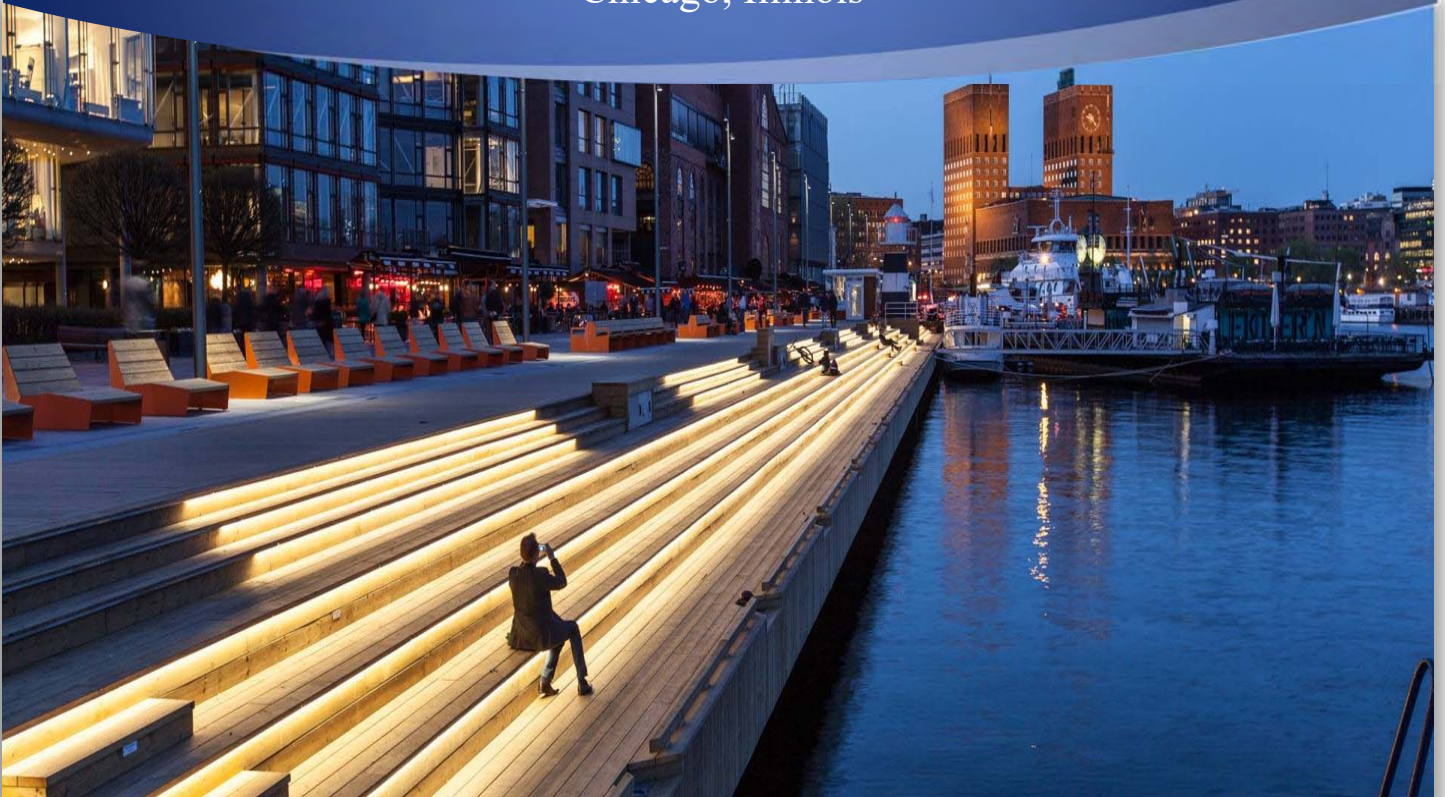


# Traffic Impact Study Clark and Roosevelt Mixed-Use Development

Chicago, Illinois



Prepared For:

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**KLOA**  
Kenig, Lindgren, O'Hara, Aboona, Inc.

November 12, 2018

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## Appendix

# 1. Executive Summary

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O’Hara, Aboona, Inc. (KLOA, Inc.) for the proposed Roosevelt/Clark mixed-use development in Chicago, Illinois. The site is generally bounded by Roosevelt Road to the north, Clark Street to the east, 16<sup>th</sup> Street to the south, and the south branch of the Chicago River to the west. The objectives of the traffic study are as follows:

- Determine the existing vehicular, pedestrian, bicycle, and public transportation conditions in the study area to establish a base condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any street, access, bicycle, and pedestrian modifications and/or improvements that will be necessary to effectively accommodate and mitigate future conditions.

## Study Area

Vehicle, pedestrian, and bicycle counts were conducted during the weekday morning and evening peak periods at ten intersections in the vicinity of the site in order to determine the existing traffic volumes during the general peak hour of commuter activity within each of these time periods. The intersections of Roosevelt Road with Canal Street, Delano Court, Clark Street and State Street; 18<sup>th</sup> Street with Canal Street, Wentworth Avenue, and Clark Street; Clark Street with 15<sup>th</sup> Street; and Polk Street with Wells Street and Clark Street were included in this study.

## Alternate Modes of Transportation

Accessibility to and from the area is enhanced by various alternative modes of transportation. The Chicago Transit Authority (CTA) rapid transit Green, Orange, and Red Lines are within walking distance from the site and multiple CTA bus routes have stops within the study area. In addition, pedestrian facilities including sidewalks and crosswalks are generally provided in the area. Pedestrian countdown timers are provided at most of the signalized intersections except along Clark Street. Divvy bike stations and car-sharing vehicles are also located in the area.

## Proposed Development

This study assumes, based on the anticipated future uses of the site, approximately 5,150 residential units, 477 hotel rooms, 4,160,000 square feet of office space, 550,000 square feet of retail, and a higher education institution with a maximum enrollment of 2,000 students. In addition, approximately 4,000 parking spaces will be provided on site. Access to the site will be provided via multiple access drives off Roosevelt Road, Clark Street, and the planned Wells Street/Wentworth Avenue Connector.

## Projected Conditions

The projected traffic conditions include the existing traffic volumes, background traffic growth from the Riverline Development located to the north of the site, reassigned traffic due to the provision of the Wells Street/Wentworth Avenue Connector, and the vehicle traffic to be generated by the proposed development. It should be noted that reductions to the traffic generated by the site were applied to better reflect the mixed-use nature of the site as well as its proximity to public transit and alternate modes of transportation in the area.

The projected traffic volumes, along with the proposed street modifications and development's access system, were analyzed to determine the need for any improvements/modifications. In order to improve the existing operation of the studied intersections as well as mitigate potential issues due to the proposed development, a number of recommendations were made regarding nearly all intersections in the study area. These improvements/modifications range from the installation of new traffic signals and signalized approaches to protected/permissive left-turn phases and signal timing adjustments.

## Traffic Management Plan

A number of strategies are provided within this report that will help to reduce the impact of the development on the area street system as well as reduce parking demand, increase the use of alternate modes of transportation and public transit ridership, and promote active lifestyles less dependent on personal vehicles. These strategies include promoting carpooling and alternate modes of transportation with monetary or convenience incentives provided by employers or residential operators, infrastructure within employment centers and residential buildings, and the provision of bike-sharing and car-sharing programs.

## Conclusions

- The volume of traffic to be generated by the development will be reduced given its location in an urban area and its proximity to alternative modes of transportation.
- The mixed-use nature of the development will promote interaction between uses, further reducing the volume of traffic to be generated by the development.
- Multiple access points allow for good connectivity to the surrounding street system and allow for more efficient ingress/egress.
- The Wells Street/Wentworth Avenue Connector will provide an additional corridor in the area and alleviate traffic along other north-south corridors, particularly Canal Street and Clark Street.

## 2. Introduction

This report summarizes the results of a traffic impact study conducted by Kenig, Lindgren, O’Hara, Aboona, Inc. (KLOA, Inc.) for the proposed Clark/Roosevelt mixed-use development to be located in the South Loop neighborhood of Chicago, Illinois. The 62-acre site, which primarily contains vacant land, is located south of Roosevelt Road between Clark Street and the south branch of the Chicago River.

Based on a review of the preliminary concept plan, the mixed-use development will be divided into eight sub-areas which will contain, based on the anticipated future uses on site, approximately 5,150 residential units, 477 hotel rooms, 4,160,000 square feet of office space, 550,000 square feet of retail, and a higher education institution with a maximum enrollment of 2,000 students. In addition, approximately 4,000 parking spaces will be provided on site. Access to the site will be provided via multiple access drives off Roosevelt Road, Clark Street, and the planned Wells Street/Wentworth Avenue Connector.

**Figure 1** shows the location of the site in relation to the area street system. **Figure 2** shows an aerial view of the site and defines each sub-area.

The purpose of this study is as follows:

- Determine the existing vehicular, pedestrian, bicycle, and public transportation conditions in the study area to establish a base condition.
- Assess the impact that the proposed development will have on transportation conditions in the area.
- Determine any street, access, bicycle, and pedestrian modifications and/or improvements that will be necessary to effectively accommodate and mitigate future conditions.





**Site Location**

**Figure 1**



Aerial View of Site Location

Figure 2



The sections of this report present the following:

- Existing street conditions including vehicle, pedestrian, and bicycle volumes for the weekday morning and weekday evening peak hours.
- A detailed description of the proposed development.
- Vehicle trip generation and directional distribution for the proposed development.
- Background growth in traffic due to planned developments near the traffic study area.
- Intersection capacity analyses for existing and future projected conditions for the weekday morning and evening peak hours.
- Recommendations with respect to vehicular access, the surrounding street network, and pedestrian and bicycle features for future conditions.



## 3. Existing Conditions

Existing street and traffic conditions within the study area were documented based on field visits and traffic counts. The following provides a summary of the physical characteristics of the streets including geometry and traffic control, alternative modes of transportation available in the area, and the peak hour vehicle, pedestrian, and bicycle flows along area streets.

### Site Location

The site is located in the South Loop neighborhood of Chicago. The area offers a mixture of residential, institutional, and commercial uses, including the Roosevelt Connection Retail Center immediately north of the site. The Dan Ryan Expressway (I-90/I-94) is located approximately one half-mile west of the site and the south branch of the Chicago River forms the west boundary of the site. The site is currently vacant with the exception of multiple railroad tracks owned by the Northeast Illinois Regional Commuter Railroad Corporation (NIRC) and Illinois Central Railroad Company (IC), which cross the St. Charles Air Line Bridge.

### Existing Street System Characteristics

Some of the key characteristics of the existing streets and intersections within the study area are listed below and illustrated in **Figure 3** (all remaining figures are located in the Appendix). All streets are under the jurisdiction of the Chicago Department of Transportation (CDOT) except Roosevelt Road and Canal Street, which are under Illinois Department of Transportation (IDOT) jurisdiction.

- Traffic signal control is provided at the following intersections:
  - Roosevelt Road with Canal Street
  - Roosevelt Road with Delano Court
  - Roosevelt Road with Clark Street
  - Roosevelt Road with State Street
  - 18<sup>th</sup> Street with Canal Street
  - 18<sup>th</sup> Street with Wentworth Avenue
  - 18<sup>th</sup> Street with Clark Street
  - Clark Street with 15<sup>th</sup> Street
  - Polk Street with Clark Street
  
- Protected left-turn phases are provided at the following intersections:
  - Roosevelt Road with Canal Street
  - Roosevelt Road with Delano Court (eastbound, southbound)
  - Roosevelt Road with Clark Street
  - Roosevelt Road with State Street
  - 18<sup>th</sup> Street with Canal Street (eastbound, northbound, southbound)
  - 18<sup>th</sup> Street with Clark Street
  - Polk Street with Clark Street (northbound, southbound)

- Pedestrian countdown timers are provided at the following intersections:
  - Roosevelt Road with Canal Street
  - Roosevelt Road with Delano Court
  - Roosevelt Road with State Street
  - 18<sup>th</sup> Street with Canal Street
  - 18<sup>th</sup> Street with Wentworth Avenue
  - Polk Street with Clark Street
  
- High-visibility crosswalk striping is provided at the following intersections:
  - Roosevelt Road with Canal Street
  - Roosevelt Road with Delano Court
  - Roosevelt Road with Clark Street
  - 18<sup>th</sup> Street with Canal Street
  - 18<sup>th</sup> Street with Wentworth Avenue
  - 18<sup>th</sup> Street with Clark Street
  
- Other crosswalk striping is provided at the following intersections:
  - Roosevelt Road with State Street (stamped crosswalk with standard striping)
  - Clark Street with 15<sup>th</sup> Street (standard striping on the westbound and northbound legs)
  - Polk Street with Clark Street (standard striping)
  - Polk Street with Wells Street (standard striping on the westbound and northbound approach)

### Wells Street/Wentworth Avenue Connector

In coordination with CDOT, Wells Street will be extended south from its existing terminus at Roosevelt Road and will connect with Wentworth Avenue in order to improve north-south connectivity in the area and access to the proposed development. The plans call for an 80-foot right-of-way providing the following pavement cross-section:

- Two 10-foot wide lanes
- Two five-foot wide bike lanes in each direction with a three-foot buffer
- Seven-foot wide parking lanes on both sides

## Public Transportation

The public transportation serving the area is summarized below and illustrated in **Figure 4**.

**Metra Commuter Rail.** The LaSalle Street station is located approximately one-half mile north of the site in the southwest corner of the intersection of Congress Parkway with LaSalle Street. This station serves Metra's Rock Island District, which terminates in Joliet, Illinois.

**CTA Rapid Transit.** The area is served by the Chicago Transit Authority (CTA) rapid transit Green, Red, and Orange Lines via the Roosevelt station. At this station, the Red Line is located underground with access on both sides of State Street approximately 150 feet north of Roosevelt Road while the Green and Orange Lines are elevated with access on the via both sides of Roosevelt Road approximately 250 feet east of State Street. Access to each line is located less than one-quarter mile northeast corner of the site. The following summarizes each rapid transit line serving the area:

- The CTA Green Line operates daily along Lake Street between Harlem Avenue in Forest Park and the downtown Loop and from the downtown Loop to 63<sup>rd</sup> Street. South of 59<sup>th</sup> Street, the line branches off to provide service between Cottage Grove Avenue and Ashland Avenue.
- The CTA Orange Line provides rapid transit rail service between the downtown Loop and Midway Airport. Service is provided seven days a week and on holidays.
- The CTA Red Line operates 24 hours a day, seven days a week between Howard Street and the 95<sup>th</sup>/Dan Ryan station located along the Dan Ryan Expressway at 95<sup>th</sup> Street. Additional service is provided via the Green Line tracks between the Cermak-McCormick Place station and the Ashland/63<sup>rd</sup> station during rush periods only.

It should be noted that according to the Transit Friendly Development Guide produced in part by CDOT and the CTA, the area surrounding the Roosevelt station is considered a Major Activity Center (MC). This classification describes station areas which are intended to be developed at a significant density that supports and provides services for the region and nearby neighborhoods. These areas often provide a balance of residential, retail, and employment uses.

Furthermore, in order to enhance the accessibility of the proposed development to transit, a new Red Line station is proposed and will be located near the southern portion of the site.

**CTA Bus Routes.** The area is also served by the following bus routes, all of which have bus stops within a few blocks of the site. Additional bus routes and stops serving this area, including suburban commuter express routes, are located within walking distance of the site. It should also be noted that bus-only lanes are provided along Roosevelt Road.

*Route 12 (Roosevelt)* generally runs along Roosevelt Road between Indiana Avenue and Central Avenue serving destinations including Museum Campus and the Illinois Medical District. Service is provided seven days a week and on holidays from approximately 4:00 A.M. to 12:30 A.M.

*Route 18 (16<sup>th</sup> – 18<sup>th</sup>)* runs from Michigan Avenue to Cicero Avenue along 16<sup>th</sup> Street, Ogden Avenue, 18<sup>th</sup> Street, and Roosevelt Road. Service is provided seven days a week and on holidays from approximately 6:00 A.M. to 7:30 P.M.

*Route 24 (Wentworth)* provides north-south service between Wacker Drive to the north and 79<sup>th</sup> Street to the south generally along LaSalle Street and Wentworth Avenue. Stops include multiple Red Line stations, Grand Boulevard Plaza, the Loop, and US Cellular Field. Service is provided Monday through Friday generally from 5:00 A.M. to 9:30 P.M. Supplementary service may be provided as far south as 87<sup>th</sup> Street, including stops at Simeon Career Academy and the Gresham Metra Station.

*Route 29 (State)* generally runs along State Street between the Red Line's 95<sup>th</sup>/Dan Ryan station and the Illinois/Grand corridor. Service is provided seven days a week and on holidays generally from 4:00 A.M. to 1:30 A.M.

*Route 62 (Archer)* generally provides service along Archer Avenue and State Street from Archer Avenue with Harlem Avenue to the southwest to State Street with Kinzie Street to the northeast. Stops include multiple Orange Line stations, Midway Airport, and the Loop. Service runs generally at all times of the day with overnight (Night Owl) service only between the Loop and Midway Airport via Roosevelt Road and Halsted Street.

*Route 146 (Inner Drive/Michigan Express)* generally runs between Berwyn Avenue and Museum Campus along Lake Shore Drive, Michigan Avenue, and State Street. No stops are provided between the intersections of Michigan Avenue with Delaware Place and Lake Shore Drive with Belmont Avenue. Service is provided on weekdays from approximately 6:00 A.M. to 11:30 P.M. Earlier weekend service starting at 5:15 A.M. is also provided.

## Alternative Modes of Transportation

The alternate modes of transportation serving the area are summarized below.

***Pedestrian Accommodations.*** Sidewalks are generally located on both sides of all streets except segments of Clark Street due to the railroad tracks. As previously stated, high-visibility crosswalks or stamped crosswalks are provided at all intersections except the intersections of Clark Street with 15<sup>th</sup> Street and Polk Street with Wells Street and Clark Street, which have standard crosswalk striping. Furthermore, pedestrian countdown timers are provided for all legs at most intersections, except for the intersections of Roosevelt Road, 15<sup>th</sup> Street, and 18<sup>th</sup> Street along Clark Street.

***Bike Lanes.*** Within the study area, barrier-protected bike lanes are provided on 18<sup>th</sup> Street generally between Canal Street and Wentworth Avenue. The east side of Canal Street north of Roosevelt Road also provides a barrier-protected bike lane, while the west side provides a buffer-protected bike lane. Dedicated bike lanes are also provided on Roosevelt Road and Canal Street. According to the City of Chicago's *Streets for Cycling Plan 2020* the following streets in the area are designated bike routes:



- Spoke Route
  - Wabash Avenue
  - Archer Avenue
  
- Crosstown Bike Route
  - 18<sup>th</sup> Street
  - Canal Street
  - Wells Street
  - Harrison Street
  - 14<sup>th</sup> Street
  - Jefferson Street

**Mode-Sharing Transportation Availability.** Multiple Divvy bike sharing stations are located within the area with the closest stations located near the Roosevelt CTA station, which provides 23 bike docks, and at Wells Street with 19<sup>th</sup> Street, which provides 10 bike docks. In addition, car-sharing vehicles are located at multiple locations around the site, particularly to the north and east. The closest vehicle is available approximately a quarter-mile from the site near the intersection of State Street with 13<sup>th</sup> Street.

### Existing Traffic Volumes

In order to determine current vehicle, pedestrian, and bicycle conditions within the study area, KLOA, Inc. utilized peak period traffic, pedestrian, and bicycle counts for the following intersections:

- Roosevelt Road with Canal Street (Wednesday, August 2, 2017)
- Roosevelt Road with Delano Court (Thursday, October 20, 2016)
- Roosevelt Road with Clark Street (Thursday, October 20, 2016)
- Roosevelt Road with State Street (Wednesday, August 2, 2017)
- 18<sup>th</sup> Street with Canal Street (Wednesday, August 2, 2017)
- 18<sup>th</sup> Street with Wentworth Avenue (Wednesday, August 2, 2017)
- 18<sup>th</sup> Street with Clark Street (Thursday, October 20, 2016)
- Clark Street with 15<sup>th</sup> Street (Wednesday, August 2, 2017)
- Polk Street with Wells Street (October 2012)
- Polk Street with Clark Street (Wednesday, May 6, 2015)

All counts were conducted during the morning (7:00 A.M. to 9:00 A.M.) and evening (4:00 P.M. to 6:00 P.M.) peak periods. The results of the traffic counts show that the peak hours generally occur between 7:30 A.M. and 8:30 A.M. during the morning peak hour and 5:00 P.M. and 6:00 P.M. during the evening peak hour. **Figure 5** illustrates the existing peak hour vehicle traffic volumes. **Figure 6** illustrates the existing peak hour pedestrian and bicycle volumes, showing the direction of travel.

## 4. Traffic Characteristics of the Proposed Development

The following provides a description of the proposed development with respect to the surrounding area and how traffic will be able to access the site by way of the existing street system. To evaluate the impact the proposed development will have on the area street system, it is necessary to quantify the number of vehicle trips that will be generated during the peak hours and to determine the directional distribution from where these vehicle trips will approach and depart the site.

### Site Location

The 62-acre site is generally bounded by Roosevelt Road to the north, Clark Street to the east, 16<sup>th</sup> Street to the south, and the south branch of the Chicago River to the west.

### Site Access

Access to the site will be provided via Roosevelt Road, Clark Street, and the Wells Street/Wentworth Avenue Connector. All access from the surrounding street system is described below.

#### *Via Roosevelt Road*

- A full ingress/egress access drive will be provided via a new north-south street (LaSalle Street) that will align with Delano Court and form the fourth (northbound) leg at its signalized intersection with Roosevelt Road. A westbound left-turn lane will be provided to accommodate the new movement into the site and the new northbound approach will provide two inbound lanes and dual left-turn lanes and a combined through/right-turn lane for outbound movements. LaSalle Street will extend south to the 15<sup>th</sup> Street extension and will provide access to multiple parking garages as well as intersect with the Northern East/West Drive.

#### *Via Clark Street*

- A third (eastbound) leg, henceforth known as the Northern East/West Drive, will be provided at the existing traffic signal on Clark Street located approximately 300 feet south of Roosevelt Road. The Northern East/West Drive will connect Clark Street with the proposed LaSalle Street and will provide full ingress/egress with one inbound lane and two outbound lanes striped to provide an exclusive left-turn lane and an exclusive right-turn lane. An exclusive left-turn lane will be provided for northbound movements as well.
- A third (eastbound) leg in alignment with 14<sup>th</sup> Street, which will also be known as 14<sup>th</sup> Street. This signalized intersection will be a full access drive providing one inbound lane and two outbound lanes striped for exclusive left-turn and right-turn lanes. A northbound left-turn lane will also be provided.

- A fourth (eastbound) leg will be provided opposite 15<sup>th</sup> Street providing full signalized access to the site. The leg will provide one inbound lane and two outbound lanes striped to provide one exclusive left-turn lane and one combined through/right-turn lane. A northbound left-turn lane will also be provided. 15<sup>th</sup> Street will extend east into the site, intersecting the proposed LaSalle Street before terminating at the Wells Street/Wentworth Avenue Connector with a signalized intersection.
- Access will be provided directly to the Sub-Area 2A parking garage. This access drive will provide one inbound lane and two outbound lanes striped for exclusive left-turn and right-turn lanes. A northbound left-turn lane will also be provided.

