersection Capacity Analysis  
1073: Indiana Ave & 130th Street

PM Peak  
Build Conditions - Mitigated



Movement	EBT	EBR	WBL	WBT	NBL	NBR			
Lane Configurations	↑	↑	↑	↑↑	↑	↑			
Traffic Volume (veh/h)	728	275	187	823	200	62			
Future Volume (veh/h)	728	275	187	823	200	62			
Number	4	14	3	8	5	12			
Initial Q, veh	0	0	0	0	0	0			
Ped-Bike Adj (A_pbT)		1.00	1.00		1.00	1.00			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No	No				
Lanes Open During Work Zone									
Adj Sat Flow, veh/h/ln	1772	1772	1772	1744	1702	1800			
Adj Flow Rate, veh/h	800	302	205	904	220	68			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	2	2	2	4	7	0			
Opposing Right Turn Influence			Yes		Yes				
Cap, veh/h	1103	1335	239	2062	432	407			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Prop Arrive On Green	0.62	0.62	0.62	0.62	0.27	0.27			
Unsig. Movement Delay									
Ln Grp Delay, s/veh	15.9	1.1	64.7	9.5	32.2	26.2			
Ln Grp LOS	B	A	E	A	C	C			
Approach Vol, veh/h	1102			1109	288				
Approach Delay, s/veh	11.8			19.7	30.8				
Approach LOS	B			B	C				
Timer:		1	2	3	4	5	6	7	8
Assigned Phs			2		4				8
Case No			9.0		7.0				6.0
Phs Duration (G+Y+Rc), s			29.0		61.0				61.0
Change Period (Y+Rc), s			5.0		5.0				5.0
Max Green (Gmax), s			24.0		56.0				56.0
Max Allow Headway (MAH), s			4.5		4.4				5.0
Max Q Clear (g_c+I1), s			12.4		30.0				58.0
Green Ext Time (g_e), s			0.9		6.0				0.0
Prob of Phs Call (p_c)			1.00		1.00				1.00
Prob of Max Out (p_x)			0.00		0.00				0.00
<b>Left-Turn Movement Data</b>									
Assigned Mvmt			5		7				3
Mvmt Sat Flow, veh/h			1621		0				512
<b>Through Movement Data</b>									
Assigned Mvmt			2		4				8
Mvmt Sat Flow, veh/h			0		1772				3400
<b>Right-Turn Movement Data</b>									
Assigned Mvmt			12		14				18
Mvmt Sat Flow, veh/h			1525		1502				0
<b>Left Lane Group Data</b>									
Assigned Mvmt		0	5	0	7	0	0	0	3
Lane Assignment			L						L

HCM 6th Signalized Intersection Capacity Analysis  
 1073: Indiana Ave & 130th Street

PM Peak  
 Build Conditions - Mitigated

Lanes in Grp	0	1	0	0	0	0	0	1
Grp Vol (v), veh/h	0	220	0	0	0	0	0	205
Grp Sat Flow (s), veh/h/ln	0	1621	0	0	0	0	0	512
Q Serve Time (g_s), s	0.0	10.4	0.0	0.0	0.0	0.0	0.0	28.0
Cycle Q Clear Time (g_c), s	0.0	10.4	0.0	0.0	0.0	0.0	0.0	56.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1621	0	0	0	0	0	512
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Time to First Blk (g_f), s	0.0	0.0	0.0	56.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	432	0	0	0	0	0	239
V/C Ratio (X)	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.86
Avail Cap (c_a), veh/h	0	432	0	0	0	0	0	239
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	28.0	0.0	0.0	0.0	0.0	0.0	34.1
Incr Delay (d2), s/veh	0.0	4.2	0.0	0.0	0.0	0.0	0.0	30.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.2	0.0	0.0	0.0	0.0	0.0	64.7
1st-Term Q (Q1), veh/ln	0.0	3.9	0.0	0.0	0.0	0.0	0.0	4.5
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	0.0	0.0	2.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	4.4	0.0	0.0	0.0	0.0	0.0	6.5
%ile Storage Ratio (RQ%)	0.00	0.04	0.00	0.00	0.00	0.00	0.00	1.58
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Middle Lane Group Data</b>								
Assigned Mvmt	0	2	0	4	0	0	0	8
Lane Assignment				T				T
Lanes in Grp	0	0	0	1	0	0	0	2
Grp Vol (v), veh/h	0	0	0	800	0	0	0	904
Grp Sat Flow (s), veh/h/ln	0	0	0	1772	0	0	0	1657
Q Serve Time (g_s), s	0.0	0.0	0.0	28.0	0.0	0.0	0.0	12.8
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	28.0	0.0	0.0	0.0	12.8
Lane Grp Cap (c), veh/h	0	0	0	1103	0	0	0	2062
V/C Ratio (X)	0.00	0.00	0.00	0.73	0.00	0.00	0.00	0.44
Avail Cap (c_a), veh/h	0	0	0	1103	0	0	0	2062
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	11.7	0.0	0.0	0.0	8.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	15.9	0.0	0.0	0.0	9.5
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	9.6	0.0	0.0	0.0	3.9
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.2

HCM 6th Signalized Intersection Capacity Analysis  
1073: Indiana Ave & 130th Street

PM Peak  
Build Conditions - Mitigated

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	10.8	0.0	0.0	0.0	4.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	2.70	0.00	0.00	0.00	0.02
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