### *Via Wells Street*

- Access to the lower level parking garages will be provided from the Wells Street/Wentworth Avenue Connector via a full access drive under Roosevelt Road, henceforth known as Lower Roosevelt Road. This access drive will provide one inbound lane and one outbound lane under stop sign control.
- Access to Sub-Areas 3 and 4 will be provided via the Northern and Middle Access Drives. Both intersections will be signalized and provide full access for Sub-Area 3 and right-in/right-out access to Sub-Area 4. The eastbound approaches will have one inbound lane and one outbound lane while the westbound approaches will provide one inbound lane and two outbound lanes striped to provide exclusive left-turn and right-turn lanes. A southbound left-turn lane will also be provided at both intersections.
- The terminus of the extension of 15<sup>th</sup> Street will intersect the Wells Street/Wentworth Avenue Connector at a signalized intersection. This intersection will provide access to the upper level parking via its all-way stop sign control at LaSalle Street. The northbound approach will provide a combined through/right turn lane for all movements while the southbound approach will provide an exclusive left-turn lane and a through lane. The westbound approach will be striped to provide exclusive left-turn and right-turn lanes.
- A restricted access drive (right-in/right-out only) will be provided for the Sub-Area 2A parking garage. Outbound movements will be under stop sign control.

In addition to these access drives, additional access points to and from the parking garages will be provided along LaSalle Street and the 15<sup>th</sup> Street Extension. Furthermore, internal parking ramps will be provided connecting the upper and lower parking areas.

### **Proposed Development Plan**

Given the anticipated future uses on site, the development was assumed to contain approximately 5,150 residential units, 477 hotel rooms, 4,160,000 square feet of office space, 550,000 square feet of retail, and a higher education institution with a maximum enrollment of 2,000 students. In addition, approximately 4,000 parking spaces will be provided on site. The development will be divided into eight sub-areas as illustrated in **Figure 7** and described below. It should be noted that the existing railroad tracks will be relocated as needed for the proposed development.

### *Sub-Area 1A*

Sub-Area 1A is bounded by Roosevelt Road to the north, the relocated NIRC railroad track to the east, and 14<sup>th</sup> Street to the south. The tracks will be located nearly parallel to Clark Street approximately 250 feet to the west. As proposed, this sub-area will contain approximately 1,500 residential units, 210,000 square feet of office space, 170,000 square feet of retail space, and 120,000 square feet of institutional space. In addition, off-street parking spaces will be provided, with approximately 1,178 spaces. Access to the parking spaces will be provided along LaSalle Street, the Northern East/West Drive, and the 14<sup>th</sup> Street Access Drive.

### *Sub-Area 1B*

Sub-Area 1B is bounded by Roosevelt Road to the north, the relocated NIRC railroad to the west, Clark Street to the east, and 14<sup>th</sup> Street to the south. It is proposed to contain approximately 1,500 residential units, 200 hotel rooms, 620,000 square feet of office space, and 110,000 square feet of retail space. Approximately 902 parking spaces will be provided. Access to the parking spaces will be provided via Wells Street and LaSalle Street.

### *Sub-Area 1C*

Sub-Area 1C is bounded by 14<sup>th</sup> Street to the north, the relocated NIRC railroad track to the east, 15<sup>th</sup> Street to the south, and Sub-Area 3 to the west. This sub-area is proposed to contain approximately 1,210,000 square feet of office space, 25,000 square feet of retail space, and 600 parking spaces. The parking spaces will be accessed via LaSalle Street and the 14<sup>th</sup> Street Access Drive.

### *Sub-Area 1D*

Sub-Area 1D is bounded by 14<sup>th</sup> Street to the north, Clark Street to the east, the relocated NIRC railroad track to the west, and 15<sup>th</sup> Street to the south. It is proposed to contain approximately 2,120,000 square feet of office space, 25,000 square feet of retail space, and 280 hotel rooms. Approximately 516 parking spaces will be provided with access via LaSalle Street and 14<sup>th</sup> Street.

### *Sub-Area 2A*

Sub-Area 2A is bounded by 15<sup>th</sup> Street to the north, Clark Street to the east, 16<sup>th</sup> Street to the south, and the Wells Street/Wentworth Avenue Connector to the west. As proposed, it will contain approximately 1,680,000 square feet of institutional space and 45,000 square feet of retail space. This sub-area will contain 622 off-street parking spaces with access directly from Clark Street and 15<sup>th</sup> Street. In addition, this sub-area may potentially be occupied by the proposed CTA Red Line station.



### *Sub-Area 2B*

This sub-area is bounded by Sub-Areas 2A and 4 to the north, Clark Street to the east, and the Chicago River to the west. Sub-Area 2B will contain approximately 542 residential units and 5,000 square feet of retail space. Parking for this sub-area will be provided within Sub-Area 2A.

### *Sub-Area 3*

Sub-Area 3 is bounded by Sub-Area 1A to the north and east, 15<sup>th</sup> Street to the south, and the Wells Street/Wentworth Avenue Connector to the west. It is proposed to provide approximately 1,225 residential units and 77 hotel rooms. Parking for this sub-area will be provided within Sub-Areas 1A and 1C.

### *Sub-Area 4*

Sub-Area 4 is bounded by Roosevelt Road to the north, the Wells Street/Wentworth Avenue Connector to the east, Sub-Area 2B to the south, and the south branch of the Chicago River to the west. It is proposed to provide approximately 383 residential units.

## **Directional Distribution**

The general directions of approach and departure of the future development-generated traffic were estimated based on the following criteria and are illustrated in **Figure 8**. It should be noted that these percentages were modified in order to more accurately represent access to the parking garages of each sub-area.

- Existing traffic counts, which were used to determine existing travel patterns in the area.
- The proposed access to the development, which was used to determine the most efficient paths to and from each sub-area within the site. Turning restrictions, particularly for Sub-Area 4, were also determined.
- The proposed extensions and connections linking the existing street system, particularly the Wells Street/Wentworth Avenue Connector and 15<sup>th</sup> Street extension.
- Locations and directions of travel to and from surrounding attractions, such as residential areas, employment centers, or retail areas.
- Directions of travel to and from major streets and highways, including the Dan Ryan Expressway (I-90/I-94), Lake Shore Drive (US 41), the Stevenson Expressway (I-55), and the Eisenhower Expressway (I-290).

## Development Traffic Generation

The number of trips to be generated by the development was estimated based on the vehicle trip generation rates contained in *Trip Generation Manual*, 9<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE). It should be noted that these rates are based on suburban rates where the primary mode of transportation is the automobile. As such, adjustments were made to the trip generation to better reflect the characteristics of this mixed-use development and vary based on the location and uses within each sub-area. The following provides support for these adjustments:

- A review of U.S. Census tract data surrounding the site shows that between approximately 35 and 50 percent of area residents drive a car to work while the remaining 50 to 65 percent use alternative modes of transportation to commute.
- The site is located within close proximity of the downtown area, providing opportunities for housing or employment near the site.
- Adequate accommodations are provided in the area to promote alternate modes of transportation, such as walking and biking.
- The area is served by an extensive public transportation system, including Metra commuter trains and CTA rapid transit trains and buses.
- The provision of a new Red Line station is under consideration within/near the southern end of the site, which would further encourage the use of the CTA system, especially for the southern sub-areas.
- The mixed-use nature of the site encourages interaction among the multiple uses. Furthermore, the majority of the retail space provided within the development will consist of neighborhood-type retail stores, which would appeal to residents and employees already in the area, rather than attract patrons to a regional retail destination.
- Implementation of the recommended/suggested Traffic Demand Management (TDM), which will be discussed later in the report.

The U.S. Census demographic data is provided in the Appendix. The estimated trip generation for the total development is shown in **Table 1**. The weekday morning and evening peak hour traffic volumes estimated to be generated by the proposed development were assigned to the street system in accordance with the previously described directional distribution and are shown in **Figure 9**.

Table 1  
PROJECTED SITE-GENERATED TRAFFIC VOLUMES

ITE LUC	Land Use	Quantity	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Trips		
			In	Out	Total	In	Out	Total	In	Out	Total
220	<b>Residential</b>	5,150 units	509	2,033	2,542	1,898	1,023	2,921	15,914	15,914	31,828
	Modal Split Reduction (60%)		<u>-306</u>	<u>-1,218</u>	<u>-1,524</u>	<u>-1,139</u>	<u>-615</u>	<u>-1,754</u>	<u>-9,548</u>	<u>-9,548</u>	<u>-19,096</u>
	Sub Total		203	815	1,018	759	408	1,167	6,366	6,366	12,732
	Captive Market Reduction (20%)		<u>-41</u>	<u>-162</u>	<u>-203</u>	<u>-152</u>	<u>-80</u>	<u>-232</u>	<u>-1,274</u>	<u>-1,274</u>	<u>-2,548</u>
	Total		162	653	815	607	328	935	5,092	5,092	10,184
710	<b>Office</b>	4,160,000 s.f.	4,204	574	4,778	845	4,129	4,974	14,834	14,834	29,668
	Modal Split Reduction (70%)		<u>-2,944</u>	<u>-400</u>	<u>-3,344</u>	<u>-592</u>	<u>-2,890</u>	<u>-3,482</u>	<u>-10,384</u>	<u>-10,384</u>	<u>-20,768</u>
	Sub Total		1,260	174	1,434	253	1,239	1,492	4,450	4,450	8,900
	Captive Market Reduction (20%)		<u>-251</u>	<u>-35</u>	<u>-286</u>	<u>-51</u>	<u>-247</u>	<u>-298</u>	<u>-890</u>	<u>-890</u>	<u>-1,780</u>
	Total		1,009	139	1,148	202	992	1,194	3,560	3,560	7,120
310	<b>Hotel</b>	477 rooms	150	103	253	145	141	286	1,576	1,576	3,152
	Modal Split Reduction (50%)		<u>-76</u>	<u>-51</u>	<u>-127</u>	<u>-74</u>	<u>-69</u>	<u>-143</u>	<u>-788</u>	<u>-788</u>	<u>-1,576</u>
	Sub Total		74	52	126	71	72	143	788	788	-1,576
	Captive Market Reduction (20%)		<u>-14</u>	<u>-12</u>	<u>-26</u>	<u>-14</u>	<u>-15</u>	<u>-29</u>	<u>-158</u>	<u>-158</u>	<u>-316</u>
	Total		60	40	100	57	57	114	630	630	1,260
540	<b>Higher Education Institution</b>	2,000 students	477	90	567	430	252	682	1,544	1,544	3,088
	Modal Split Reduction (60%)		<u>-287</u>	<u>-54</u>	<u>-341</u>	<u>-258</u>	<u>-152</u>	<u>-410</u>	<u>-926</u>	<u>-926</u>	<u>-1,852</u>
	Sub Total		190	36	226	172	100	272	618	618	1,236
	Captive Market Reduction (20%)		<u>-38</u>	<u>-7</u>	<u>-45</u>	<u>-34</u>	<u>-21</u>	<u>-55</u>	<u>-124</u>	<u>-124</u>	<u>-248</u>
	Total		152	29	181	138	79	217	494	494	988
826	<b>Ground Floor Retail</b>	150,000 s.f.	53	54	107	215	271	486	3,153	3,153	6,306
	Modal Split Reduction <sup>1</sup>		<u>-25</u>	<u>-22</u>	<u>-47</u>	<u>-96</u>	<u>-121</u>	<u>-217</u>	<u>-1,368</u>	<u>-1,368</u>	<u>-2,736</u>
	Sub Total		28	32	60	119	150	269	1,785	1,785	3,570
	Captive Market Reduction <sup>1</sup>		<u>-11</u>	<u>-14</u>	<u>-25</u>	<u>-48</u>	<u>-57</u>	<u>-105</u>	<u>-673</u>	<u>-673</u>	<u>-1,346</u>
	Ground Floor Retail Total		17	18	35	71	93	164	1,113	1,112	2,224
820	<b>Shopping Center (Retail)</b>	400,000 s.f.	343	211	554	1,042	1,129	2,171	12,229	12,229	24,458
	Modal Split Reduction <sup>1</sup>		<u>-103</u>	<u>-64</u>	<u>-167</u>	<u>-313</u>	<u>-339</u>	<u>-652</u>	<u>-3,669</u>	<u>-3,669</u>	<u>-7,338</u>
	Sub Total		240	147	387	729	790	1,519	8,560	8,560	17,120
	Captive Market Reduction <sup>1</sup>		<u>-48</u>	<u>-29</u>	<u>-77</u>	<u>-145</u>	<u>-159</u>	<u>-304</u>	<u>-1,712</u>	<u>-1,711</u>	<u>-3,423</u>
	Shopping Center Total		192	118	310	584	631	1,215	6,848	6,848	13,696
	<b>Total Development Trips</b>		<b>1,592</b>	<b>997</b>	<b>2,589</b>	<b>1,659</b>	<b>2,180</b>	<b>3,839</b>	<b>17,736</b>	<b>17,736</b>	<b>35,472</b>

<sup>1</sup> – Modal Split and Captive Market reductions vary from 20 to 50 percent depending on the location of the retail areas.

## 5. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, the traffic estimated to be generated by the proposed subject development, and the traffic estimated to be generated by planned developments in the nearby area.

### Wells Street/Wentworth Avenue Connector Traffic Reassignment

The planned connection of Wells Street with Wentworth Avenue will provide a more efficient route for existing and future traffic to and from the study area. Therefore, a portion of the existing north/south traffic traversing the area during the morning and evening peak hours was reassigned to the connection. This alternate route will reduce the volume of traffic that traverses Clark Street and Canal Street, allowing the street system to better accommodate the proposed traffic volumes. Traffic count data for the north-south and east-west routes was reviewed and, based on this data, it was assumed that 10 percent of the traffic on both Clark Street and Canal Street would be rerouted to utilize the planned connection.

### Planned Developments

To account for growth in the area, the study also reviewed proposed, planned, and under-construction developments near the study area in order to determine the traffic increase within the study area in the future. Therefore, the vehicle trips were estimated for the Riverline development, which will contain approximately 3,700 residential units. The development is to be located on Wells Street north of Roosevelt Road. Based on the location of the buildings and parking garage access drives off Wells Street and Harrison Street, it was assumed that approximately 10 percent of the traffic generated by this development will utilize the Wells Street/Wentworth Avenue Connector.

### Projected Traffic Volumes

The existing traffic volumes were combined with the traffic from the other developments in the area, the reassignment of traffic due to the Wells Street/Wentworth Avenue Connector, and the new peak hour traffic volumes generated by the subject development to determine the total projected traffic volumes, shown in **Figure 9**. Furthermore, in order to account for the increase in population in the study area, bicycle and pedestrian volumes were increased at key intersections.



## 6. Traffic Analysis and Recommendations

Traffic analyses were performed to determine the operation of the existing street system, evaluate the impact of the proposed development, and determine the ability of the existing street system to accommodate projected traffic demands. Analyses were performed for the weekday morning and evening peak hours for all intersections within the study area for both the existing traffic volumes and projected traffic volumes upon the development of the site.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 6<sup>th</sup> Edition and modeled/analyzed using Synchro 10.0 software. The analyses for the traffic signal-controlled intersections were accomplished using existing cycle lengths and phasings obtained from CDOT to determine the average overall vehicle delay, volume-to-capacity ratios, and levels of service.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections are included in the Appendix of this report.

A summary of the traffic analysis results for the existing and full buildout traffic volumes are presented in **Tables 2** through **18**. A discussion of the intersections and recommendations follows. Copies of the capacity analysis summary sheets are included in the Appendix.

Table 2

CAPACITY ANALYSIS RESULTS – ROOSEVELT ROAD WITH CANAL STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	B 19.6	C 30.7	A 2.5	B 14.9	D 35.5	A 4.5	C 26.0	D 40.1	--	C 27.8	C 26.0	--	C 30.8
		C – 27.8			C – 28.7			D – 37.1			C – 26.7			
Existing Conditions	Weekday Evening Peak Hour	C 20.4	D 40.9	A 5.5	D 36.6	C 31.6	A 5.3	B 18.8	D 50.5	--	C 23.6	C 26.8	--	C 34.3
		C – 33.0			C – 27.0			D – 46.4			C – 25.6			
Projected Conditions	Weekday Morning Peak Hour	C 23.1	D 37.6	A 2.1	B 16.6	D 38.6	A 4.2	C 26.9	D 37.9	--	C 28.3	C 24.0	--	C 33.3
		C – 34.8			C – 31.9			D – 35.4			C – 25.7			
Projected Conditions	Weekday Evening Peak Hour	C 31.2	E 71.7	A 6.2	D 36.8	D 46.1	A 5.1	C 24.1	D 51.9	--	D 48.4	E 74.0	--	D 51.5
		E – 59.6			D – 38.6			D – 48.1			E – 66.0			

Delay is measured in seconds.

Table 3

CAPACITY ANALYSIS RESULTS – ROOSEVELT ROAD WITH DELANO COURT/PROPOSED LASALLE STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	A 1.8	A 2.7	--	--	A 7.7	A 0.9	--	--	--	D 48.7	--	A 9.9	A 7.2
		A – 2.7			A – 7.6			--			D – 42.8			
Existing Conditions	Weekday Evening Peak Hour	A 2.5	A 3.4	--	--	B 15.5	A 1.1	--	--	--	D 49.1	--	B 17.1	B 10.1
		A – 3.4			B – 14.4			--			C – 33.1			
Projected Conditions	Weekday Morning Peak Hour	A 5.5	C 30.2	A 2.9	B 19.4	C 21.0	A 0.6	D 44.0	A 5.7	--	D 49.3	A 0.5	--	C 20.2
		B – 17.2			C – 20.4			C – 23.6			D – 41.9			
Projected Conditions	Weekday Evening Peak Hour	B 12.0	D 36.0	A 3.4	D 46.2	A 9.9	A 1.2	E 55.6	C 27.1	--	D 48.9	A 8.1	--	C 26.6
		C – 31.0			B – 16.3			D – 41.7			C – 28.5			

Delay is measured in seconds.

Table 4

CAPACITY ANALYSIS RESULTS – ROOSEVELT ROAD WITH CLARK STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	D 41.7	C 26.7	A 4.2	B 15.9	C 29.7	A 5.5	C 29.2	C 27.8	A 5.1	C 21.2	A 7.8	--	C 24.5
		C – 26.8			C – 24.4			C – 24.9			B – 14.0			
Existing Conditions	Weekday Evening Peak Hour	D 37.7	D 36.6	A 3.9	D 39.0	C 26.9	A 6.9	C 28.2	C 31.1	A 4.7	C 23.2	A 8.8	--	C 27.0
		C – 32.6			C – 24.6			C – 26.3			B – 15.0			
Projected Conditions	Weekday Morning Peak Hour	F 96.4	B 14.7	A 0.9	C 32.7	D 47.3	B 14.0	C 34.2	C 29.1	A 4.3	C 23.6	C 26.4	--	C 32.9
		C – 28.5			D – 40.3			C – 24.6			C – 25.7			
Projected Conditions	Weekday Evening Peak Hour	F 99.9+	D 46.1	B 10.1	D 38.8	C 33.2	A 7.6	E 78.0	F 85.1	A 7.6	D 42.5	F 99.9+	--	E 60.3
		E – 62.9			C – 30.3			E – 57.2			F – 99.9+			

Delay is measured in seconds.

Table 5

## CAPACITY ANALYSIS RESULTS – ROOSEVELT ROAD WITH STATE STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	F 99.9+	B 16.7	A 3.9	B 13.4	D 39.2	A 4.9	E 59.0	D 44.4	--	C 24.1	C 24.1	--	D 36.4
		C – 32.9			C – 32.3			D – 48.6			C – 24.1			
Existing Conditions	Weekday Evening Peak Hour	F 99.9+	C 28.0	B 15.2	B 16.5	D 35.6	A 6.1	D 48.0	C 31.9	--	B 17.7	D 51.4	--	D 38.6
		D – 37.7			C – 31.7			D – 36.8			D – 49.1			
Projected Conditions	Weekday Morning Peak Hour	F 99.9+	B 10.5	A 2.6	B 12.5	D 44.9	A 5.6	F 99.9+	D 52.1	--	C 26.5	C 24.2	--	D 50.0
		D – 30.9			D – 39.2			F – 95.4			C – 24.4			
Projected Conditions	Weekday Evening Peak Hour	F 99.9+	C 27.4	C 25.5	B 17.0	D 46.0	A 6.5	F 99.9+	C 32.7	--	B 19.0	E 65.7	--	D 53.6
		D – 50.5			D – 41.4			E – 69.6			E – 62.6			

Delay is measured in seconds.



Table 6  
CAPACITY ANALYSIS RESULTS – 18<sup>TH</sup> STREET WITH CANAL STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	E 75.5	C 23.1	--	C 24.3	D 43.5	C 29.6	B 15.0	C 35.0	--	B 18.3	B 16.6	--	C 34.2
		D – 44.1			D – 36.0			C – 32.5			B – 17.0			
Existing Conditions	Weekday Evening Peak Hour	F 99.9+	D 35.1	--	D 38.6	D 39.0	A 8.1	C 23.1	C 31.9	--	C 33.6	C 32.8	--	D 50.3
		F – 99.9+			C – 27.6			C – 30.6			C – 33.0			
Projected Conditions	Weekday Morning Peak Hour	E 67.8	C 25.6	--	C 24.3	D 40.7	C 21.8	B 15.1	C 30.2	--	C 20.0	B 15.3	--	C 31.0
		D – 40.8			C – 31.3			C – 28.1			B – 16.6			
Projected Conditions	Weekday Evening Peak Hour	F 99.9+	D 41.1	--	C 32.2	C 26.3	A 6.9	C 23.8	C 33.6	--	C 31.1	C 33.2	--	D 46.0
		F – 91.9			B – 19.9			C – 32.1			C – 32.8			

Delay is measured in seconds.

Table 7

CAPACITY ANALYSIS RESULTS – 18<sup>TH</sup> STREET WITH WENTWORTH AVENUE

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	--	D 40.4	--	A 7.8	B 18.8	--	B 17.0	A 4.2	--	B 12.8	A 7.8	--	C 23.3
		D – 40.4			B – 18.3			B – 13.0			A – 9.4			
Existing Conditions	Weekday Evening Peak Hour	--	C 25.5	--	A 5.1	A 8.9	--	C 25.8	B 11.8	--	C 22.5	B 16.9	--	B 18.6
		C – 25.5			A – 8.5			C – 21.2			B – 18.3			
Projected Conditions	Weekday Morning Peak Hour	C 28.6	D 41.1	--	A 5.7	D 39.1	--	C 25.4	C 30.4	--	B 14.6	C 27.3	--	C 32.9
		D – 38.9			D – 37.8			C – 27.7			C – 24.6			
Projected Conditions	Weekday Evening Peak Hour	C 21.1	F 84.7	--	C 20.4	D 51.3	--	F 99.9+	C 25.1	--	B 13.9	E 55.4	--	E 68.4
		E – 76.0			D – 48.8			F – 93.5			D – 49.8			

Delay is measured in seconds.

Table 8  
CAPACITY ANALYSIS RESULTS – 18<sup>TH</sup> STREET WITH CLARK STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	E 75.6	D 49.2	--	B 18.5	E 55.9	--	A 9.4	B 16.9	--	A 9.5	B 14.8	--	C 32.6
		E – 58.0			D – 52.5			B – 16.4			B – 14.4			
Existing Conditions	Weekday Evening Peak Hour	F 87.2	E 71.4	--	B 19.5	E 60.1	--	B 11.8	B 18.5	--	B 11.4	C 21.4	--	D 37.8
		E – 75.7			E – 57.0			B – 17.9			C – 20.4			
Projected Conditions	Weekday Morning Peak Hour	C 33.7	D 38.8	--	B 15.8	D 52.0	--	B 12.8	C 23.1	--	B 11.9	B 19.3	--	C 29.2
		D – 37.2			D – 48.7			C – 22.0			B – 18.8			
Projected Conditions	Weekday Evening Peak Hour	C 32.1	D 53.2	--	B 17.7	E 72.3	--	C 30.9	C 22.7	--	B 13.8	C 31.7	--	D 37.2
		D – 48.1			E – 68.0			C – 23.9			C – 30.3			

Delay is measured in seconds.

Table 9  
CAPACITY ANALYSIS RESULTS – CLARK STREET WITH 15<sup>TH</sup> STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	--	--	--	--	C 28.2	--	--	A 2.1	--	--	A 1.5	--	A 2.8
		--			C – 28.2			A – 2.1			A – 1.5			
Existing Conditions	Weekday Evening Peak Hour	--	--	--	--	C 32.5	--	--	A 1.6	--	--	A 2.4	--	A 2.5
		--			C – 32.5			A – 1.6			A – 2.4			
Projected Conditions	Weekday Morning Peak Hour	D 43.9	A 0.2	--	--	B 12.5	--	A 3.8	A 9.2	--	A 2.8	A 9.2	--	B 10.4
		C – 30.8			B – 12.5			A – 8.7			A – 9.1			
Projected Conditions	Weekday Evening Peak Hour	D 46.9	A 8.3	--	--	A 5.2	--	A 8.7	B 10.7	--	A 4.8	B 10.1	--	B 12.4
		C – 31.2			A – 5.2			B – 10.6			B – 10.1			

Delay is measured in seconds.

Table 10  
CAPACITY ANALYSIS RESULTS – POLK STREET WITH CLARK STREET

	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Existing Conditions	Weekday Morning Peak Hour	--	C 25.9	--	D 37.2	D 39.8	C 32.7	B 14.3	C 26.6	C 24.2	A 4.9	B 10.9	--	C 22.5
		C – 25.9			D – 38.0			C – 22.6			B – 10.3			
Existing Conditions	Weekday Evening Peak Hour	--	B 12.2	--	D 50.1	C 28.5	C 26.7	C 23.5	B 16.8	D 37.2	A 5.8	B 17.2	--	C 22.4
		B – 12.2			D – 36.1			C – 26.5			B – 16.5			
Projected Conditions	Weekday Morning Peak Hour	--	E 57.0	--	F 99.9+	E 68.9	D 42.7	F 99.9+	F 99.9+	D 45.3	B 10.9	C 24.8	--	F 99.9+
		E – 57.0			E – 71.5			F – 99.9+			C – 24.2			
Projected Conditions	Weekday Evening Peak Hour	--	D 38.6	--	F 99.9+	D 40.5	D 36.2	F 99.9+	F 99.9+	E 76.4	B 12.5	E 55.7	--	F 99.9+
		D – 38.6			E – 72.7			F – 99.9+			D – 54.0			

Delay is measured in seconds.



Table 11  
CAPACITY ANALYSIS RESULTS – POLK STREET WITH WELLS STREET

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour		--	C 21.4	--	--	F 81.5	--	C 21.4	F 98.7	--	F 99.9+	C 21.2	--	E 74.9
		C – 21.4			F – 81.5			F – 97.4			D – 41.8			
Weekday Evening Peak Hour		--	C 22.0	--	--	D 45.5	--	C 27.2	F 99.9+	--	F 85.2	D 41.2	--	E 71.7
		C – 22.0			D – 45.5			F – 99.9+			D – 49.7			

Delay is measured in seconds.

Table 12  
CAPACITY ANALYSIS RESULTS – CLARK STREET WITH NORTHERN EAST/WEST DRIVE

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour		D 55.0	--	B 18.4	--	--	--	A 2.5	A 3.9	--	--	A 5.2	--	A 9.9
		D – 50.5			--			A – 3.9			A – 5.2			
Weekday Evening Peak Hour		E 55.4	--	B 13.7	--	--	--	A 4.0	A 7.7	--	--	B 13.7	--	B 16.1
		D – 50.7			--			A – 7.6			B – 13.7			

Delay is measured in seconds.

Table 13  
CAPACITY ANALYSIS RESULTS – CLARK STREET WITH 14<sup>TH</sup> STREET

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour	D 37.7	--	B 10.6	--	--	--	A 6.5	A 8.8	--	--	A 8.1	--	A 9.1	
	C – 21.9			--			A – 8.6			A – 8.1				
Weekday Evening Peak Hour	D 54.2	--	B 10.9	--	--	--	B 12.6	A 3.2	--	--	B 13.3	--	B 11.5	
	C – 34.2			--			A – 3.9			B – 13.3				

Delay is measured in seconds.

Table 14  
CAPACITY ANALYSIS RESULTS – WELLS STREET/WENTWORTH AVENUE CONNECTOR/NORTHERN ACCESS DRIVE

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour	--	--	A 0.1	B 19.5	A 0.1	--	--	B 17.5	--	A 9.0	B 11.0	--	B 14.4	
	A – 0.1			B – 15.6			B – 17.5			B – 10.8				
Weekday Evening Peak Hour	--	--	A 0.1	C 28.3	A 0.3	--	--	C 24.9	--	A 9.6	B 10.4	--	B 19.8	
	A – 0.1			C – 22.8			C – 24.9			B – 10.3				

Delay is measured in seconds.

Table 15

CAPACITY ANALYSIS RESULTS – WELLS STREET/WENTWORTH AVENUE CONNECTOR/MIDDLE ACCESS DRIVE

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour		--	--	A 0.1	C 20.7	A 0.1	--	--	B 15.6	--	A 8.2	A 9.9	--	B 12.8
		A – 0.1			B – 17.4			B – 15.6			A – 9.7			
Weekday Evening Peak Hour		--	--	A 0.2	C 29.6	A 0.6	--	--	C 23.3	--	A 7.0	B 11.6	--	B 18.5
		A – 0.2			C – 21.9			C – 23.3			B – 11.4			

Delay is measured in seconds.

Table 16

CAPACITY ANALYSIS RESULTS – WELLS STREET/WENTWORTH AVENUE CONNECTOR/15<sup>TH</sup> STREET EXTENSION

Projected Conditions	Peak Hour	Eastbound			Westbound			Northbound			Southbound			Overall
		L	T	R	L	T	R	L	T	R	L	T	R	
Weekday Morning Peak Hour		--	--	--	C 26.8	--	A 8.2	--	B 16.5	--	A 9.3	A 4.4	--	B 12.2
		--			B – 16.3			B – 16.5			A – 6.8			
Weekday Evening Peak Hour		--	--	--	C 30.3	--	A 8.3	--	B 15.4	--	A 6.7	A 4.4	--	B 11.5
		--			B – 16.6			B – 15.4			A – 5.2			

Delay is measured in seconds.

Table 17  
 CAPACITY ANALYSIS RESULTS FOR UNSIGNALIZED INTERSECTIONS  
 EXISTING CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>Polk Street with Wells Street</b>				
• Overall	B	11.3	B	10.6
• Westbound Approach	B	12.4	B	11.1
• Northbound Left Turn	A	9.4	A	9.6
• Southbound Left Turn	B	10.6	B	10.6
Delay is measured in seconds.				

Table 18  
 CAPACITY ANALYSIS RESULTS FOR UNSIGNALIZED INTERSECTIONS  
 PROJECTED CONDITIONS

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
<b>15<sup>th</sup> Street (Extended) with LaSalle Street/Sub-Area 2A Parking Garage</b>				
• Overall	B	12.2	C	16.2
• Eastbound Approach	B	14.7	C	17.2
• Westbound Approach	B	10.6	B	12.1
• Northbound Approach	A	9.9	B	10.7
• Southbound Approach	B	10.3	C	17.5
<b>Clark Street with Sub-Area 2A Access Drive</b>				
• Eastbound Approach	C	22.2	F	57.3
Delay is measured in seconds.				

## Discussion and Recommendations

The following summarizes how the intersections within the study area currently operate and are projected to operate assuming the total projected traffic volumes. It will also identify any street and traffic control improvements and/or modifications necessary to accommodate the projected traffic volumes.

### *Area Intersections*

Based on the results of the capacity analyses, the overall area intersections are generally operating at acceptable levels of service with delays that are typical and expected in a densely populated urban area. Most of the intersections in the study area are under traffic signal control, provide protected-permissive left-turn phases, and provide pedestrian crosswalks.

Under future conditions, the majority of the intersections will generally continue to operate at acceptable levels of service. Some of the individual movements at intersections will experience longer delays, primarily due to the increase of traffic on the major routes and limited availability of green times.

In order to better accommodate future traffic and pedestrian volumes throughout the study area, various improvements/modifications have been identified at each intersection. These improvements/modifications range from the installation of new traffic signals and the provision of protected-permissive left-turn phases to minor signal timing adjustments. **Table 19** and **Figure 10** present a summary of the recommended improvements.

### *Site Access*

As previously stated, access to the development will be provided via Roosevelt Road, Clark Street, and the Wells Street/Wentworth Avenue Connector. This access system allows connectivity along multiple major streets, allowing for traffic to and from the development to approach/depart without overloading the street system. The Wells Street/Wentworth Avenue Connector further encourages connectivity by providing an additional north-south corridor which will be utilized by traffic generated by the development as well as throughout the area. Furthermore, the provision of multiple signalized access points will reduce delays to and from the development while promoting the progression of area traffic, particularly along Clark Street.



Table 19

**PROPOSED INTERSECTION IMPROVEMENTS/MODIFICATIONS**

<b>Intersection</b>	<b>Improvements</b>
Roosevelt Road with Canal Street	<ul style="list-style-type: none"> <li>• No improvements necessary</li> </ul>
Roosevelt Road with Delano Court/Proposed LaSalle Street	<ul style="list-style-type: none"> <li>• Modify intersection, signal, and timings to accommodate 4<sup>th</sup> (northbound) approach</li> <li>• Northbound Approach will provide two inbound lanes and three outbound lanes striped for dual left-turn lanes and a combined through/right-turn lane</li> <li>• Restripe existing median to provide westbound left-turn lane</li> <li>• Provide westbound protected/permissive left-turn phase</li> <li>• Provide protected-only left-turn phases for the northbound and southbound approaches</li> <li>• Signage and striping should be provided allowing right-turn movements onto LaSalle Street from the existing eastbound bus lane</li> </ul>
Roosevelt Road with Clark Street	<ul style="list-style-type: none"> <li>• Adjust signal timings to provide longer protected northbound left-turn phase during the morning peak hour</li> <li>• Adjust signal timings to provide longer protected eastbound, westbound, and northbound left-turn phases during the evening peak hour</li> <li>• Adjust offset during the morning peak hour</li> <li>• Provide pedestrian countdown timers for all legs</li> </ul>
Roosevelt Road with State Street	<ul style="list-style-type: none"> <li>• Adjust signal timings to provide additional green time to the eastbound and westbound movements during the morning peak hour</li> <li>• Adjust signal timings to provide longer protected eastbound left-turn phase during the evening peak hour</li> </ul>
18 <sup>th</sup> Street with Canal Street	<ul style="list-style-type: none"> <li>• Adjust signal timings to provide longer protected eastbound left-turn phase during the evening peak hour</li> </ul>
18 <sup>th</sup> Street with Wentworth Avenue	<ul style="list-style-type: none"> <li>• Adjust signal timings to provide protected/permissive left-turn phases for all approaches</li> </ul>
18 <sup>th</sup> Street with Clark Street	<ul style="list-style-type: none"> <li>• Adjust signal timings to provide additional green time to eastbound and westbound protected left-turn phases during the morning and evening peak hours</li> <li>• Adjust signal timings to provide additional time to the eastbound and westbound phases during the evening peak hour</li> <li>• Provide pedestrian countdown timers for all legs</li> </ul>
Clark Street with 15 <sup>th</sup> Street	<ul style="list-style-type: none"> <li>• Modify intersection, signal, and timings to accommodate 4<sup>th</sup> (eastbound) approach</li> </ul>

Clark Street with 15 <sup>th</sup> Street (Continued)	<ul style="list-style-type: none"> <li>• Eastbound approach will provide one inbound lane and two outbound lanes striped for exclusive left-turn lane and combined through/right-turn lane</li> <li>• Provide exclusive left-turn lanes for the northbound and southbound approaches with protected/permissive left-turn phases for each direction</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Polk Street with Clark Street (to be completed by others)	<ul style="list-style-type: none"> <li>• Increase cycle length to 100 seconds during the morning and evening peak hours</li> <li>• Provide an eastbound left-turn phase</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Polk Street with Wells Street (to be completed by others)	<ul style="list-style-type: none"> <li>• Install traffic signal</li> <li>• Restripe northbound and southbound approaches to provide an exclusive left-turn lane</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Clark Street with Proposed Northern East/West Drive	<ul style="list-style-type: none"> <li>• Modify existing intersection, signal, and timings to accommodate 3<sup>rd</sup> (eastbound) approach</li> <li>• Eastbound approach will provide one inbound lane and two outbound lanes striped to provide exclusive left-turn and right-turn lanes</li> <li>• Provide northbound left-turn lane with a protected/permissive left-turn phase</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Clark Street with Proposed 14 <sup>th</sup> Street	<ul style="list-style-type: none"> <li>• Install traffic signal</li> <li>• Modify intersection to accommodate eastbound approach providing one inbound lane and two outbound lanes striped for an exclusive left-turn and right-turn lanes</li> <li>• Provide a northbound left-turn lane with a protected/permissive left-turn phase</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Clark Street with Proposed 2A Parking Garage Access Drive	<ul style="list-style-type: none"> <li>• Eastbound approach will provide one inbound lane and two outbound lanes striped to provide exclusive left-turn and right-turn lanes</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
Wells Street/Wentworth Avenue Connector with Lower Roosevelt Road	<ul style="list-style-type: none"> <li>• Provide an eastbound approach with one inbound lane and one outbound lane with outbound movements under stop sign control</li> <li>• Provide a southbound left-turn lane</li> </ul>



<p>Wells Street/Wentworth Avenue Connector with Northern Access Drive</p>	<ul style="list-style-type: none"> <li>• Install traffic signal</li> <li>• Eastbound approach to Sub-Area 4 parking garage will be restricted to right-in/right-out movements only</li> <li>• Westbound approach to Sub-Area 3 parking garage will provide one inbound lane and two outbound lanes striped for exclusive left-turn and right-turn lanes</li> <li>• Provide a southbound left-turn lane with a protected/permissive left-turn phase</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
<p>Wells Street/Wentworth Avenue Connector with Middle Access Drive</p>	<ul style="list-style-type: none"> <li>• Install traffic signal</li> <li>• Eastbound approach to Sub-Area 4 parking garage will be restricted to right-in/right-out movements only</li> <li>• Westbound approach to Sub-Area 3 parking garage will provide one inbound lane and two outbound lanes striped for exclusive left-turn and right-turn lanes</li> <li>• Provide a southbound left-turn lane with a protected/permissive left-turn phase</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
<p>Wells Street/Wentworth Avenue Connector with 15<sup>th</sup> Street (Extended)</p>	<ul style="list-style-type: none"> <li>• Install traffic signal</li> <li>• Westbound approach will provide one inbound lane and two outbound lanes striped as exclusive left-turn and right-turn lanes</li> <li>• Provide a southbound left-turn lane with a protected/permissive left-turn phase</li> <li>• Provide pedestrian countdown timers for all legs</li> <li>• Provide high-visibility crosswalks on all legs</li> </ul>
<p>15<sup>th</sup> Street (Extended) with LaSalle Street/Sub-Area 2A Parking Garage</p>	<ul style="list-style-type: none"> <li>• Install all-way stop control</li> <li>• Northbound and southbound approaches will provide one inbound lane and two outbound lanes striped for exclusive left-turn lane and combined through/right-turn lane</li> </ul>

## 7. Traffic Management Plan

Traffic Management Plans provide strategies that the proposed development can implement that have been effective at reducing the number of vehicle trips generated by a new development. These strategies are meant to not only reduce the traffic to and from the site, but also to reduce parking demand, increase the use of alternate modes of transportation and public transit ridership, and promote active lifestyles less dependent on personal vehicles.

The following suggestions and recommendations are strategies that would be effective in a large mixed-use development such as this:

*Transit Subsidies* provided by employers and residential operators will provide discounted or free access to public transportation.

*Carpool Matching Services* can be provided by employers to match employees who live near each other and work similar schedules to carpool to and from the office. Van-pool services may also be provided.

*Preferential Carpool Parking* provides preferential treatment to those employees who carpool. Benefits can include a discounted cost for parking or the use of the “better” parking spaces within the parking garage.

*Guaranteed/Emergency Ride Home* reimburses non-driving employees for occasional taxi cab or ride-share rides when traveling to or from work outside of the normal commuting times.

*Flextime* provides formal policies allowing employees to work non-conventional schedules to reduce parking and traffic demand that occur during typical peak periods.

*Telecommuting* provides formal policies allowing employees to work remotely. Residential buildings in the area may consider the provision of high-speed internet access to further encourage this option.

*Bicycle-Sharing (Divvy) Stations* should be provided in the area to accommodate the proposed increase in population. The location and number of docks at each of these new stations should be determined based on employment centers and residential buildings in coordination with Divvy Bike Sharing. Employers/residential operators may choose to subsidize membership costs in order to reduce parking and traffic.

*Car-Sharing* should be provided throughout the development within the on-site parking garages. Coordination with car-share providers should determine the number and location of these vehicles. Employers/residential operators may choose to subsidize membership costs in order to reduce parking and traffic.

*Changing Facilities* promote bicycle commuting by allowing employees to shower and get ready for work after their commute. This may also include agreements with nearby health clubs for the use of their facilities.

*Bike Storage and Bike Repair Facilities* within employment centers and residential buildings provide a secure place to store bicycles out of the elements. In addition, the space and tools to perform minor repairs when necessary will further encourage bicycle commuting.

*Charging for Parking* is an effective method to reduce traffic to and from the development as well as reduce the demand for on-site parking.

*Real-Time Transit Monitors* should be provided within public areas or building lobbies to inform potential transit users of approaching trains and buses.

*Distribute Information* in order to inform new residents and employees of transit options, programs, and incentives.



## 8. Conclusion

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) to assess the impact of the proposed mixed-use development of the Clark/Roosevelt site in Chicago, Illinois. As proposed, the mixed-use development will contain a total of approximately 5,150 residential units, 477 hotel rooms, 4,160,000 square feet of office space, 550,000 square feet of retail, and a higher education institution with a maximum enrollment of 2,000 students. In addition, approximately 4,000 parking spaces will be provided on site. Based on the preceding analyses and recommendations, the following conclusions have been made:

- The volume of traffic to be generated by the development will be reduced given its location in an urban area and its proximity to alternative modes of transportation.
- The mixed-use nature of the development will promote interaction between uses, further reducing the volume of traffic to be generated by the development.
- Numerous improvements/modifications have been recommended in order to mitigate the impact of the proposed development and future conditions. These improvements/modifications range from the installation of multiple traffic signals and new signalized access points to protected/permissive phasing and signal timing adjustments.
- Multiple access points allow for good connectivity to the surrounding street system and allow for more efficient ingress/egress.
- The Wells Street/Wentworth Avenue Connector will provide an additional corridor in the area and alleviate traffic along other north-south corridors, particularly Canal Street and Clark Street.
- The strategies of the Traffic Management Plan will help reduce the impact of the development on the area street system as well as reduce parking demand, increase the use of alternate modes of transportation and public transit ridership, and promote active lifestyles less dependent on personal vehicles.