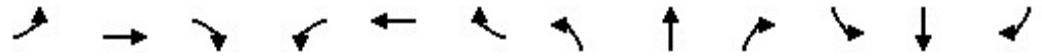
Assigned Mvmt	0	12	0	14	0	0	0	18
Lane Assignment		R		R				
Lanes in Grp	0	1	0	1	0	0	0	0
Grp Vol (v), veh/h	0	68	0	302	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1525	0	1502	0	0	0	0
Q Serve Time (g_s), s	0.0	3.1	0.0	2.5	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	3.1	0.0	2.5	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	1501.6	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	24.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	407	0	1335	0	0	0	0
V/C Ratio (X)	0.00	0.17	0.00	0.23	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	407	0	1335	0	0	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	25.3	0.0	0.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.4	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	26.2	0.0	1.1	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	1.1	0.0	2.5	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.2	0.0	2.6	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.67	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Lanes, Volumes, Timings  
1955: 115th Street & Cottage Grove Avenue

PM Peak  
Build Conditions - Mitigated



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Traffic Volume (vph)	52	598	0	0	632	45	5	5	35	200	0	131
Future Volume (vph)	52	598	0	0	632	45	5	5	35	200	0	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	10	12	12	10	9	12	12	12	11	15	11
Storage Length (ft)	0		30	0		50	0		0	0		50
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99				0.80		0.97			0.98	
Frt						0.850		0.897			0.946	
Flt Protected		0.996						0.994			0.971	
Satd. Flow (prot)	0	3150	0	0	1663	1337	0	1520	0	0	1730	0
Flt Permitted		0.846						0.970			0.820	
Satd. Flow (perm)	0	2662	0	0	1663	1071	0	1482	0	0	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						64		39			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			105			169			1380	
Travel Time (s)		5.2			2.4			3.8			31.4	
Confl. Peds. (#/hr)	60		44	44		60	14		10	10		14
Confl. Bikes (#/hr)	1			1		1						
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%	1%	0%	0%	1%	3%	20%	0%	0%	1%	0%	7%
Adj. Flow (vph)	58	664	0	0	702	50	6	6	39	222	0	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	722	0	0	702	50	0	51	0	0	368	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.17	1.07	1.07	1.17	1.22	1.07	1.07	1.07	1.12	0.95	1.12
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA			NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4		3	3			2		1	6	
Permitted Phases	4				3	3	2	2		6		
Minimum Split (s)	16.0	16.0		18.0			12.0	12.0		20.0	32.0	
Total Split (s)	35.0	35.0		18.0			12.0	12.0		20.0	32.0	
Total Split (%)	41.2%	41.2%		21.2%			14.1%	14.1%		23.5%	37.6%	
Maximum Green (s)	31.0	31.0		14.0			9.0	9.0		15.0	27.0	
Yellow Time (s)	3.0	3.0		3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			0.0	0.0		2.0	2.0	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		4.0						3.0			5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?												
Walk Time (s)				2.0							14.0	



Lane Group	Ø8
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	8
Permitted Phases	
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	41%
Maximum Green (s)	31.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s)	18.0

Lanes, Volumes, Timings  
 1955: 115th Street & Cottage Grove Avenue

PM Peak  
 Build Conditions - Mitigated

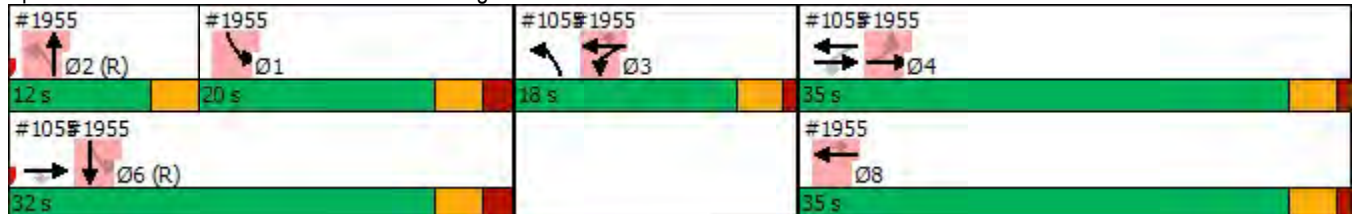


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)				12.0								13.0
Pedestrian Calls (#/hr)				0								0
Act Effct Green (s)		31.0			49.0	49.0		9.0				27.0
Actuated g/C Ratio		0.36			0.58	0.58		0.11				0.32
v/c Ratio		0.74			0.73	0.08		0.27				0.66
Control Delay		29.2			12.5	0.2		19.5				27.8
Queue Delay		1.9			53.2	8.6		0.0				0.0
Total Delay		31.1			65.7	8.8		19.5				27.8
LOS		C			E	A		B				C
Approach Delay		31.1			61.9			19.5				27.8
Approach LOS		C			E			B				C
Stops (vph)		550			148	0		19				232
Fuel Used(gal)		9			3	0		0				7
CO Emissions (g/hr)		657			206	3		24				470
NOx Emissions (g/hr)		128			40	1		5				91
VOC Emissions (g/hr)		152			48	1		6				109
Dilemma Vehicles (#)		0			0	0		0				0
Queue Length 50th (ft)		173			84	0		6				136
Queue Length 95th (ft)		242			m23	m1		38				229
Internal Link Dist (ft)		148			25			89				1300
Turn Bay Length (ft)						50						
Base Capacity (vph)		970			958	644		191				554
Starvation Cap Reductn		0			454	559		0				0
Spillback Cap Reductn		122			0	0		1				2
Storage Cap Reductn		0			0	0		0				0
Reduced v/c Ratio		0.85			1.39	0.59		0.27				0.67

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 42.4 Intersection LOS: D  
 Intersection Capacity Utilization 92.4% ICU Level of Service F  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1955: 115th Street & Cottage Grove Avenue



Lane Group	Ø8
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Stops (vph)	
Fuel Used(gal)	
CO Emissions (g/hr)	
NOx Emissions (g/hr)	
VOC Emissions (g/hr)	
Dilemma Vehicles (#)	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM 6th Edition methodology does not support clustered intersections.