# Appendix

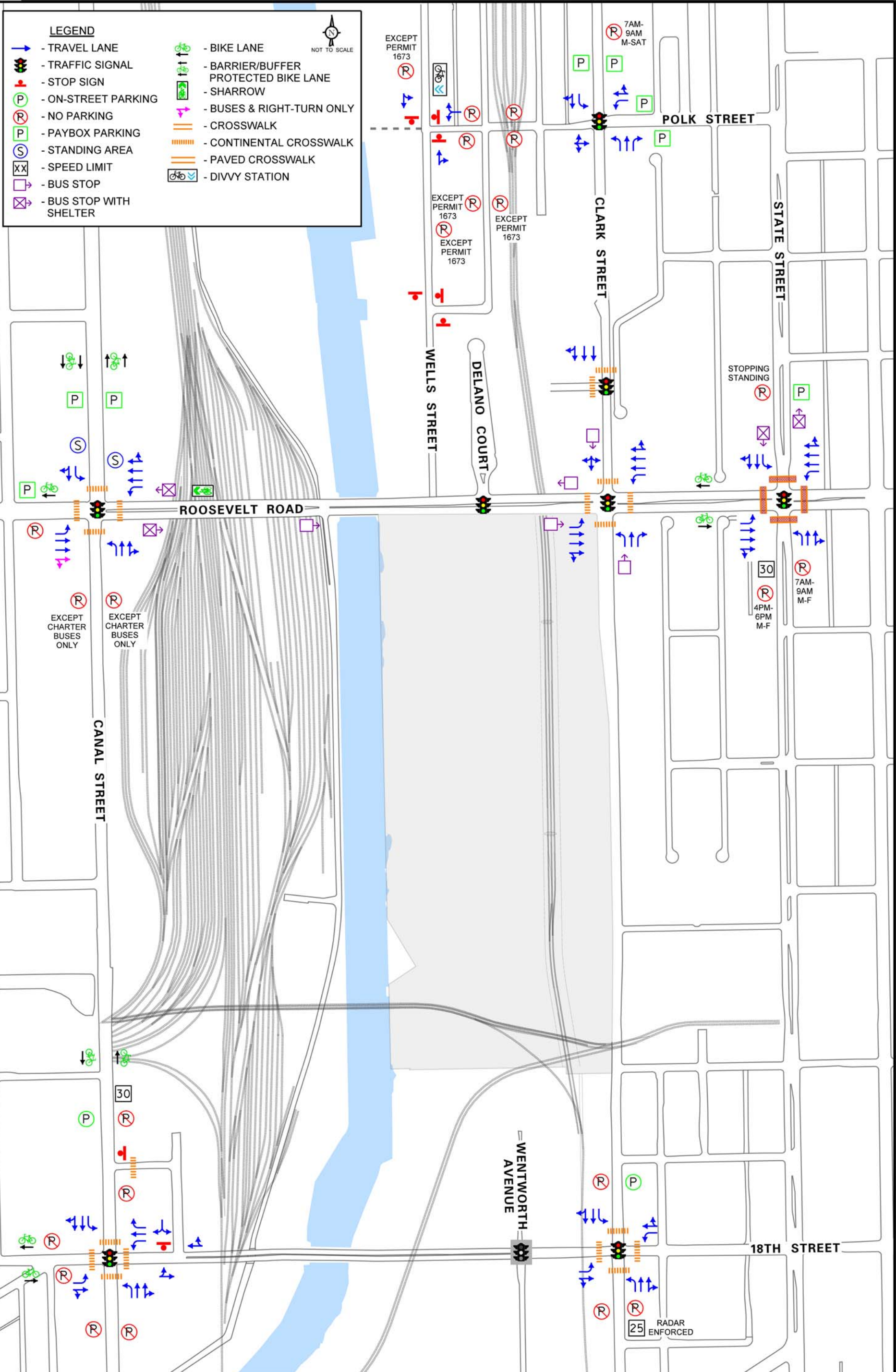
Figures

Demographic Data

Level of Service Table

Capacity Analyses Reports

## Figures

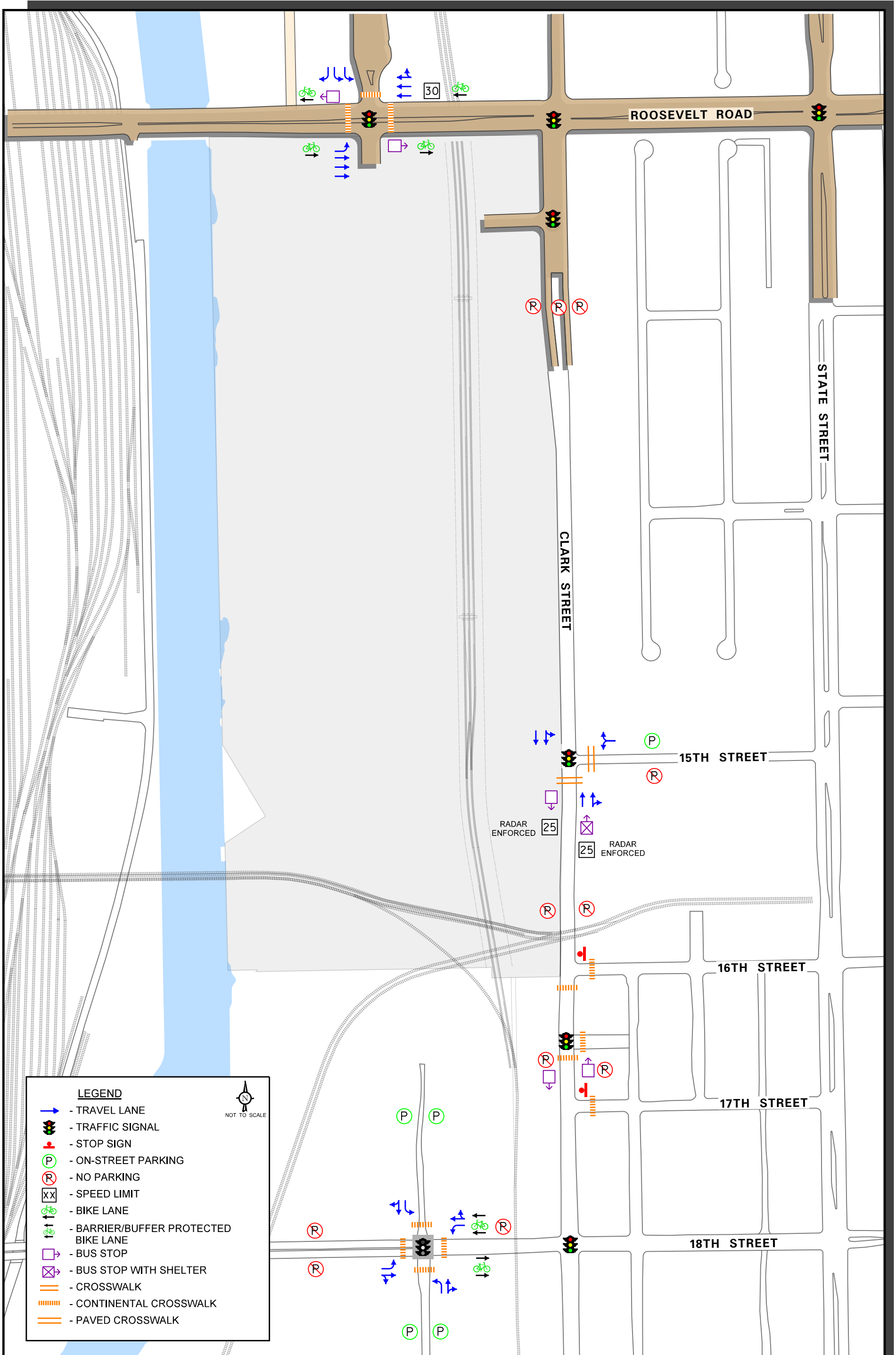


Clark and Roosevelt  
Development  
Chicago, Illinois

EXISTING STREET CHARACTERISTICS  
OVERALL AREA







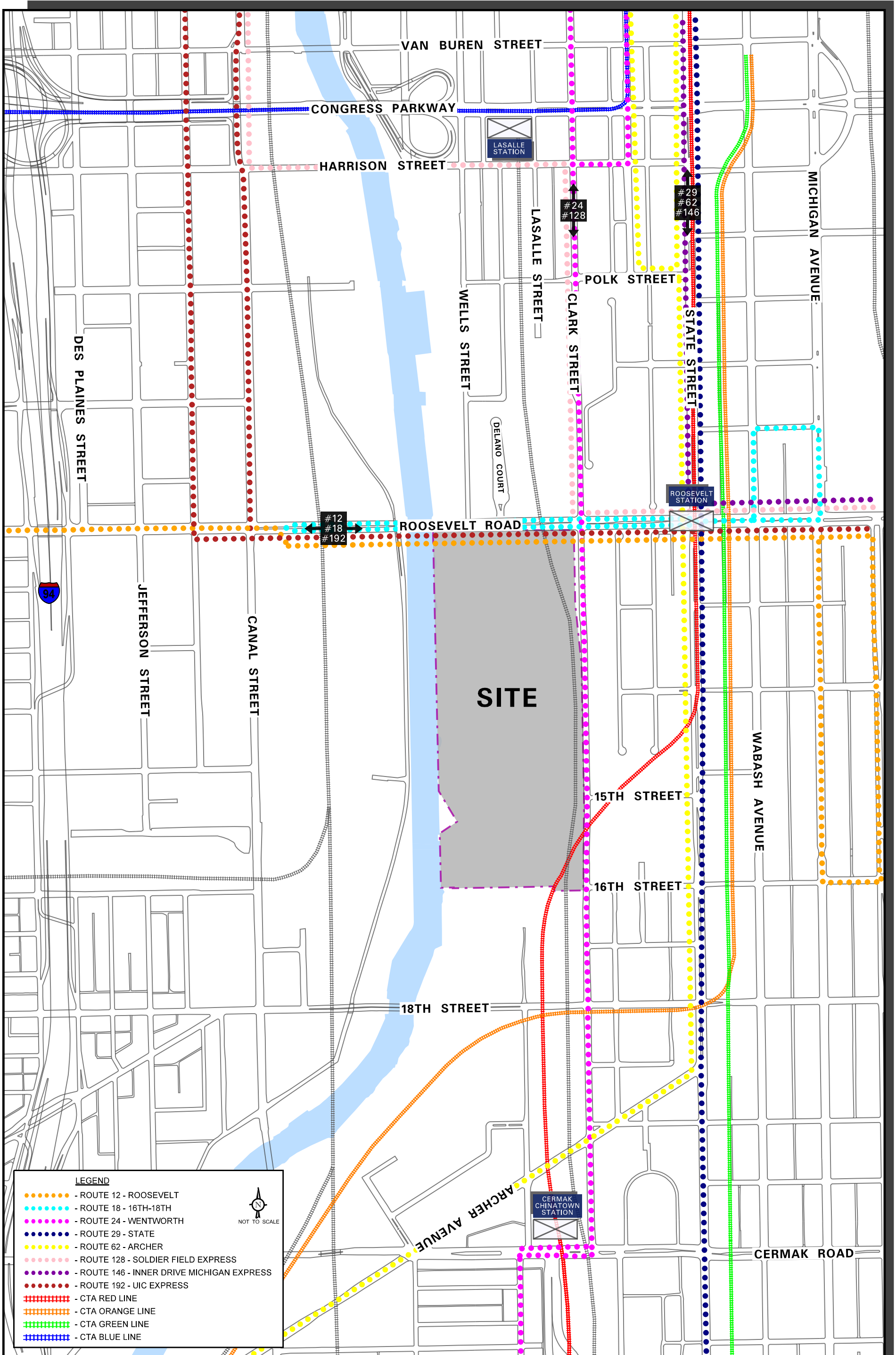
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- TRAFFIC SIGNAL
- STOP SIGN
- ON-STREET PARKING
- NO PARKING
- SPEED LIMIT
- BIKE LANE
- BARRIER/BUFFER PROTECTED BIKE LANE
- BUS STOP
- BUS STOP WITH SHELTER
- CROSSWALK
- CONTINENTAL CROSSWALK
- PAVED CROSSWALK

NOT TO SCALE

CLARK AND ROOSEVELT  
DEVELOPMENT  
CHICAGO, ILLINOIS

EXISTING STREET CHARACTERISTICS  
SITE AREA



**LEGEND**

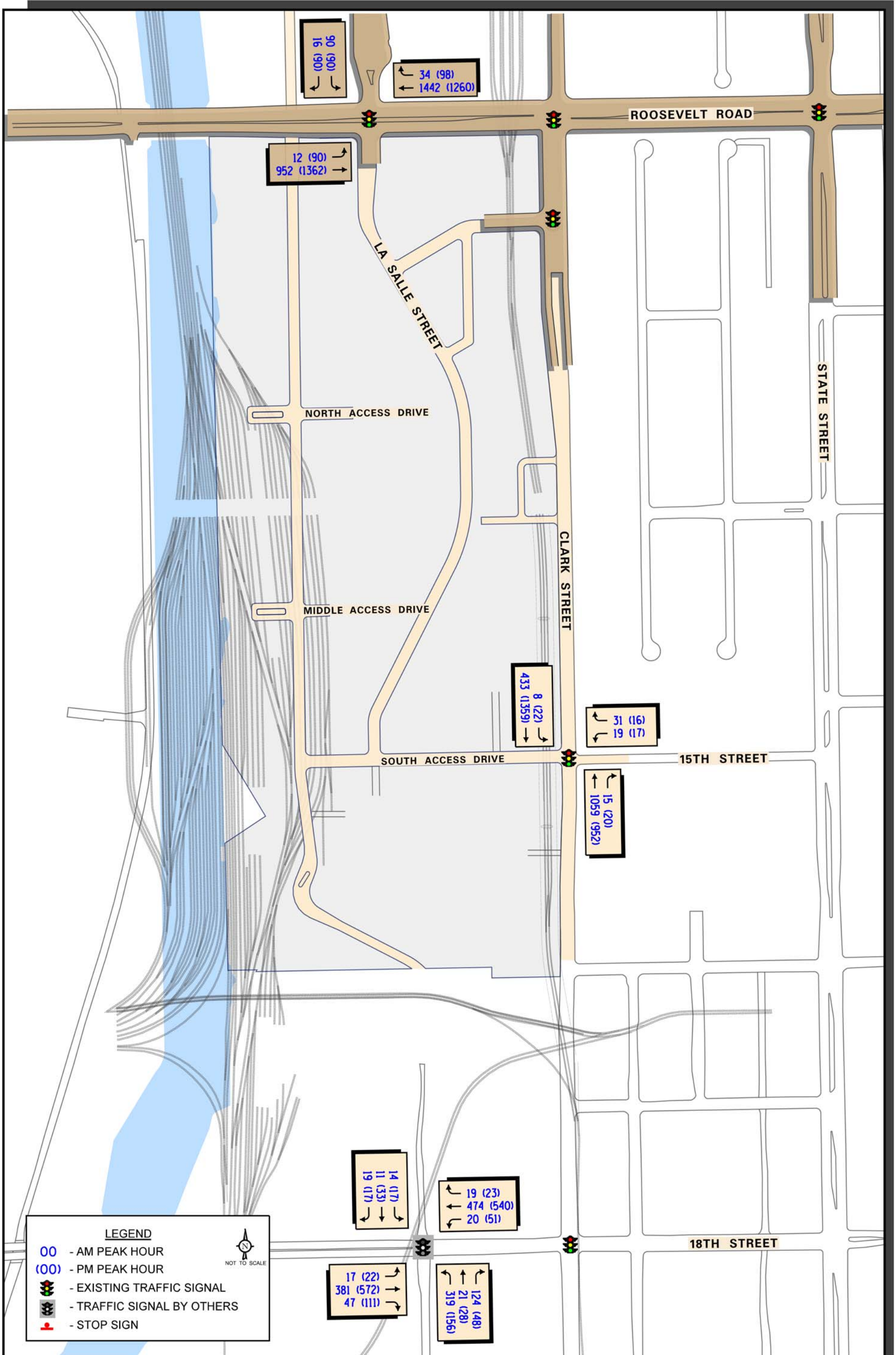
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- - ROUTE 18 - 16TH-18TH
- - ROUTE 24 - WENTWORTH
- - ROUTE 29 - STATE
- - ROUTE 62 - ARCHER
- - ROUTE 128 - SOLDIER FIELD EXPRESS
- - ROUTE 146 - INNER DRIVE MICHIGAN EXPRESS
- - ROUTE 192 - UIC EXPRESS
- ▬▬▬▬▬ - CTA RED LINE
- ▬▬▬▬▬ - CTA ORANGE LINE
- ▬▬▬▬▬ - CTA GREEN LINE
- ▬▬▬▬▬ - CTA BLUE LINE

NOT TO SCALE









**LEGEND**

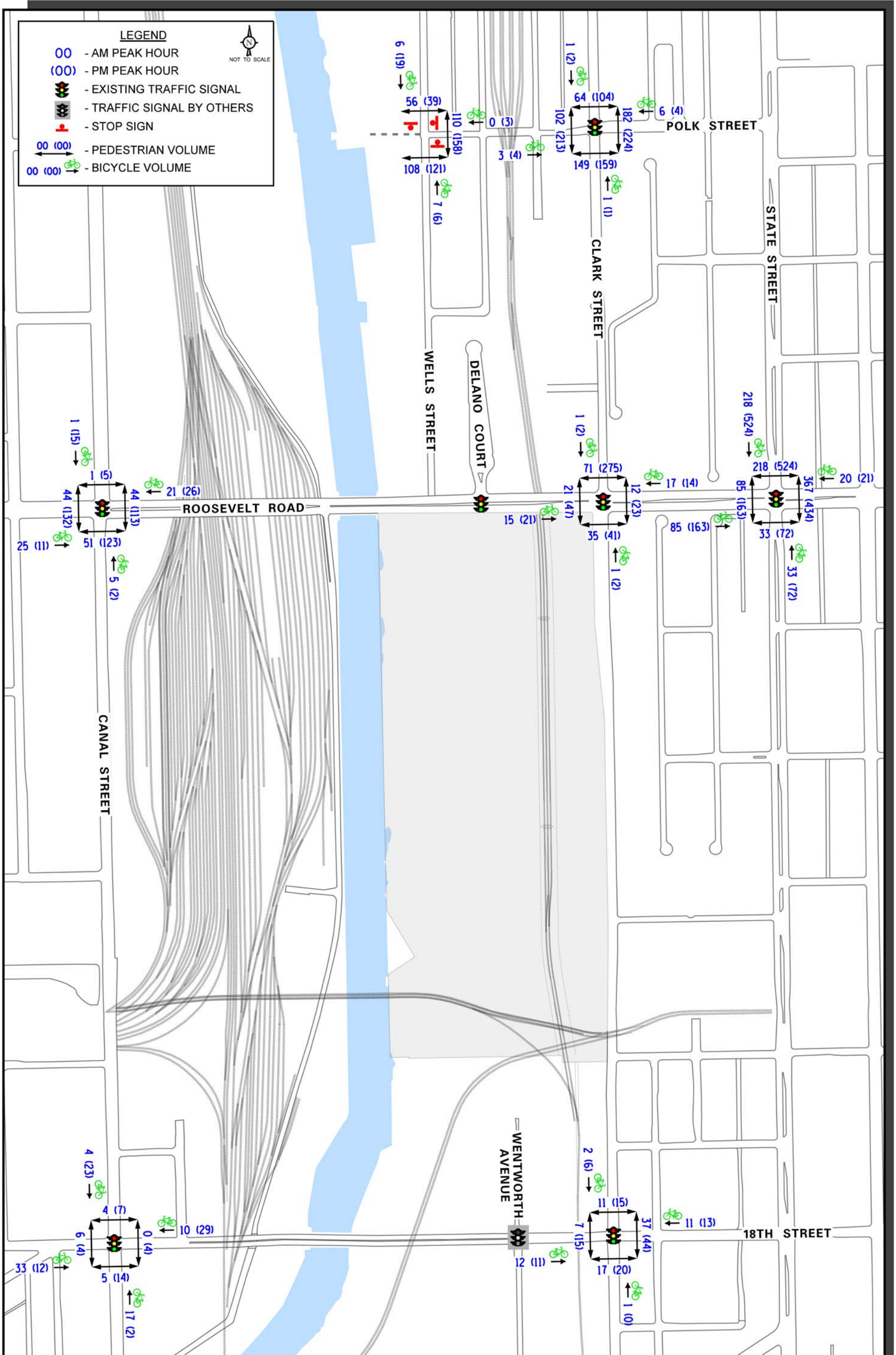
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- (OO) - PM PEAK HOUR
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- TRAFFIC SIGNAL BY OTHERS
- STOP SIGN

NOT TO SCALE

CLARK AND ROOSEVELT  
DEVELOPMENT  
CHICAGO, ILLINOIS

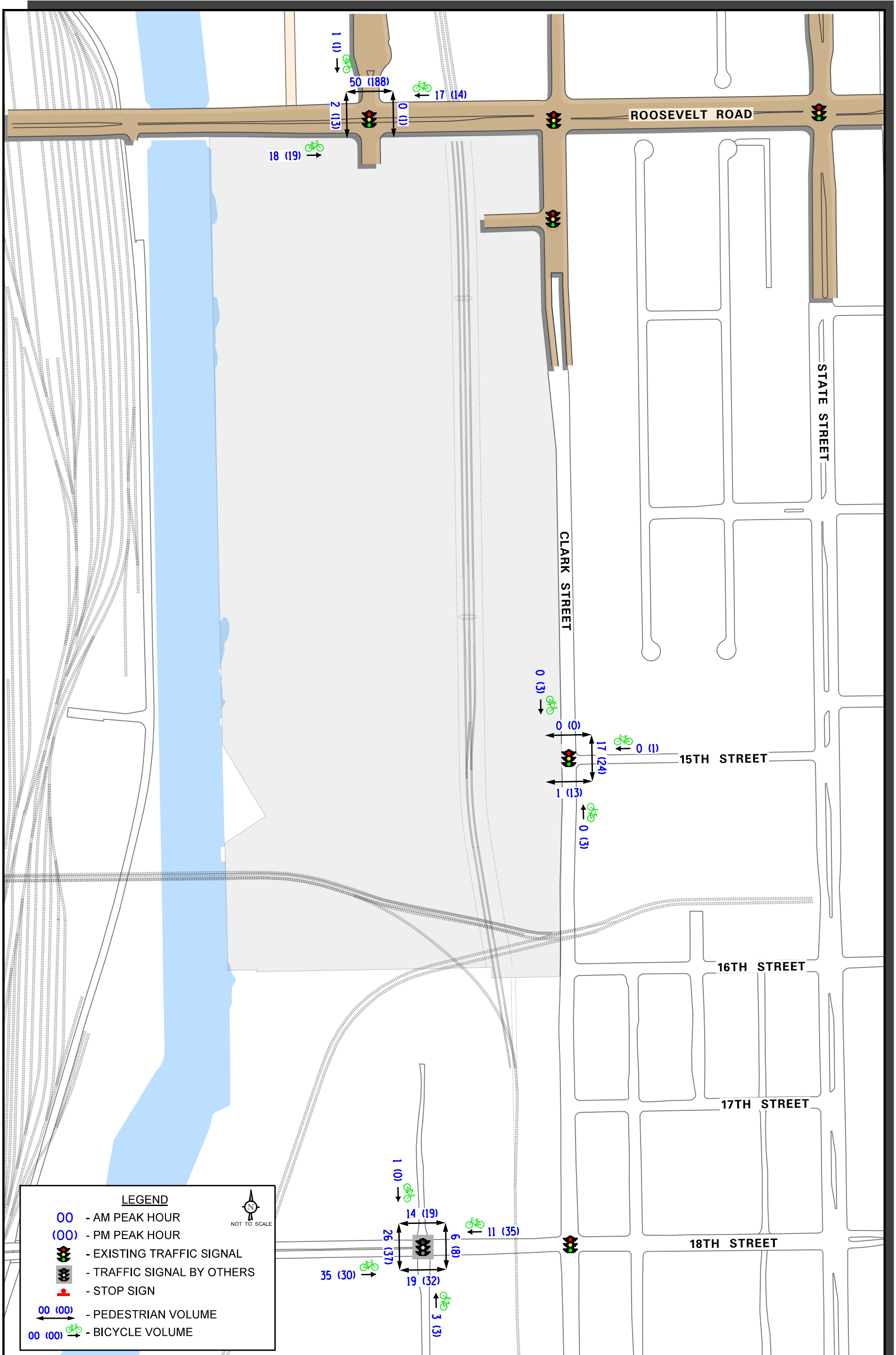
EXISTING TRAFFIC VOLUMES  
AT SITE





Clark and Roosevelt  
Development  
Chicago, Illinois

EXISTING PEDESTRIAN AND BICYCLE TRAFFIC VOLUMES  
OVERALL AREA



**LEGEND**

- 00 - AM PEAK HOUR
- (00) - PM PEAK HOUR
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- 🚦 (grey) - TRAFFIC SIGNAL BY OTHERS
- 🛑 - STOP SIGN
- 00 (00) - PEDESTRIAN VOLUME
- 00 (00) 🚲 - BICYCLE VOLUME

NOT TO SCALE

CLARK AND ROOSEVELT  
DEVELOPMENT  
CHICAGO, ILLINOIS

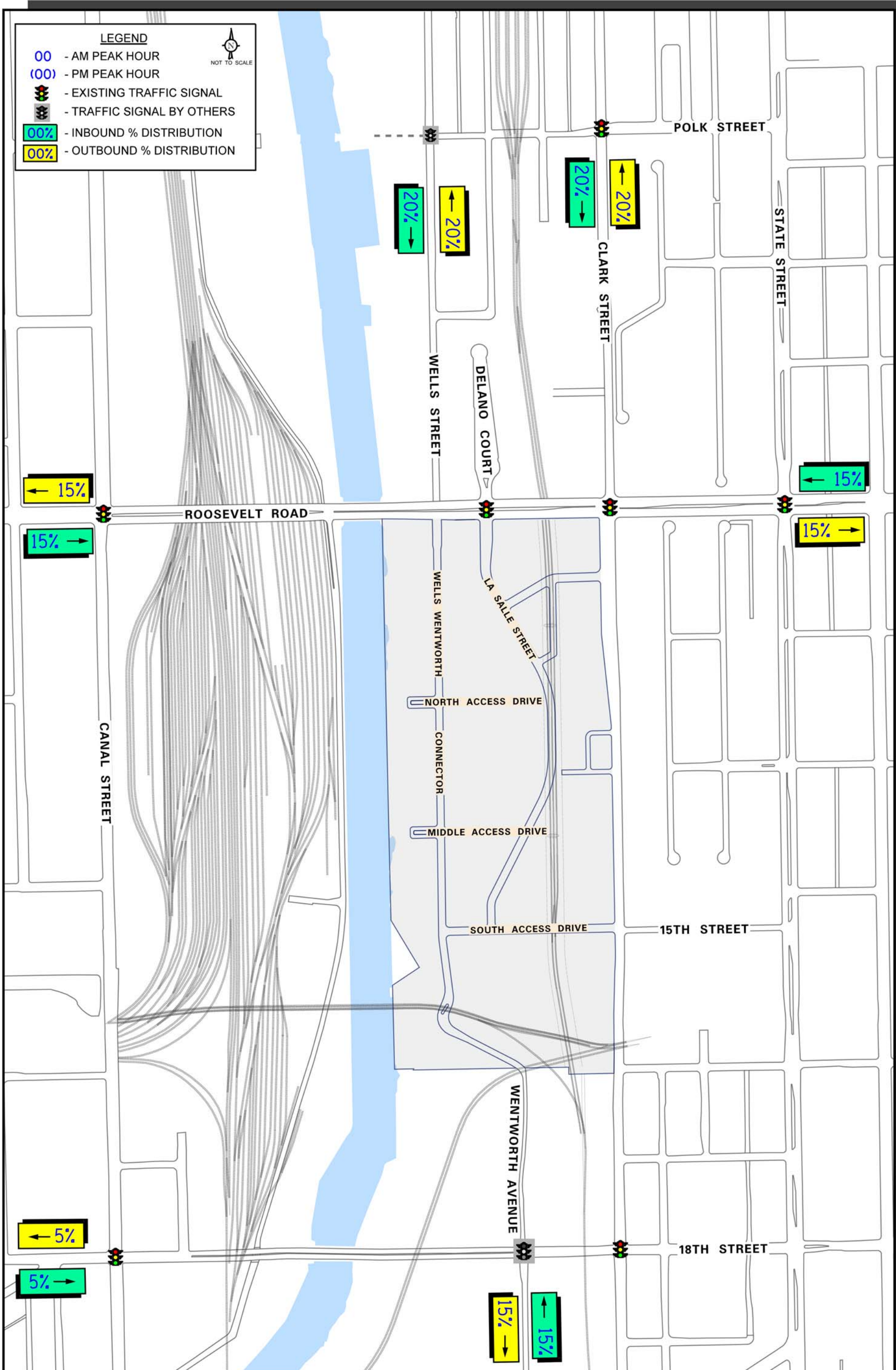
EXISTING PEDESTRIAN AND BICYCLE TRAFFIC VOLUMES  
SITE AREA



**LEGEND**

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- TRAFFIC SIGNAL BY OTHERS
- INBOUND % DISTRIBUTION
- OUTBOUND % DISTRIBUTION

NOT TO SCALE



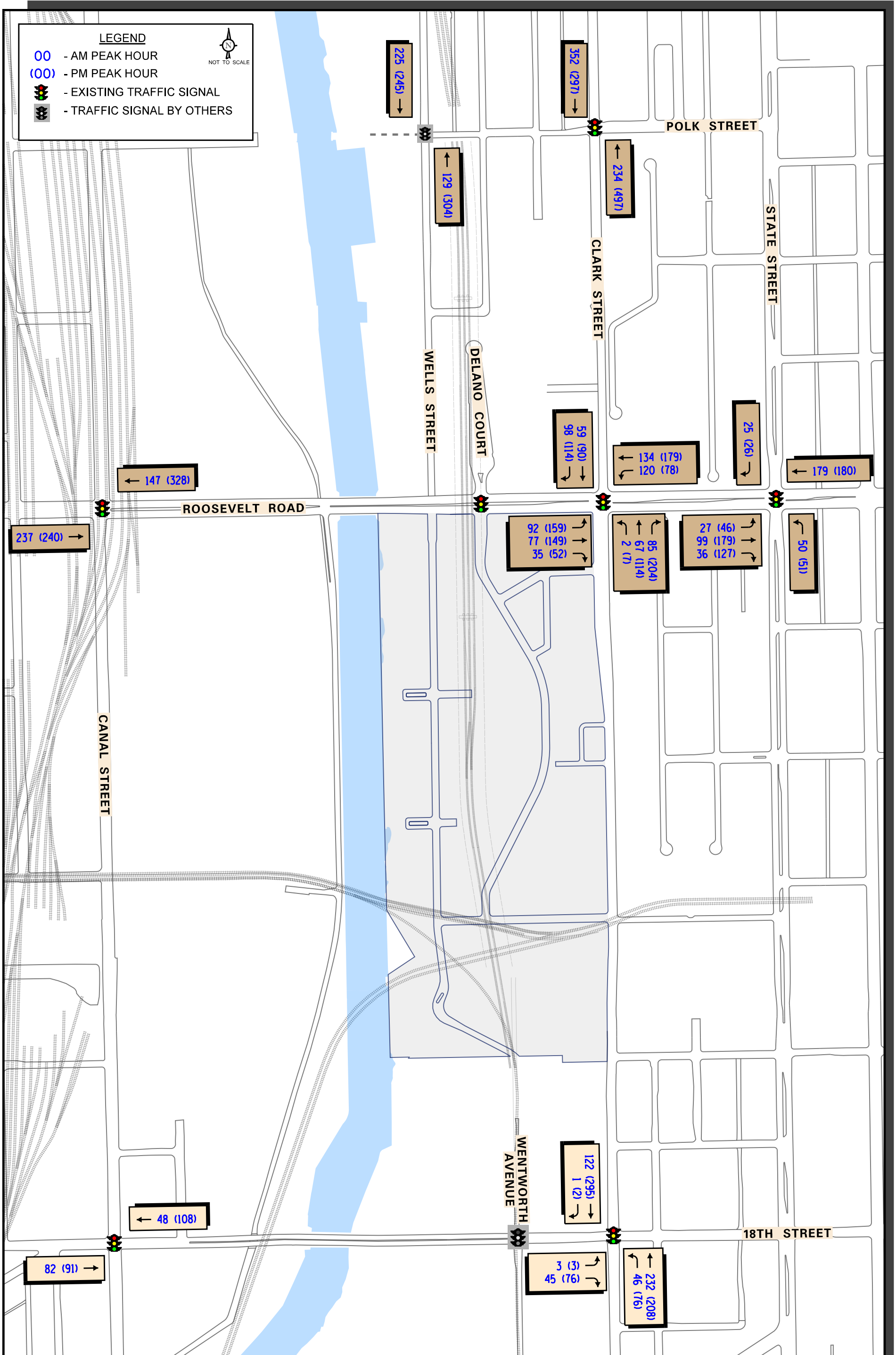
Clark and Roosevelt  
Development  
Chicago, Illinois

ESTIMATED DIRECTIONAL DISTRIBUTION  
OVERALL AREA



Job No: 16-250

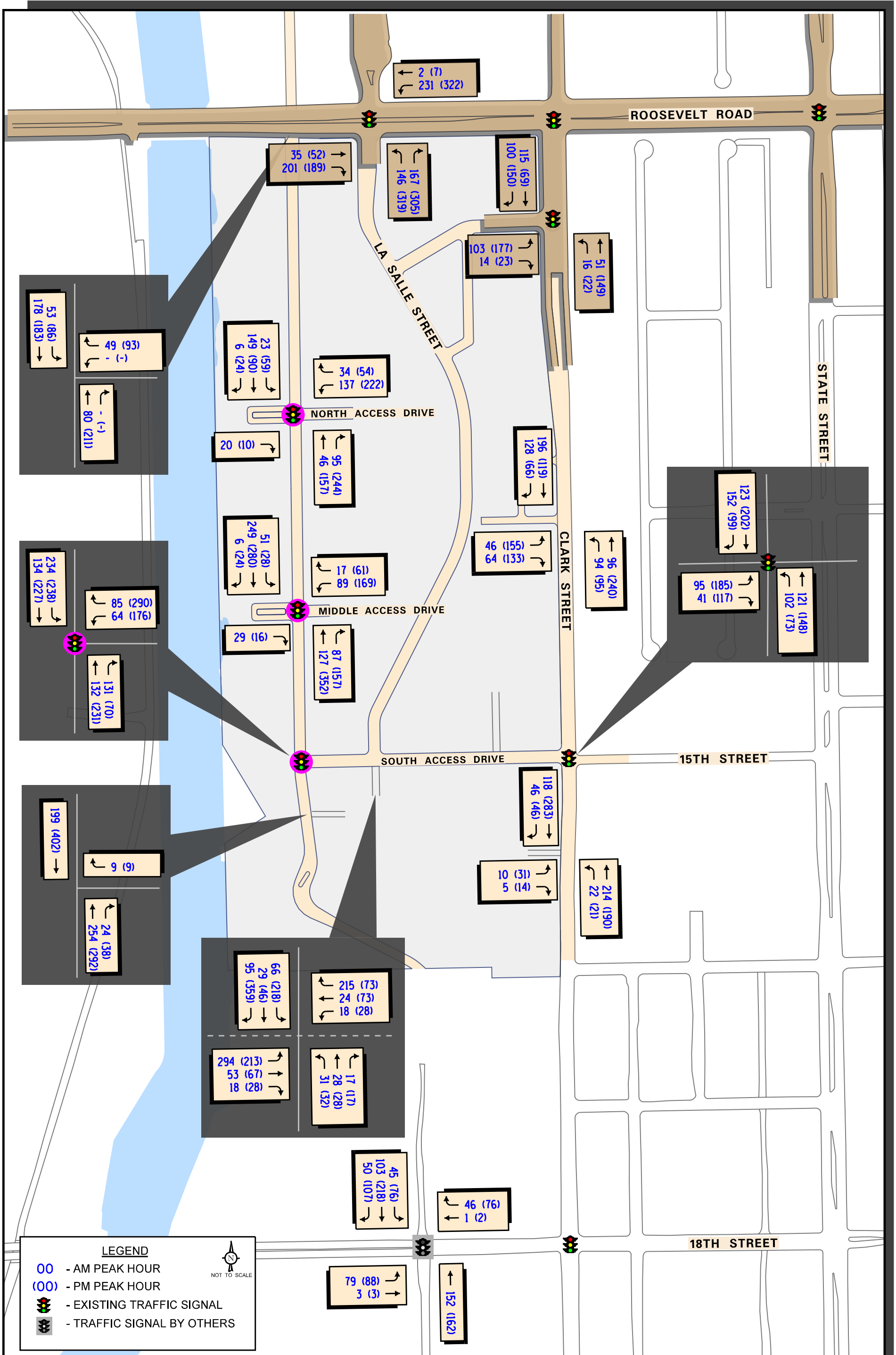
Figure: 7



Clark and Roosevelt  
Development  
Chicago, Illinois

ESTIMATED SITE TRAFFIC ASSIGNMENT  
OVERALL AREA





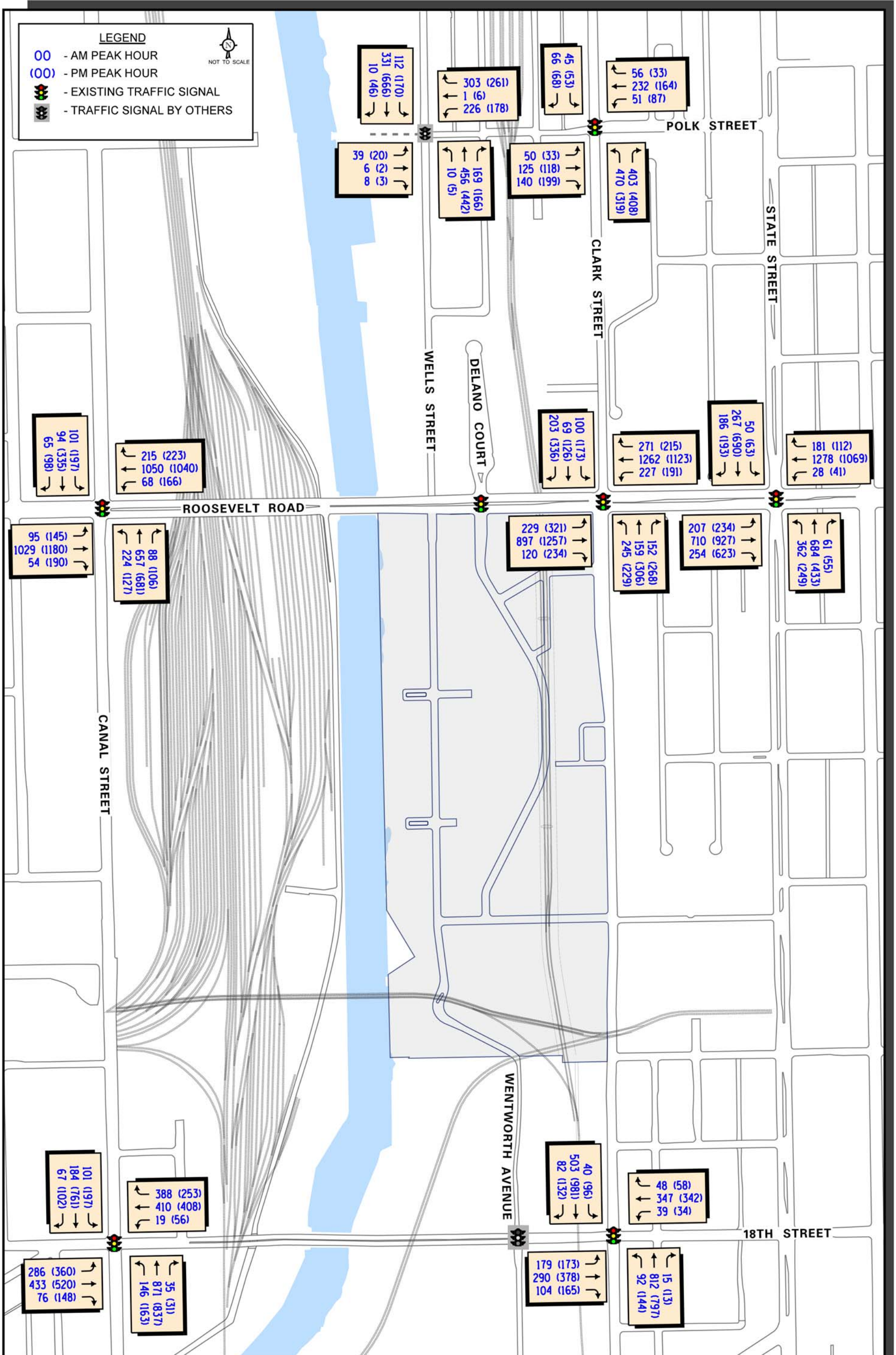
**LEGEND**

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- (00) - PM PEAK HOUR
- EXISTING TRAFFIC SIGNAL
- TRAFFIC SIGNAL BY OTHERS

NOT TO SCALE

CLARK AND ROOSEVELT  
DEVELOPMENT  
CHICAGO, ILLINOIS

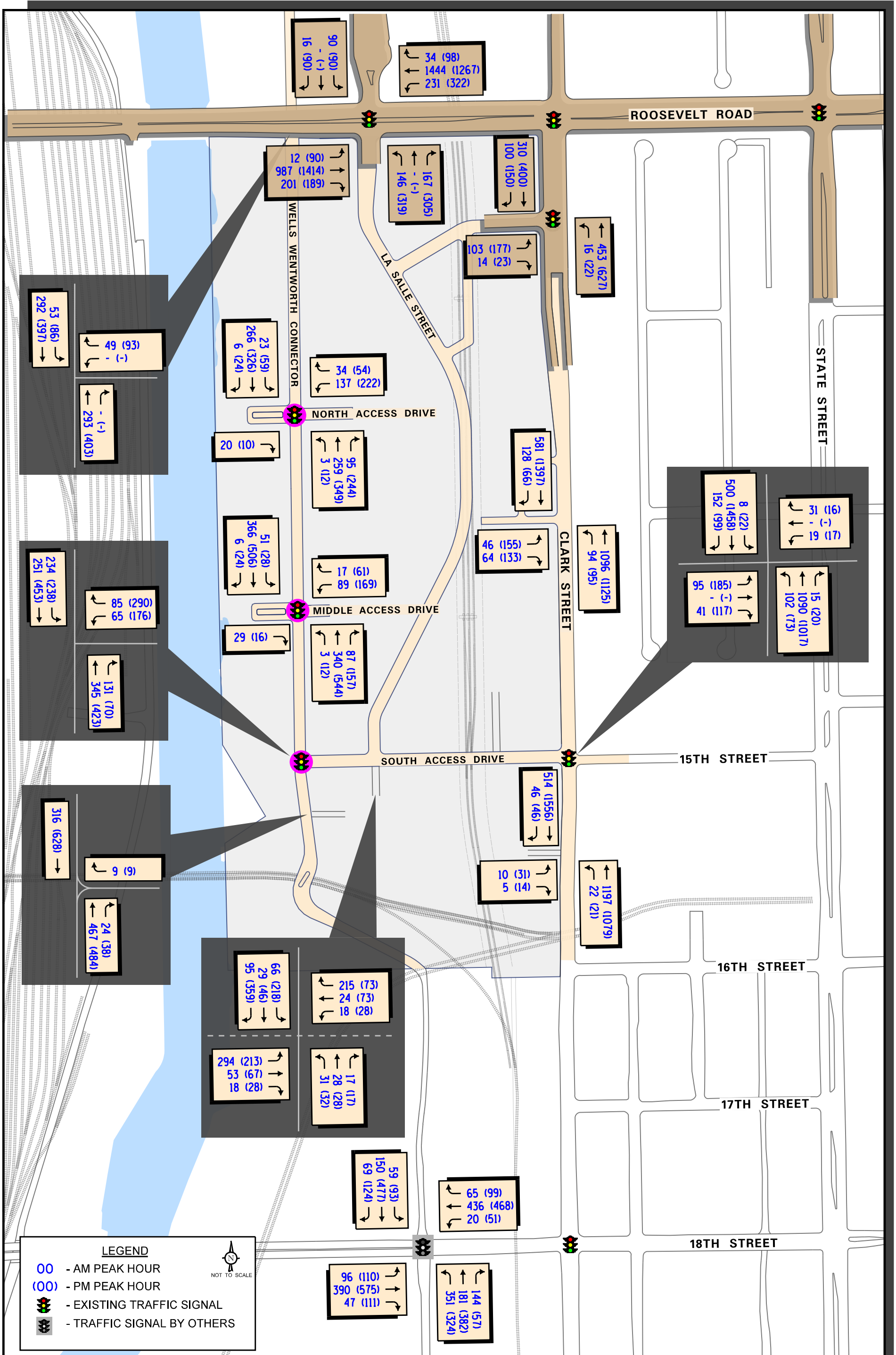
ESTIMATED SITE TRAFFIC ASSIGNMENT  
AT SITE



Clark and Roosevelt  
Development  
Chicago, Illinois

TOTAL PROJECTED TRAFFIC VOLUMES  
OVERALL AREA





**LEGEND**

- 00 - AM PEAK HOUR
- (00) - PM PEAK HOUR
- EXISTING TRAFFIC SIGNAL
- TRAFFIC SIGNAL BY OTHERS

NOT TO SCALE

CLARK AND ROOSEVELT  
DEVELOPMENT  
CHICAGO, ILLINOIS

TOTAL PROJECTED TRAFFIC VOLUMES  
SITE AREA

## Demographic Data



DP03

## SELECTED ECONOMIC CHARACTERISTICS

2011-2015 American Community Survey 5-Year Estimates

**Note:** This is a modified view of the original table.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

**Tell us what you think.** Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Subject	Census Tract 3206, Cook County, Illinois	Census Tract 3301, Cook County, Illinois	Census Tract 3302, Cook County, Illinois	Census Tract 8390, Cook County, Illinois	Census Tract 8411, Cook County, Illinois	Census Tract 8419, Cook County, Illinois
	Percent	Percent	Percent	Percent	Percent	Percent
<b>EMPLOYMENT STATUS</b>						
Population 16 years and over	4,447	15,300	3,081	7,971	6,437	5,581
In labor force	80.3%	83.7%	71.9%	80.3%	60.3%	65.1%
Civilian labor force	80.3%	83.7%	71.9%	79.4%	60.3%	65.1%
Employed	75.8%	80.8%	68.6%	76.3%	52.0%	58.3%
Unemployed	4.5%	2.9%	3.2%	3.1%	8.4%	6.8%
Armed Forces	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%
Not in labor force	19.7%	16.3%	28.1%	19.7%	39.7%	34.9%
Civilian labor force	3,573	12,810	2,214	6,331	3,884	3,633
Unemployment Rate	5.6%	3.5%	4.5%	3.9%	13.9%	10.5%
Females 16 years and over	2,465	7,769	1,599	4,418	3,244	2,931
In labor force	77.9%	78.7%	65.0%	80.5%	57.8%	65.3%
Civilian labor force	77.9%	78.7%	65.0%	80.5%	57.8%	65.3%
Employed	71.7%	75.8%	62.9%	76.8%	49.3%	58.4%

Subject	Census Tract 3206, Cook County, Illinois	Census Tract 3301, Cook County, Illinois	Census Tract 3302, Cook County, Illinois	Census Tract 8390, Cook County, Illinois	Census Tract 8411, Cook County, Illinois	Census Tract 8419, Cook County, Illinois
	Percent	Percent	Percent	Percent	Percent	Percent
Own children of the householder under 6 years	229	1,491	325	482	360	275
All parents in family in labor force	74.7%	47.6%	83.1%	84.0%	76.1%	74.2%
Own children of the householder 6 to 17 years	101	1,137	320	395	1,052	302
All parents in family in labor force	100.0%	77.9%	98.1%	100.0%	75.8%	97.4%
<b>COMMUTING TO WORK</b>						
Workers 16 years and over	3,373	11,855	2,062	6,009	3,334	3,207
Car, truck, or van -- drove alone	33.1%	43.4%	45.9%	27.7%	38.7%	38.3%
Car, truck, or van -- carpooled	2.1%	7.3%	5.5%	5.0%	19.7%	4.6%
Public transportation (excluding taxicab)	26.8%	27.7%	24.2%	26.9%	13.3%	21.5%
Walked	28.2%	9.1%	11.1%	29.1%	21.2%	22.5%
Other means	2.6%	6.4%	3.6%	3.5%	2.8%	5.9%
Worked at home	7.2%	6.1%	9.7%	7.9%	4.4%	7.3%
Mean travel time to work (minutes)	(X)	(X)	(X)	(X)	(X)	(X)
<b>OCCUPATION</b>						
Civilian employed population 16 years and over	3,373	12,364	2,115	6,085	3,346	3,253
Management, business, science, and arts occupations	73.0%	69.6%	60.0%	69.9%	20.3%	58.8%
Service occupations	12.0%	5.7%	15.9%	9.8%	45.8%	13.7%
Sales and office occupations	11.9%	20.4%	19.9%	18.7%	18.6%	23.5%
Natural resources, construction, and maintenance occupations	0.0%	1.7%	0.7%	0.6%	3.5%	0.8%
Production, transportation, and material moving occupations	3.1%	2.5%	3.5%	1.0%	11.7%	3.1%
<b>INDUSTRY</b>						
Civilian employed population 16 years and over	3,373	12,364	2,115	6,085	3,346	3,253
Agriculture, forestry, fishing and hunting, and mining	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
Construction	1.2%	0.7%	0.7%	0.4%	3.6%	1.2%
Manufacturing	5.0%	4.1%	9.8%	5.0%	5.9%	2.3%
Wholesale trade	3.5%	3.4%	2.7%	1.0%	4.8%	3.0%
Retail trade	3.3%	4.7%	2.4%	3.5%	8.7%	8.5%
Transportation and warehousing, and utilities	3.9%	3.0%	5.0%	3.5%	3.3%	1.1%
Information	1.1%	1.7%	0.7%	5.3%	1.5%	1.7%
Finance and insurance, and real estate and rental and leasing	14.1%	14.8%	15.7%	13.1%	3.9%	10.9%
Professional, scientific, and management, and administrative and waste management services	22.2%	17.0%	18.3%	26.7%	5.1%	21.8%
Educational services, and health care and social assistance	33.0%	35.6%	25.3%	30.9%	18.5%	32.8%
Arts, entertainment, and recreation, and accommodation and food services	6.4%	6.5%	8.6%	5.4%	40.0%	8.5%
Other services, except public administration	4.1%	5.5%	7.8%	3.1%	3.3%	4.0%
Public administration	2.2%	3.0%	2.6%	2.1%	1.3%	4.3%

Subject	Census Tract 3206, Cook County, Illinois	Census Tract 3301, Cook County, Illinois	Census Tract 3302, Cook County, Illinois	Census Tract 8390, Cook County, Illinois	Census Tract 8411, Cook County, Illinois	Census Tract 8419, Cook County, Illinois
	Percent	Percent	Percent	Percent	Percent	Percent
<b>CLASS OF WORKER</b>						
Civilian employed population 16 years and over	3,373	12,364	2,115	6,085	3,346	3,253
Private wage and salary workers	84.2%	86.0%	79.4%	85.3%	86.7%	79.5%
Government workers	10.3%	12.7%	13.7%	7.4%	5.0%	17.8%
Self-employed in own not incorporated business workers	5.4%	1.3%	6.9%	7.3%	8.3%	2.4%
Unpaid family workers	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
<b>INCOME AND BENEFITS (IN 2015 INFLATION-ADJUSTED DOLLARS)</b>						
Total households	2,692	10,143	1,884	4,615	2,699	1,644
Less than \$10,000	9.3%	7.0%	11.6%	9.8%	23.3%	2.1%
\$10,000 to \$14,999	8.2%	2.1%	5.0%	7.0%	10.4%	1.6%
\$15,000 to \$24,999	1.9%	5.3%	9.2%	1.0%	16.1%	1.5%
\$25,000 to \$34,999	2.4%	6.8%	5.3%	5.4%	12.7%	2.9%
\$35,000 to \$49,999	4.9%	10.3%	3.7%	8.3%	11.4%	4.4%
\$50,000 to \$74,999	15.3%	16.8%	11.9%	10.5%	13.4%	15.7%
\$75,000 to \$99,999	15.3%	9.3%	12.8%	16.0%	2.6%	11.3%
\$100,000 to \$149,999	23.4%	18.6%	12.0%	20.3%	8.3%	26.7%
\$150,000 to \$199,999	2.5%	9.6%	10.5%	12.8%	0.5%	17.1%
\$200,000 or more	16.9%	14.2%	17.9%	9.1%	1.2%	16.8%
Median household income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Mean household income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
With earnings	84.9%	92.4%	75.2%	91.2%	70.0%	93.9%
Mean earnings (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
With Social Security	7.5%	10.2%	25.8%	9.6%	28.1%	5.8%
Mean Social Security income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
With retirement income	11.1%	5.9%	9.7%	5.1%	5.3%	5.0%
Mean retirement income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
With Supplemental Security Income	2.9%	1.1%	8.3%	2.0%	12.0%	0.5%
Mean Supplemental Security Income (dollars)	N	(X)	(X)	(X)	(X)	N
With cash public assistance income	0.9%	0.3%	0.4%	0.0%	3.1%	0.5%
Mean cash public assistance income (dollars)	N	N	N	(X)	(X)	N
With Food Stamp/SNAP benefits in the past 12 months	4.5%	7.0%	13.9%	4.2%	33.8%	0.9%
Families	1,109	3,655	849	1,680	2,026	652
Less than \$10,000	2.6%	3.4%	4.1%	5.3%	18.0%	0.9%
\$10,000 to \$14,999	5.3%	1.9%	3.2%	0.0%	8.8%	0.0%
\$15,000 to \$24,999	0.0%	3.9%	9.7%	0.0%	18.6%	0.0%
\$25,000 to \$34,999	0.0%	3.4%	5.9%	0.0%	15.5%	5.5%
\$35,000 to \$49,999	3.2%	2.4%	5.3%	5.8%	13.2%	3.5%
\$50,000 to \$74,999	13.9%	7.1%	3.9%	2.7%	14.4%	6.6%
\$75,000 to \$99,999	15.5%	6.9%	9.8%	13.6%	2.4%	6.9%

Subject	Census Tract 3206, Cook County, Illinois	Census Tract 3301, Cook County, Illinois	Census Tract 3302, Cook County, Illinois	Census Tract 8390, Cook County, Illinois	Census Tract 8411, Cook County, Illinois	Census Tract 8419, Cook County, Illinois
	Percent	Percent	Percent	Percent	Percent	Percent
\$100,000 to \$149,999	24.2%	18.0%	10.1%	27.1%	7.5%	20.9%
\$150,000 to \$199,999	2.4%	20.0%	19.4%	26.5%	0.0%	26.1%
\$200,000 or more	32.8%	32.9%	28.6%	18.9%	1.6%	29.6%
Median family income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Mean family income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Per capita income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Nonfamily households	1,583	6,488	1,035	2,935	673	992
Median nonfamily income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Mean nonfamily income (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Median earnings for workers (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Median earnings for male full-time, year-round workers (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
Median earnings for female full-time, year-round workers (dollars)	(X)	(X)	(X)	(X)	(X)	(X)
<b>HEALTH INSURANCE COVERAGE</b>						
Civilian noninstitutionalized population	4,791	17,759	3,730	8,779	7,673	6,158
With health insurance coverage	97.5%	96.6%	94.3%	96.0%	70.9%	94.8%
With private health insurance	88.0%	88.1%	78.1%	91.1%	32.2%	85.4%
With public coverage	15.5%	12.0%	22.3%	8.4%	44.8%	11.9%
No health insurance coverage	2.5%	3.4%	5.7%	4.0%	29.1%	5.2%
Civilian noninstitutionalized population under 18 years	344	2,703	686	877	1,577	589
No health insurance coverage	0.0%	0.0%	2.5%	0.0%	28.6%	1.0%
Civilian noninstitutionalized population 18 to 64 years	4,154	13,873	2,336	7,397	4,590	5,453
In labor force:	3,471	12,180	2,067	6,162	3,671	3,591
Employed:	3,274	11,824	1,976	5,916	3,244	3,211
With health insurance coverage	96.9%	95.6%	93.2%	95.2%	64.1%	96.1%
With private health insurance	95.1%	93.7%	92.2%	94.8%	46.0%	91.8%
With public coverage	2.1%	2.5%	1.5%	0.6%	19.4%	5.1%
No health insurance coverage	3.1%	4.4%	6.8%	4.8%	35.9%	3.9%
Unemployed:	197	356	91	246	427	380
With health insurance coverage	100.0%	100.0%	46.2%	100.0%	45.9%	87.6%
With private health insurance	70.1%	100.0%	37.4%	79.3%	16.9%	51.3%
With public coverage	41.6%	0.0%	8.8%	20.7%	29.0%	39.7%
No health insurance coverage	0.0%	0.0%	53.8%	0.0%	54.1%	12.4%
Not in labor force:	683	1,693	269	1,235	919	1,862
With health insurance coverage	97.2%	95.3%	95.9%	94.5%	60.6%	92.3%
With private health insurance	75.4%	82.5%	65.1%	91.7%	21.0%	81.9%
With public coverage	23.7%	13.0%	30.9%	6.8%	39.6%	14.3%
No health insurance coverage	2.8%	4.7%	4.1%	5.5%	39.4%	7.7%



Subject	Census Tract 3206, Cook County, Illinois	Census Tract 3301, Cook County, Illinois	Census Tract 3302, Cook County, Illinois	Census Tract 8390, Cook County, Illinois	Census Tract 8411, Cook County, Illinois	Census Tract 8419, Cook County, Illinois
	Percent	Percent	Percent	Percent	Percent	Percent
PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL						
All families	7.9%	5.3%	7.3%	5.3%	35.4%	0.9%
With related children of the householder under 18 years	36.9%	8.5%	2.7%	9.3%	28.4%	0.0%
With related children of the householder under 5 years only	17.5%	12.8%	0.0%	0.0%	22.4%	0.0%
Married couple families	1.0%	3.3%	7.4%	1.6%	32.0%	1.0%
With related children of the householder under 18 years	0.0%	6.9%	0.0%	0.0%	22.8%	0.0%
With related children of the householder under 5 years only	0.0%	14.6%	0.0%	0.0%	9.1%	0.0%
Families with female householder, no husband present	42.2%	13.8%	12.8%	38.5%	43.7%	0.0%
With related children of the householder under 18 years	82.3%	13.0%	17.2%	100.0%	35.9%	0.0%
With related children of the householder under 5 years only	100.0%	0.0%	-	-	-	-
All people	15.2%	9.6%	12.7%	21.2%	37.0%	13.1%
Under 18 years	48.2%	15.7%	1.7%	11.7%	40.2%	0.0%
Related children of the householder under 18 years	48.2%	15.7%	1.7%	11.7%	35.1%	0.0%
Related children of the householder under 5 years	41.5%	16.0%	0.0%	0.0%	44.5%	0.0%
Related children of the householder 5 to 17 years	63.4%	15.5%	2.8%	26.1%	32.0%	0.0%
18 years and over	12.8%	8.5%	15.1%	22.3%	36.1%	15.5%
18 to 64 years	13.2%	7.9%	8.6%	21.9%	30.5%	15.9%
65 years and over	6.8%	15.3%	36.4%	29.1%	53.4%	5.2%
People in families	10.2%	7.3%	5.3%	5.5%	34.1%	0.6%
Unrelated individuals 15 years and over	20.9%	12.6%	25.9%	37.1%	55.4%	26.8%

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Employment and unemployment estimates may vary from the official labor force data released by the Bureau of Labor Statistics because of differences in survey design and data collection. For guidance on differences in employment and unemployment estimates from different sources go to Labor Force Guidance.

Workers include members of the Armed Forces and civilians who were at work last week.

Occupation codes are 4-digit codes and are based on Standard Occupational Classification 2010.

Industry codes are 4-digit codes and are based on the North American Industry Classification System (NAICS). The Census industry codes for 2013 and later years are based on the 2012 revision of the NAICS. To allow for the creation of 2011-2015 tables, industry data in the multiyear files (2011-2015) were recoded to 2013 Census industry codes. We recommend using caution when comparing data coded using 2013 Census industry codes with data coded using Census industry codes prior to 2013. For more information on the Census industry code changes, please visit our website at <https://www.census.gov/people/io/methodology/>.

Logical coverage edits applying a rules-based assignment of Medicaid, Medicare and military health coverage were added as of 2009 -- please see [https://www.census.gov/library/working-papers/2010/demo/coverage\\_edits\\_final.html](https://www.census.gov/library/working-papers/2010/demo/coverage_edits_final.html) for more details. The 2008 data table in American FactFinder does not incorporate these edits. Therefore, the



estimates that appear in these tables are not comparable to the estimates in the 2009 and later tables. Select geographies of 2008 data comparable to the 2009 and later tables are available at <https://www.census.gov/data/tables/time-series/acs/1-year-re-run-health-insurance.html>. The health insurance coverage category names were modified in 2010. See [https://www.census.gov/topics/health/health-insurance/about/glossary.html#par\\_textimage\\_18](https://www.census.gov/topics/health/health-insurance/about/glossary.html#par_textimage_18) for a list of the insurance type definitions.

While the 2011-2015 American Community Survey (ACS) data generally reflect the February 2013 Office of Management and Budget (OMB) definitions of metropolitan and micropolitan statistical areas; in certain instances the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB definitions due to differences in the effective dates of the geographic entities.

Estimates of urban and rural population, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

#### Explanation of Symbols:

1. An '\*\*\*' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
5. An '\*\*\*\*' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.
6. An '\*\*\*\*\*' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
8. An '(X)' means that the estimate is not applicable or not available.



## Level of Service Table

## LEVEL OF SERVICE CRITERIA

























<b>Signalized Intersections</b>		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0
<b>Unsignalized Intersections</b>		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

# Capacity Analyses Reports

Lanes, Volumes, Timings  
1: Clark Street & Roosevelt Road

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	820	85	107	1128	271	243	92	67	100	10	105
Future Volume (vph)	137	820	85	107	1128	271	243	92	67	100	10	105
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Storage Length (ft)	185		0	95		0	280		0	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			165			150			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
Ped Bike Factor	0.99		0.93	0.99		0.89	0.98		0.98	0.99	0.97	
Frt			0.850			0.850			0.850		0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	3226	1384	1624	3288	1411	1608	1698	1454	1608	1361	0
Flt Permitted	0.094			0.212			0.655			0.695		
Satd. Flow (perm)	154	3226	1281	359	3288	1254	1090	1698	1418	1165	1361	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88			279			83			108
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			847			246				588
Travel Time (s)		12.1			19.3			5.6				13.4
Confl. Peds. (#/hr)	71		35	35		71	21		12	12		21
Confl. Bikes (#/hr)			15			8			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 (%)	3%	6%	5%	0%	4%	3%	1%	6%	0%	1%	18%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	845	88	110	1163	279	251	95	69	103	118	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	8.0	20.0	20.0	8.0	20.0	20.0	6.0	5.0	5.0	6.0	5.0	
Minimum Split (s)	11.0	48.0	48.0	11.0	48.0	48.0	9.0	37.0	37.0	9.0	37.0	
Total Split (s)	11.0	48.0	48.0	11.0	48.0	48.0	9.0	37.0	37.0	9.0	37.0	
Total Split (%)	10.5%	45.7%	45.7%	10.5%	45.7%	45.7%	8.6%	35.2%	35.2%	8.6%	35.2%	
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	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	Max	
Act Effect Green (s)	53.0	43.0	43.0	53.0	43.0	43.0	40.6	33.8	33.8	40.0	32.0	
Actuated g/C Ratio	0.50	0.41	0.41	0.50	0.41	0.41	0.39	0.32	0.32	0.38	0.30	
v/c Ratio	0.76	0.64	0.15	0.40	0.86	0.41	0.56	0.17	0.13	0.22	0.24	
Control Delay	41.7	26.7	4.2	15.9	29.4	5.5	29.2	27.8	5.1	21.2	7.8	
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.7	26.7	4.2	15.9	29.7	5.5	29.2	27.8	5.1	21.2	7.8	
LOS	D	C	A	B	C	A	C	C	A	C	A	
Approach Delay		26.8			24.4			24.9			14.0	

Lanes, Volumes, Timings  
 1: Clark Street & Roosevelt Road

05/08/2018

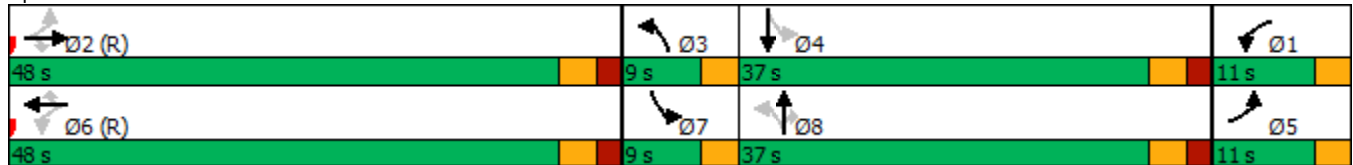


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			C			B		
Queue Length 50th (ft)	38	244	3	32	237	9	116	47	0	43	5	
Queue Length 95th (ft)	#136	312	27	m46	m313	m34	183	88	25	79	46	
Internal Link Dist (ft)	451			767			166			508		
Turn Bay Length (ft)	185			95			280					
Base Capacity (vph)	186	1321	576	277	1346	678	450	546	512	469	489	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	17	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.76	0.64	0.15	0.40	0.88	0.41	0.56	0.17	0.13	0.22	0.24	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 43 (41%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 24.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 82.6%  
 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Clark Street & Roosevelt Road





Lanes, Volumes, Timings  
2: Canal Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	351	76	19	362	388	146	986	35	89	209	67
Future Volume (vph)	286	351	76	19	362	388	146	986	35	89	209	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	11	12	9	11	9	12	12	12	12	12	12
Storage Length (ft)	195		0	100		100	65		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			70			95			75		
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		1.00		0.98	0.99	1.00			0.99	
Frt		0.973				0.850		0.995			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1518	1691	0	1547	1801	1425	1671	3486	0	1805	3216	0
Flt Permitted	0.207			0.503			0.572			0.132		
Satd. Flow (perm)	330	1691	0	817	1801	1390	1000	3486	0	251	3216	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16				189		4			56	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		739			2656			650			3466	
Travel Time (s)		16.8			60.4			14.8			78.8	
Confl. Peds. (#/hr)	4		5	5		4	6					6
Confl. Bikes (#/hr)			33			10			17			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 (%)	7%	2%	19%	5%	2%	2%	8%	3%	0%	0%	7%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	449	0	20	381	408	154	1075	0	94	291	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	5.0		5.0	5.0	5.0	6.0	12.0		6.0	12.0	
Minimum Split (s)	11.0	28.0		28.0	28.0	28.0	9.0	34.0		9.0	34.0	
Total Split (s)	14.0	42.0		28.0	28.0	28.0	9.0	34.0		9.0	34.0	
Total Split (%)	16.5%	49.4%		32.9%	32.9%	32.9%	10.6%	40.0%		10.6%	40.0%	
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	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	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	37.5	35.5		21.5	21.5	21.5	38.5	30.2		38.4	30.2	
Actuated g/C Ratio	0.44	0.42		0.25	0.25	0.25	0.45	0.36		0.45	0.36	
v/c Ratio	1.01	0.63		0.10	0.84	0.83	0.31	0.87		0.42	0.25	
Control Delay	75.5	23.1		24.3	43.5	29.6	15.0	35.0		18.3	16.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	75.5	23.1		24.3	43.5	29.6	15.0	35.0		18.3	16.6	
LOS	E	C		C	D	C	B	C		B	B	

Lanes, Volumes, Timings  
2: Canal Street & 18th Street

05/08/2018

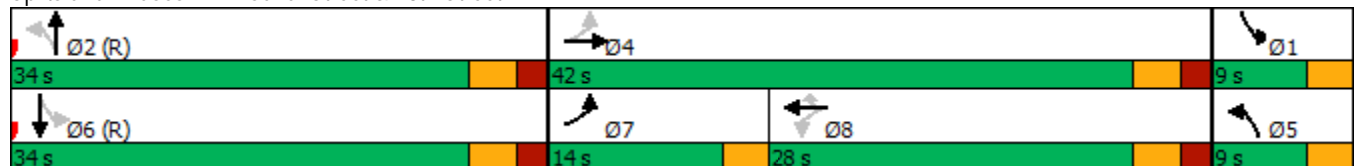


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		44.1			36.0			32.5			17.0	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	104	171		8	188	115	46	283		27	46	
Queue Length 95th (ft)	#261	269		m19	#337	#168	83	#407		54	76	
Internal Link Dist (ft)		659			2576			570			3386	
Turn Bay Length (ft)	195			100		100	65			110		
Base Capacity (vph)	299	745		221	487	513	503	1242		226	1180	
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	1.01	0.60		0.09	0.78	0.80	0.31	0.87		0.42	0.25	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	56 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	34.2
Intersection LOS:	C
Intersection Capacity Utilization:	83.3%
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: 2: Canal Street & 18th Street



### Lanes, Volumes, Timings 3: Clark Street & 15th Street

05/08/2018



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	31	1960	15	8	433
Future Volume (vph)	19	31	1960	15	8	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00		1.00			1.00
Frt	0.916		0.999			
Flt Protected	0.981					0.999
Satd. Flow (prot)	1707	0	3418	0	0	3323
Flt Permitted	0.981					0.900
Satd. Flow (perm)	1706	0	3418	0	0	2994
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	20		2			
Link Speed (mph)	30		30			30
Link Distance (ft)	381		1488			385
Travel Time (s)	8.7		33.8			8.8
Confl. Peds. (#/hr)	1			17	17	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	0%	0%	5%
Bus Blockages (#/hr)	0	0	0	6	0	0
Parking (#/hr)		5				
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	2124	0	0	475
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	8.0		69.0		69.0	69.0
Minimum Split (s)	24.0		81.0		81.0	81.0
Total Split (s)	24.0		81.0		81.0	81.0
Total Split (%)	22.9%		77.1%		77.1%	77.1%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	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?						
Recall Mode	None		C-Max		C-Max	C-Max
Act Effect Green (s)	8.7		91.5			91.5
Actuated g/C Ratio	0.08		0.87			0.87
v/c Ratio	0.33		0.71			0.18
Control Delay	37.1		4.9			1.6
Queue Delay	0.0		0.0			0.0
Total Delay	37.1		4.9			1.6

Lanes, Volumes, Timings  
 3: Clark Street & 15th Street

05/08/2018



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D		A			A
Approach Delay	37.1		4.9			1.6
Approach LOS	D		A			A
Queue Length 50th (ft)	21		205			20
Queue Length 95th (ft)	59		335			36
Internal Link Dist (ft)	301		1408			305
Turn Bay Length (ft)						
Base Capacity (vph)	341		2978			2608
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.16		0.71			0.18

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	5.0
Intersection LOS:	A
Intersection Capacity Utilization	77.5%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 3: Clark Street & 15th Street



# Lanes, Volumes, Timings

## 4: Clark Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	290	59	39	347	48	46	670	15	40	437	81
Future Volume (vph)	176	290	59	39	347	48	46	670	15	40	437	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	130		0	70		0	50		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			40			115			80		
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		0.99	1.00	
Frt		0.975			0.982			0.997				0.976
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1735	0	1662	1765	0	1678	3338	0	1694	3324	0
Flt Permitted	0.201			0.354			0.412			0.314		
Satd. Flow (perm)	360	1735	0	614	1765	0	725	3338	0	552	3324	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			8			3				31
Link Speed (mph)		30			30			30				30
Link Distance (ft)		452			523			416				1488
Travel Time (s)		10.3			11.9			9.5				33.8
Confl. Peds. (#/hr)	11		17	17		11	7		37	37		7
Confl. Bikes (#/hr)			12			11			1			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 (%)	2%	3%	0%	5%	2%	0%	4%	4%	8%	3%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	356	0	40	403	0	47	699	0	41	529	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.0	27.0		8.0	27.0		9.0	41.0		9.0	41.0	
Total Split (s)	8.0	27.0		8.0	27.0		9.0	41.0		9.0	41.0	
Total Split (%)	9.4%	31.8%		9.4%	31.8%		10.6%	48.2%		10.6%	48.2%	
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	2.0		0.0	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)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	29.4	24.4		28.2	21.2		46.0	40.4		46.0	40.4	
Actuated g/C Ratio	0.35	0.29		0.33	0.25		0.54	0.48		0.54	0.48	
v/c Ratio	0.88	0.70		0.15	0.90		0.10	0.44		0.11	0.33	
Control Delay	75.6	49.2		18.5	55.9		9.4	16.9		9.5	14.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	75.6	49.2		18.5	55.9		9.4	16.9		9.5	14.8	
LOS	E	D		B	E		A	B		A	B	

Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018

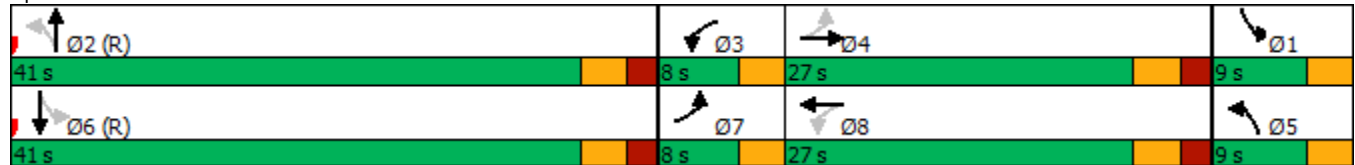


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		58.0			52.5			16.4				14.4
Approach LOS		E			D			B				B
Queue Length 50th (ft)	96	197		13	202		11	138		9		92
Queue Length 95th (ft)	#215	#314		34	#365		26	188		23		132
Internal Link Dist (ft)		372			443			336				1408
Turn Bay Length (ft)	130			70			50			90		
Base Capacity (vph)	204	506		265	462		459	1587		379		1595
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	0.70		0.15	0.87		0.10	0.44		0.11		0.33

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 40 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 32.6 Intersection LOS: C  
 Intersection Capacity Utilization 80.2% 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: 4: Clark Street & 18th Street



# Lanes, Volumes, Timings

## 5: Roosevelt Road & Delano Court

05/08/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2
Lane Configurations	↖	↑↑	↑↑	↗	↖↗	↗	
Traffic Volume (vph)	12	952	1442	34	90	16	
Future Volume (vph)	12	952	1442	34	90	16	
Ideal Flow (vphp)	1900	2000	2000	1900	1900	1900	
Storage Length (ft)	330			0	0	0	
Storage Lanes	1			1	2	1	
Taper Length (ft)	90				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00	
Ped Bike Factor	1.00			0.95		0.99	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1624	3226	3320	1411	3152	1454	
Flt Permitted	0.105				0.950		
Satd. Flow (perm)	179	3226	3320	1347	3152	1432	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				36		17	
Link Speed (mph)		30	30		30		
Link Distance (ft)		591	531		187		
Travel Time (s)		13.4	12.1		4.3		
Confl. Peds. (#/hr)	50			50		2	
Confl. Bikes (#/hr)				17		1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	6%	3%	3%	0%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	13	1002	1518	36	95	17	
Turn Type	custom	NA	NA	Perm	Prot	pm+ov	
Protected Phases	5	2 5	6		7	5	2
Permitted Phases	2			6		7	
Detector Phase	5	2 5	6	6	7	5	
Switch Phase							
Minimum Initial (s)	6.0		32.0	32.0	8.0	6.0	32.0
Minimum Split (s)	9.0		63.0	63.0	33.0	9.0	63.0
Total Split (s)	9.0		63.0	63.0	33.0	9.0	63.0
Total Split (%)	8.6%		60.0%	60.0%	31.4%	8.6%	60%
Yellow Time (s)	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	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0		5.0	5.0	5.0	3.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None		C-Max	C-Max	None	None	C-Max
Act Effect Green (s)	87.6	89.6	67.8	67.8	9.0	26.8	
Actuated g/C Ratio	0.83	0.85	0.65	0.65	0.09	0.26	
v/c Ratio	0.03	0.36	0.71	0.04	0.35	0.04	
Control Delay	1.8	2.7	7.5	0.9	48.7	9.9	
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0	
Total Delay	1.8	2.7	7.7	0.9	48.7	9.9	
LOS	A	A	A	A	D	A	
Approach Delay		2.7	7.6		42.8		



Lanes, Volumes, Timings  
 5: Roosevelt Road & Delano Court

05/08/2018

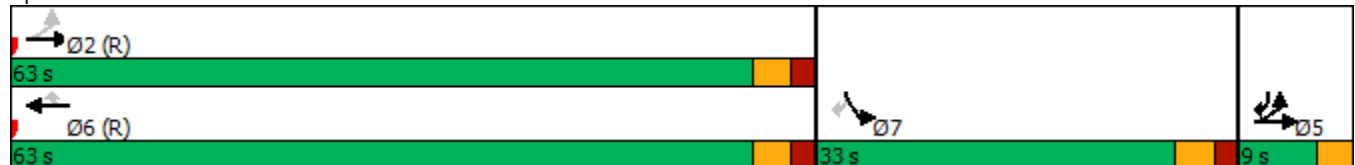


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2
Approach LOS		A	A		D		
Queue Length 50th (ft)	1	66	118	0	31	0	
Queue Length 95th (ft)	4	101	145	m0	56	15	
Internal Link Dist (ft)		511	451		107		
Turn Bay Length (ft)	330						
Base Capacity (vph)	393	2753	2144	882	840	381	
Starvation Cap Reductn	0	0	130	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.03	0.36	0.75	0.04	0.11	0.04	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 44 (42%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 7.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 64.4%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Roosevelt Road & Delano Court



Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕		↕	↕	
Traffic Volume (vph)	17	387	47	20	435	19	319	21	124	14	11	19
Future Volume (vph)	17	387	47	20	435	19	319	21	124	14	11	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	50		0	50		0	150		0	100		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	70			70			100			100		
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	1.00		0.96	0.97		0.99	0.96	
Frt		0.986			0.994			0.871				0.905
Flt Protected		0.998		0.950			0.950			0.950		
Satd. Flow (prot)	0	1766	0	1662	1788	0	1728	1555	0	1745	1554	0
Flt Permitted		0.952		0.335			0.738			0.663		
Satd. Flow (perm)	0	1684	0	581	1788	0	1291	1555	0	1209	1554	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			4			127				19
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2656			452			304				432
Travel Time (s)		60.4			10.3			6.9				9.8
Confl. Peds. (#/hr)	14		19	19		14	26		6	6		26
Confl. Bikes (#/hr)			35			11			3			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%	2%	0%	5%	2%	0%	1%	0%	0%	0%	8%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	460	0	20	463	0	326	148	0	14	30	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	62.4%	62.4%		62.4%	62.4%		37.6%	37.6%		37.6%	37.6%	
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		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)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		29.8		29.8	29.8		46.2	46.2		46.2	46.2	
Actuated g/C Ratio		0.35		0.35	0.35		0.54	0.54		0.54	0.54	
v/c Ratio		0.77		0.10	0.73		0.47	0.16		0.02	0.04	
Control Delay		40.4		7.2	18.7		17.0	4.2		12.8	7.8	
Queue Delay		0.0		0.0	0.1		0.0	0.0		0.0	0.0	
Total Delay		40.4		7.2	18.8		17.0	4.2		12.8	7.8	
LOS		D		A	B		B	A		B	A	



Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	792	58	68	903	215	224	727	88	101	115	65
Future Volume (vph)	95	792	58	68	903	215	224	727	88	101	115	65
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		0	120		235	180		0	160		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			35			100			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00		0.93	0.99		0.97	0.97	0.99		0.99	0.98	
Frt			0.850			0.850		0.984			0.946	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1490	3081	1411	1593	3196	1439	1577	3107	0	1593	1473	0
Flt Permitted	0.136			0.211			0.582			0.154		
Satd. Flow (perm)	213	3081	1319	350	3196	1403	934	3107	0	256	1473	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			224		13			29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		413			1647			3466			317	
Travel Time (s)		9.4			37.4			78.8			7.2	
Confl. Peds. (#/hr)	1		51	51		1	44		44	44		44
Confl. Bikes (#/hr)			25			21			5			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 (%)	9%	11%	3%	2%	7%	1%	3%	2%	4%	2%	5%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	825	60	71	941	224	233	849	0	105	188	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	43.0	43.0	9.5	43.0	43.0	9.0	34.0		9.0	34.0	
Total Split (s)	14.0	43.0	43.0	14.0	43.0	43.0	9.0	34.0		9.0	34.0	
Total Split (%)	14.0%	43.0%	43.0%	14.0%	43.0%	43.0%	9.0%	34.0%		9.0%	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)	0.0	2.0	2.0	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)	47.0	37.2	37.2	44.6	36.0	36.0	42.8	32.9		42.8	32.9	
Actuated g/C Ratio	0.47	0.37	0.37	0.45	0.36	0.36	0.43	0.33		0.43	0.33	
v/c Ratio	0.46	0.72	0.11	0.28	0.82	0.35	0.52	0.82		0.49	0.37	
Control Delay	19.6	30.7	2.5	14.9	35.5	4.5	26.0	40.1		27.8	26.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	19.6	30.7	2.5	14.9	35.5	4.5	26.0	40.1		27.8	26.0	
LOS	B	C	A	B	D	A	C	D		C	C	
Approach Delay		27.8			28.7			37.1			26.7	

Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018

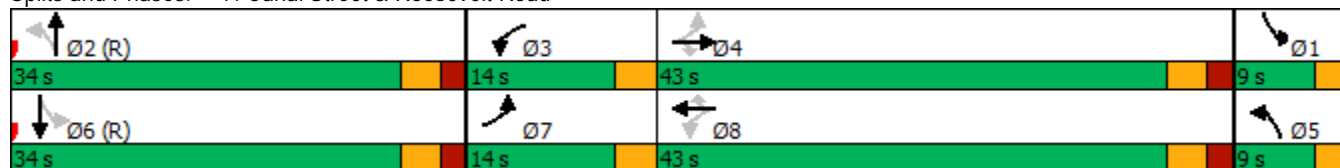


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			D			C		
Queue Length 50th (ft)	31	222	0	21	272	0	100	273		41	81	
Queue Length 95th (ft)	56	294	14	42	353	47	166	#396		#86	146	
Internal Link Dist (ft)	333			1567			3386			237		
Turn Bay Length (ft)	115			120			180			160		
Base Capacity (vph)	242	1205	569	300	1220	674	450	1031		214	504	
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	0.41	0.68	0.11	0.24	0.77	0.33	0.52	0.82		0.49	0.37	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 83 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 30.8  
 Intersection LOS: C  
 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.

Splits and Phases: 7: Canal Street & Roosevelt Road



Lanes, Volumes, Timings  
28: Roosevelt Road & State Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	598	213	28	1054	181	298	684	61	50	267	154
Future Volume (vph)	176	598	213	28	1054	181	298	684	61	50	267	154
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	117		0	75		0	95		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			75			120			135		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97		0.92	0.99		0.82	0.96	0.97		0.92	0.92	
Frt			0.850			0.850		0.988			0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1562	3138	1346	1518	3196	1358	1562	2974	0	1269	2646	0
Flt Permitted	0.101			0.361			0.402			0.162		
Satd. Flow (perm)	162	3138	1236	572	3196	1113	634	2974	0	199	2646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			222			189		9			111	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		847			502			605			629	
Travel Time (s)		19.3			11.4			13.8			14.3	
Confl. Peds. (#/hr)	218		33	33		218	85		367	367		85
Confl. Bikes (#/hr)			85			20			33			218
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 (%)	4%	9%	8%	7%	7%	7%	4%	5%	5%	28%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	623	222	29	1098	189	310	777	0	52	438	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	26.0	26.0	7.0	26.0	26.0	5.0	6.0		5.0	6.0	
Minimum Split (s)	10.0	47.0	47.0	10.0	47.0	47.0	9.5	37.0		9.5	37.0	
Total Split (s)	10.0	47.0	47.0	10.0	47.0	47.0	11.0	37.0		11.0	37.0	
Total Split (%)	9.5%	44.8%	44.8%	9.5%	44.8%	44.8%	10.5%	35.2%		10.5%	35.2%	
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	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	51.2	45.0	45.0	50.0	41.0	41.0	43.0	32.0		41.5	32.0	
Actuated g/C Ratio	0.49	0.43	0.43	0.48	0.39	0.39	0.41	0.30		0.40	0.30	
v/c Ratio	1.06	0.46	0.34	0.09	0.88	0.34	0.91	0.85		0.34	0.50	
Control Delay	123.4	16.7	3.9	13.4	39.2	4.9	59.0	44.4		24.1	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	123.4	16.7	3.9	13.4	39.2	4.9	59.0	44.4		24.1	24.1	
LOS	F	B	A	B	D	A	E	D		C	C	



Lanes, Volumes, Timings  
28: Roosevelt Road & State Street

05/08/2018

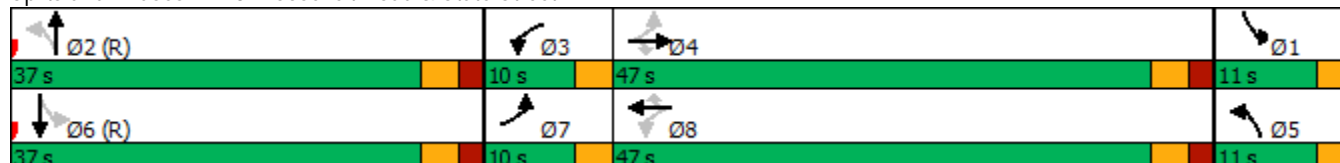


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		32.9			33.7			48.6			24.1	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	~110	68	0	9	348	0	145	254		20	93	
Queue Length 95th (ft)	#235	131	38	24	442	44	#322	#356		45	142	
Internal Link Dist (ft)		767			422			525			549	
Turn Bay Length (ft)	117			75			95			100		
Base Capacity (vph)	172	1343	656	334	1278	558	339	912		161	883	
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	1.06	0.46	0.34	0.09	0.86	0.34	0.91	0.85		0.32	0.50	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 101 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.06  
 Intersection Signal Delay: 36.4 Intersection LOS: D  
 Intersection Capacity Utilization 105.8% 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: 28: Roosevelt Road & State Street



Lanes, Volumes, Timings  
111: Clark Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗	↖	↖	↗	↖	↖	↗	↗
Traffic Volume (vph)	5	68	93	50	194	55	435	725	399	40	358	28
Future Volume (vph)	5	68	93	50	194	55	435	725	399	40	358	28
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	11	12	11	10	10	11	11	10	11	11	12
Storage Length (ft)	0		60	55		50	95		0	87		50
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (ft)	25			80			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		0.87		0.86		0.89	0.95		0.81	0.96	0.99	
Frt		0.924				0.850			0.850		0.989	
Flt Protected		0.999		0.950			0.950			0.950		
Satd. Flow (prot)	0	1321	0	1555	1663	1209	1555	1723	1343	1555	3050	0
Flt Permitted		0.990		0.525			0.512			0.178		
Satd. Flow (perm)	0	1306	0	737	1663	1074	792	1723	1089	278	3050	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		68										14
Link Speed (mph)		30			30			30				30
Link Distance (ft)		288			672			705				202
Travel Time (s)		6.5			15.3			16.0				4.6
Confl. Peds. (#/hr)	64		149	149		64	102		182	182		102
Confl. Bikes (#/hr)			3			6			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 (%)	1%	1%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Parking (#/hr)						0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	52	202	57	453	755	416	42	402	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	9.5	50.0	50.0	9.5	50.0	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	13.0	50.0	50.0	13.0	50.0	
Total Split (%)	25.9%	25.9%		25.9%	25.9%	25.9%	15.3%	58.8%	58.8%	15.3%	58.8%	
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
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)		17.0		17.0	17.0	17.0	57.0	45.0	45.0	55.3	45.0	
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.67	0.53	0.53	0.65	0.53	
v/c Ratio		0.55		0.35	0.61	0.27	0.73	0.83	0.72	0.14	0.25	
Control Delay		25.9		37.2	39.8	32.7	14.3	26.6	24.2	4.9	10.9	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		25.9		37.2	39.8	32.7	14.3	26.6	24.2	4.9	10.9	

Lanes, Volumes, Timings  
 111: Clark Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		C		D	D	C	B	C	C	A	B	
Approach Delay		25.9			38.0			22.6			10.3	
Approach LOS		C			D			C			B	
Queue Length 50th (ft)		49		24	99	26	84	318	159	6	55	
Queue Length 95th (ft)		115		59	170	60	134	#549	283	14	82	
Internal Link Dist (ft)		208			592			625			122	
Turn Bay Length (ft)				55		50	95			87		
Base Capacity (vph)		315		147	332	214	620	912	576	336	1621	
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		0.55		0.35	0.61	0.27	0.73	0.83	0.72	0.13	0.25	

Intersection Summary












Area Type: CBD  
 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: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 22.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 107.7%  
 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: 111: Clark Street & Polk Street



Lanes, Volumes, Timings  
3: Clark Street & 15th Street

11/12/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	19	31	1059	15	8	433
Future Volume (vph)	19	31	1059	15	8	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00		1.00			1.00
Frt	0.916		0.998			
Flt Protected	0.981					0.999
Satd. Flow (prot)	1707	0	3414	0	0	3323
Flt Permitted	0.981					0.933
Satd. Flow (perm)	1706	0	3414	0	0	3103
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	33		3			
Link Speed (mph)	30		30			30
Link Distance (ft)	381		1488			385
Travel Time (s)	8.7		33.8			8.8
Confl. Peds. (#/hr)	1			17	17	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	2%	0%	0%	5%
Bus Blockages (#/hr)	0	0	0	6	0	0
Parking (#/hr)		5				
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	1155	0	0	475
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	8.0		69.0		69.0	69.0
Minimum Split (s)	24.0		81.0		81.0	81.0
Total Split (s)	24.0		81.0		81.0	81.0
Total Split (%)	22.9%		77.1%		77.1%	77.1%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	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?						
Recall Mode	None		C-Max		C-Max	C-Max
Act Effect Green (s)	8.4		91.8			91.8
Actuated g/C Ratio	0.08		0.87			0.87
v/c Ratio	0.32		0.39			0.18
Control Delay	28.2		2.1			1.5
Queue Delay	0.0		0.0			0.0
Total Delay	28.2		2.1			1.5

Lanes, Volumes, Timings  
 3: Clark Street & 15th Street

11/12/2018

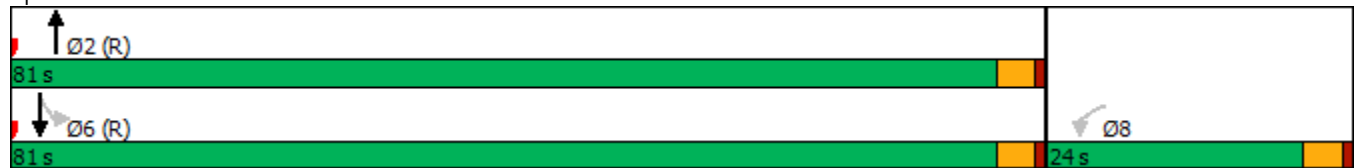


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C		A			A
Approach Delay	28.2		2.1			1.5
Approach LOS	C		A			A
Queue Length 50th (ft)	13		63			20
Queue Length 95th (ft)	51		96			34
Internal Link Dist (ft)	301		1408			305
Turn Bay Length (ft)						
Base Capacity (vph)	351		2985			2713
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.15		0.39			0.18

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.39  
 Intersection Signal Delay: 2.8  
 Intersection Capacity Utilization 77.5%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service D

























Splits and Phases: 3: Clark Street & 15th Street





Lanes, Volumes, Timings  
1: Clark Street & Roosevelt Road

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1108	182	113	944	215	222	192	64	173	36	192
Future Volume (vph)	162	1108	182	113	944	215	222	192	64	173	36	192
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Storage Length (ft)	185		0	95		0	280		0	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			165			150			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
Ped Bike Factor	0.93		0.91	0.99		0.63	0.97		0.96	0.98	0.95	
Frt			0.850			0.850			0.850		0.874	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3353	1439	1577	3320	1454	1624	1748	1411	1624	1391	0
Flt Permitted	0.148			0.098			0.498			0.554		
Satd. Flow (perm)	231	3353	1309	162	3320	909	826	1748	1361	932	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			188			222			83			198
Link Speed (mph)		30			30			30				30
Link Distance (ft)		531			844			246				588
Travel Time (s)		12.1			19.2			5.6				13.4
Confl. Peds. (#/hr)	275		41	41		275	47		23	23		47
Confl. Bikes (#/hr)			21			15			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 (%)	2%	2%	1%	3%	3%	0%	0%	3%	3%	0%	8%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	1142	188	116	973	222	229	198	66	178	235	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	8.0	18.0	18.0	8.0	18.0	18.0	8.0	5.0	5.0	8.0	5.0	
Minimum Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	37.0	37.0	11.0	37.0	
Total Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	37.0	37.0	11.0	37.0	
Total Split (%)	10.5%	43.8%	43.8%	10.5%	43.8%	43.8%	10.5%	35.2%	35.2%	10.5%	35.2%	
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	
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	Max
Act Effect Green (s)	51.0	41.0	41.0	51.0	41.0	41.0	42.0	32.0	32.0	42.0	32.0	
Actuated g/C Ratio	0.49	0.39	0.39	0.49	0.39	0.39	0.40	0.30	0.30	0.40	0.30	
v/c Ratio	0.78	0.87	0.30	0.62	0.75	0.45	0.59	0.37	0.14	0.42	0.42	
Control Delay	37.7	36.2	3.9	39.0	26.5	6.9	28.2	31.1	4.7	23.2	8.8	
Queue Delay	0.0	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.7	36.6	3.9	39.0	26.9	6.9	28.2	31.1	4.7	23.2	8.8	
LOS	D	D	A	D	C	A	C	C	A	C	A	
Approach Delay		32.6			24.6			26.3			15.0	

Lanes, Volumes, Timings  
1: Clark Street & Roosevelt Road

05/08/2018

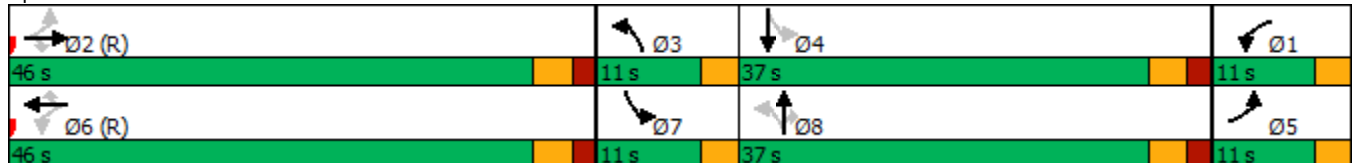


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			C			B		
Queue Length 50th (ft)	52	374	15	50	197	2	100	104	0	75	18	
Queue Length 95th (ft)	#143	#474	36	m77	m271	m39	160	169	23	125	80	
Internal Link Dist (ft)	451			764			166			508		
Turn Bay Length (ft)	185			95			280					
Base Capacity (vph)	215	1309	625	186	1296	490	391	532	472	425	561	
Starvation Cap Reductn	0	18	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	67	0	0	0	0	0	4	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.78	0.88	0.30	0.62	0.79	0.45	0.59	0.37	0.14	0.42	0.42	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 39 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 27.0 Intersection LOS: C  
 Intersection Capacity Utilization 99.5% 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: Clark Street & Roosevelt Road



Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	378	89	34	342	58	68	672	13	96	789	130
Future Volume (vph)	170	378	89	34	342	58	68	672	13	96	789	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	130		0	70		0	50		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			40			115			80		
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		0.98	0.99	
Frt		0.971			0.978			0.997			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	1772	0	1745	1774	0	1745	3441	0	1745	3336	0
Flt Permitted	0.172			0.172			0.166			0.281		
Satd. Flow (perm)	311	1772	0	314	1774	0	304	3441	0	508	3336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			10			3			27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		452			523			416			1488	
Travel Time (s)		10.3			11.9			9.5			33.8	
Confl. Peds. (#/hr)	15		20	20		15	15		44	44		15
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 (%)	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	508	0	37	435	0	74	744	0	104	999	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	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	24.0		6.0	24.0	
Minimum Split (s)	8.0	27.0		8.0	27.0		9.0	41.0		9.0	41.0	
Total Split (s)	8.0	27.0		8.0	27.0		9.0	41.0		9.0	41.0	
Total Split (%)	9.4%	31.8%		9.4%	31.8%		10.6%	48.2%		10.6%	48.2%	
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	2.0		0.0	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)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	30.2	25.2		29.0	22.0		44.6	37.8		44.6	37.8	
Actuated g/C Ratio	0.36	0.30		0.34	0.26		0.52	0.44		0.52	0.44	
v/c Ratio	0.96	0.95		0.19	0.93		0.28	0.49		0.29	0.67	
Control Delay	87.2	71.4		19.5	60.1		11.8	18.5		11.4	21.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.2	71.4		19.5	60.1		11.8	18.5		11.4	21.4	
LOS	F	E		B	E		B	B		B	C	
Approach Delay		75.7			57.0			17.9			20.4	

Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018

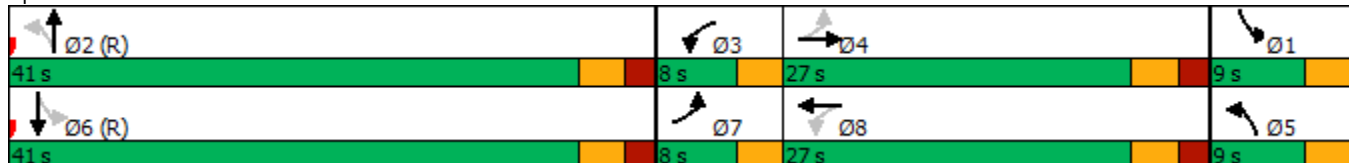


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			E			B			C		
Queue Length 50th (ft)	95	~303		12	222	17		148	25		217	
Queue Length 95th (ft)	m#168	#502		32	#403	36		200	48		288	
Internal Link Dist (ft)	372			443			336			1408		
Turn Bay Length (ft)	130			70			50			90		
Base Capacity (vph)	193	534		191	466		261	1532		354	1498	
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	0.96	0.95		0.19	0.93		0.28	0.49		0.29	0.67	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 54 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.96  
 Intersection Signal Delay: 37.8 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: 4: Clark Street & 18th Street



# Lanes, Volumes, Timings

## 5: Roosevelt Road & Delano Court

05/08/2018



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	90	1362	1260	98	90	90	
Future Volume (vph)	90	1362	1260	98	90	90	
Ideal Flow (vphp)	1900	2000	2000	1900	1900	1900	
Storage Length (ft)	330			0	0	0	
Storage Lanes	1			1	2	1	
Taper Length (ft)	90				25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00	
Ped Bike Factor	0.99			0.86	1.00	0.97	
Frt				0.850		0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1624	3353	3320	1439	3120	1454	
Flt Permitted	0.106				0.950		
Satd. Flow (perm)	179	3353	3320	1232	3117	1417	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)				99		5	
Link Speed (mph)		30	30		30		
Link Distance (ft)		490	531		187		
Travel Time (s)		11.1	12.1		4.3		
Confl. Peds. (#/hr)	188			188	1	13	
Confl. Bikes (#/hr)				14		1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	2%	3%	1%	1%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	95	1434	1326	103	95	95	
Turn Type	custom	NA	NA	Perm	Prot	pm+ov	
Protected Phases	5	2 5	6		7	5	2
Permitted Phases	2			6		7	
Detector Phase	5	2 5	6	6	7	5	
Switch Phase							
Minimum Initial (s)	7.0		20.0	20.0	7.0	7.0	20.0
Minimum Split (s)	10.0		51.0	51.0	36.0	10.0	51.0
Total Split (s)	18.0		51.0	51.0	36.0	18.0	51.0
Total Split (%)	17.1%		48.6%	48.6%	34.3%	17.1%	49%
Yellow Time (s)	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	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0		5.0	5.0	5.0	3.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None		C-Max	C-Max	None	None	C-Max
Act Effct Green (s)	87.6	89.6	55.9	55.9	8.8	38.7	
Actuated g/C Ratio	0.83	0.85	0.53	0.53	0.08	0.37	
v/c Ratio	0.17	0.50	0.75	0.15	0.37	0.18	
Control Delay	2.5	3.4	15.3	1.1	49.1	17.1	
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0	
Total Delay	2.5	3.4	15.5	1.1	49.1	17.1	
LOS	A	A	B	A	D	B	
Approach Delay		3.4	14.4		33.1		



Lanes, Volumes, Timings  
 5: Roosevelt Road & Delano Court

05/08/2018

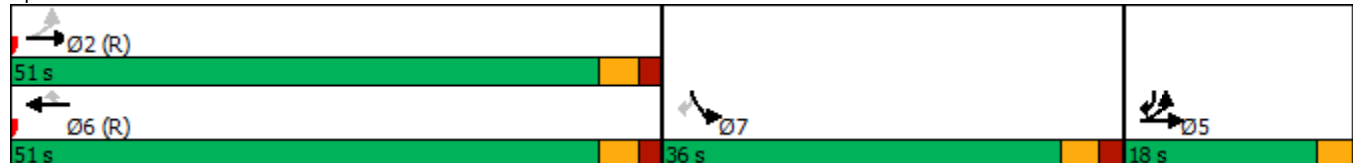


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø2
Approach LOS		A	B		C		
Queue Length 50th (ft)	7	115	133	1	31	34	
Queue Length 95th (ft)	18	172	#584	m2	56	62	
Internal Link Dist (ft)		410	451		107		
Turn Bay Length (ft)	330						
Base Capacity (vph)	558	2862	1768	702	921	535	
Starvation Cap Reductn	0	0	65	0	0	0	
Spillback Cap Reductn	0	75	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.17	0.51	0.78	0.15	0.10	0.18	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 48 (46%), Referenced to phase 2:EBTL and 6:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 10.2  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.7%  
 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: 5: Roosevelt Road & Delano Court



Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	22	572	111	51	466	23	156	28	48	17	33	17
Future Volume (vph)	22	572	111	51	466	23	156	28	48	17	33	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	50		0	50		0	150		0	100		0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (ft)	70			70			100			100		
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	1.00		0.93	0.98		0.99	0.97	
Frt		0.979			0.993			0.906			0.950	
Flt Protected		0.998		0.950			0.950			0.950		
Satd. Flow (prot)	0	1768	0	1745	1804	0	1745	1607	0	1745	1692	0
Flt Permitted		0.979		0.317			0.724			0.706		
Satd. Flow (perm)	0	1734	0	577	1804	0	1241	1607	0	1279	1692	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			6			49				17
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2674			452			304				432
Travel Time (s)		60.8			10.3			6.9				9.8
Confl. Peds. (#/hr)	19		32	32		19	37		8	8		37
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%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	719	0	52	499	0	159	78	0	17	51	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (s)	59.0	59.0		59.0	59.0		26.0	26.0		26.0	26.0	
Total Split (%)	69.4%	69.4%		69.4%	69.4%		30.6%	30.6%		30.6%	30.6%	
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		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)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		45.1		45.1	45.1		30.9	30.9		30.9	30.9	
Actuated g/C Ratio		0.53		0.53	0.53		0.36	0.36		0.36	0.36	
v/c Ratio		0.77		0.17	0.52		0.35	0.13		0.04	0.08	
Control Delay		25.5		5.1	8.3		25.8	11.8		22.5	16.9	
Queue Delay		0.0		0.0	0.6		0.0	0.0		0.0	0.0	
Total Delay		25.5		5.1	8.9		25.8	11.8		22.5	16.9	
LOS		C		A	A		C	B		C	B	
Approach Delay		25.5			8.5			21.2			18.3	

Lanes, Volumes, Timings  
 6: Wentworth Avenue & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			A			C			B		
Queue Length 50th (ft)	299			6	54	63			10	6	12	
Queue Length 95th (ft)	344			m6	m47	134			45	23	41	
Internal Link Dist (ft)	2594			372			224			352		
Turn Bay Length (ft)				50			150			100		
Base Capacity (vph)	1109			366	1148	451			616	465	626	
Starvation Cap Reductn	0			0	317	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	0.65			0.14	0.60	0.35			0.13	0.04	0.08	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 18.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 81.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Wentworth Avenue & 18th Street



Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	940	201	166	712	223	127	754	106	101	115	65
Future Volume (vph)	145	940	201	166	712	223	127	754	106	101	115	65
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		0	120		235	180		0	160		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			35			100			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00		0.88	0.98		0.97	0.90	0.98		0.98	0.94	
Frt			0.850			0.850		0.982			0.946	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3320	1439	1608	3257	1377	1624	3055	0	1608	1500	0
Flt Permitted	0.236			0.118			0.583			0.130		
Satd. Flow (perm)	395	3320	1260	196	3257	1332	894	3055	0	215	1500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			205			228		15			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		400			1776			3474			633	
Travel Time (s)		9.1			40.4			79.0			14.4	
Confl. Peds. (#/hr)	5		123	123		5	132		113	113		132
Confl. Bikes (#/hr)			11			26			2			15
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 (%)	2%	3%	1%	1%	5%	3%	0%	3%	1%	1%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	959	205	169	727	228	130	877	0	103	183	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0		7.0	5.0	
Minimum Split (s)	10.0	39.0	39.0	10.0	39.0	39.0	10.0	33.0		10.0	33.0	
Total Split (s)	14.0	39.0	39.0	14.0	39.0	39.0	14.0	33.0		14.0	33.0	
Total Split (%)	14.0%	39.0%	39.0%	14.0%	39.0%	39.0%	14.0%	33.0%		14.0%	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	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)	45.2	33.3	33.3	46.1	33.8	33.8	42.4	30.7		42.4	30.7	
Actuated g/C Ratio	0.45	0.33	0.33	0.46	0.34	0.34	0.42	0.31		0.42	0.31	
v/c Ratio	0.50	0.87	0.37	0.72	0.66	0.38	0.29	0.92		0.46	0.38	
Control Delay	20.4	40.9	5.5	36.6	31.6	5.3	18.8	50.5		23.6	26.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.4	40.9	5.5	36.6	31.6	5.3	18.8	50.5		23.6	26.8	
LOS	C	D	A	D	C	A	B	D		C	C	

Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018

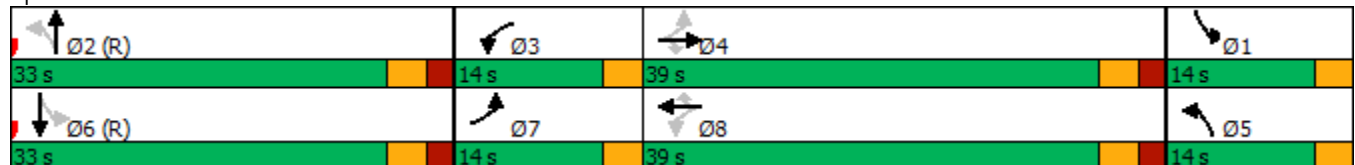


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		33.0			27.0			46.4			25.6	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	50	295	0	58	203	0	49	288		38	79	
Queue Length 95th (ft)	87	#385	48	#143	270	50	88	#433		72	144	
Internal Link Dist (ft)		320			1696			3394			553	
Turn Bay Length (ft)	115			120		235	180			160		
Base Capacity (vph)	314	1133	565	246	1121	608	469	949		246	480	
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	0.47	0.85	0.36	0.69	0.65	0.38	0.28	0.92		0.42	0.38	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 85 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 34.3 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: 7: Canal Street & Roosevelt Road





Lanes, Volumes, Timings  
8: Canal Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	429	148	56	381	253	163	910	31	207	866	102
Future Volume (vph)	360	429	148	56	381	253	163	910	31	207	866	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	11	12	9	11	12	12	12	12	12	12	12
Storage Length (ft)	195		0	100		100	65		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			70			95			75		
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		0.96	1.00	1.00		1.00	0.99	
Frt		0.961				0.850		0.995			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1738	0	1593	1818	1599	1770	3520	0	1787	3487	0
Flt Permitted	0.209			0.255			0.136			0.136		
Satd. Flow (perm)	346	1738	0	425	1818	1534	253	3520	0	256	3487	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				199		4			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		696			2674			386			3474	
Travel Time (s)		15.8			60.8			8.8			79.0	
Confl. Peds. (#/hr)	7		14	14		7	4		4	4		4
Confl. Bikes (#/hr)			12			29			2			23
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 (%)	3%	1%	0%	2%	1%	1%	2%	2%	0%	1%	1%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	595	0	58	393	261	168	970	0	213	998	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		7.0	7.0	7.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	30.0		30.0	30.0	30.0	9.5	32.0		9.5	32.0	
Total Split (s)	11.0	41.0		30.0	30.0	30.0	12.0	32.0		12.0	32.0	
Total Split (%)	12.9%	48.2%		35.3%	35.3%	35.3%	14.1%	37.6%		14.1%	37.6%	
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	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	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	35.5	33.5		22.5	22.5	22.5	40.5	29.4		40.5	29.4	
Actuated g/C Ratio	0.42	0.39		0.26	0.26	0.26	0.48	0.35		0.48	0.35	
v/c Ratio	1.43	0.85		0.51	0.82	0.47	0.60	0.79		0.75	0.82	
Control Delay	235.3	35.1		38.6	39.0	8.1	23.1	31.9		33.6	32.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	235.3	35.1		38.6	39.0	8.1	23.1	31.9		33.6	32.8	
LOS	F	D		D	D	A	C	C		C	C	

Lanes, Volumes, Timings  
8: Canal Street & 18th Street

05/08/2018

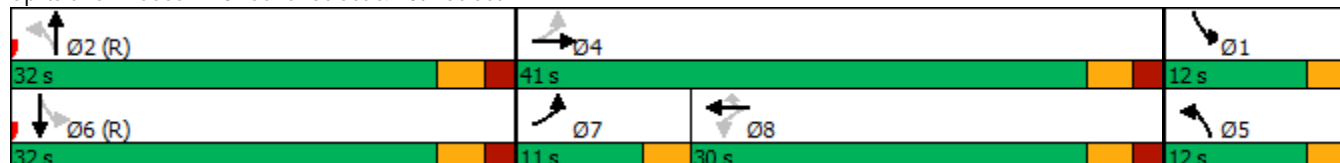


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		112.0			27.6			30.6			33.0	
Approach LOS		F			C			C			C	
Queue Length 50th (ft)	~206	257		28	216	28	49	253		64	261	
Queue Length 95th (ft)	#432	#436		#75	#325	78	#100	#362		#168	#378	
Internal Link Dist (ft)		616			2594			306			3394	
Turn Bay Length (ft)	195			100		100	65			110		
Base Capacity (vph)	260	750		125	534	591	285	1221		289	1218	
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	1.43	0.79		0.46	0.74	0.44	0.59	0.79		0.74	0.82	

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: Actuated-Coordinated  
 Maximum v/c Ratio: 1.43  
 Intersection Signal Delay: 50.3 Intersection LOS: D  
 Intersection Capacity Utilization 92.8% 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.

Splits and Phases: 8: Canal Street & 18th Street



Lanes, Volumes, Timings  
14: State Street & Roosevelt Road

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	699	469	41	899	112	211	433	55	63	690	162
Future Volume (vph)	177	699	469	41	899	112	211	433	55	63	690	162
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	117		0	75		0	95		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			75			120			135		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.93		0.92	0.98		0.67	0.97	0.96		0.86	0.97	
Frt			0.850			0.850		0.983			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3257	1425	1518	3288	1275	1577	2969	0	1504	2994	0
Flt Permitted	0.141			0.275			0.127			0.350		
Satd. Flow (perm)	220	3257	1313	432	3288	855	204	2969	0	476	2994	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			322			117		13			28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		844			373			452			877	
Travel Time (s)		19.2			8.5			10.3			19.9	
Confl. Peds. (#/hr)	524		72	72		524	163		434	434		163
Confl. Bikes (#/hr)			27			21			8			15
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 (%)	2%	5%	2%	7%	4%	14%	3%	4%	0%	8%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	728	489	43	936	117	220	508	0	66	888	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	26.0	26.0	5.0	26.0	26.0	7.0	6.0		7.0	6.0	
Minimum Split (s)	8.0	47.0	47.0	8.0	47.0	47.0	10.0	37.0		10.0	37.0	
Total Split (s)	8.0	47.0	47.0	8.0	47.0	47.0	13.0	37.0		13.0	37.0	
Total Split (%)	7.6%	44.8%	44.8%	7.6%	44.8%	44.8%	12.4%	35.2%		12.4%	35.2%	
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	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	45.8	40.8	40.8	44.6	37.6	37.6	48.4	32.8		46.2	32.8	
Actuated g/C Ratio	0.44	0.39	0.39	0.42	0.36	0.36	0.46	0.31		0.44	0.31	
v/c Ratio	1.14	0.58	0.69	0.18	0.80	0.31	0.81	0.54		0.21	0.93	
Control Delay	136.0	28.0	15.2	16.5	35.6	6.1	48.0	31.9		17.7	51.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	136.0	28.0	15.2	16.5	35.6	6.1	48.0	31.9		17.7	51.4	
LOS	F	C	B	B	D	A	D	C		B	D	
Approach Delay		37.7			31.7			36.8			49.1	

Lanes, Volumes, Timings  
 14: State Street & Roosevelt Road

05/08/2018

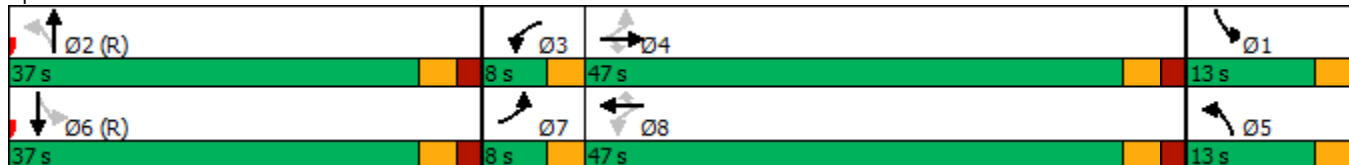


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			D			D		
Queue Length 50th (ft)	~113	137	81	15	288	0	96	145		23	298	
Queue Length 95th (ft)	m#113	m160	m107	33	348	36	#262	200		51	#431	
Internal Link Dist (ft)	764			293			372			797		
Turn Bay Length (ft)	117			75			95			100		
Base Capacity (vph)	161	1311	721	235	1315	412	272	936		329	954	
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	1.14	0.56	0.68	0.18	0.71	0.28	0.81	0.54		0.20	0.93	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 101 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 38.6 Intersection LOS: D  
 Intersection Capacity Utilization 102.2% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: State Street & Roosevelt Road



Lanes, Volumes, Timings  
46: Clark Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗	↖	↖	↗	↖	↖	↗	↗
Traffic Volume (vph)	1	57	167	83	118	28	277	360	406	51	796	21
Future Volume (vph)	1	57	167	83	118	28	277	360	406	51	796	21
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	11	12	11	10	10	11	11	11	11	12	12
Storage Length (ft)	0		0	55		40	95		0	87		50
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (ft)	25			80			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		0.85		0.90		0.77	0.94		0.75	0.87	0.99	
Frt		0.900				0.850			0.850		0.996	
Flt Protected				0.950			0.950			0.950		
Satd. Flow (prot)	0	1251	0	1555	1663	1209	1555	1723	1391	1555	3184	0
Flt Permitted				0.390			0.251			0.449		
Satd. Flow (perm)	0	1250	0	573	1663	930	387	1723	1046	642	3184	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		170										4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		126			672			705				179
Travel Time (s)		2.9			15.3			16.0				4.1
Confl. Peds. (#/hr)	104		159	159		104	213		224	224		213
Confl. Bikes (#/hr)			4			4			1			2
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 (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Parking (#/hr)						0						
Mid-Block Traffic (%)		3%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	237	0	87	124	29	292	379	427	54	860	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	9.5	46.0	46.0	9.5	46.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	13.0	46.0	46.0	13.0	46.0	
Total Split (%)	30.6%	30.6%		30.6%	30.6%	30.6%	15.3%	54.1%	54.1%	15.3%	54.1%	
Yellow Time (s)	2.0	2.0		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		2.0	2.0	2.0	0.0	2.0	2.0	0.0	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)		2.0		5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)		24.0		21.0	21.0	21.0	53.0	41.1	41.1	51.4	41.1	
Actuated g/C Ratio		0.28		0.25	0.25	0.25	0.62	0.48	0.48	0.60	0.48	
v/c Ratio		0.50		0.62	0.30	0.13	0.78	0.45	0.85	0.11	0.56	
Control Delay		12.2		50.1	28.5	26.7	23.5	16.8	37.2	5.8	17.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
 46: Clark Street & Polk Street

05/08/2018

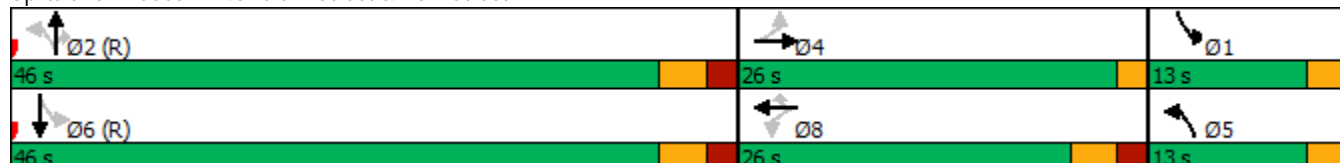


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		12.2		50.1	28.5	26.7	23.5	16.8	37.2	5.8	17.2	
LOS		B		D	C	C	C	B	D	A	B	
Approach Delay		12.2			36.1			26.5				16.5
Approach LOS		B			D			C				B
Queue Length 50th (ft)		27		41	54	12	58	128	191	9	163	
Queue Length 95th (ft)		93		#109	102	34	#126	201	#372	21	218	
Internal Link Dist (ft)		46			592			625				99
Turn Bay Length (ft)				55		40	95			87		
Base Capacity (vph)		474		141	410	229	379	833	505	508	1542	
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		0.50		0.62	0.30	0.13	0.77	0.45	0.85	0.11	0.56	

Intersection Summary

Area Type: CBD  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 20 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 22.4 Intersection LOS: C  
 Intersection Capacity Utilization 103.9% 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: 46: Clark Street & Polk Street





Lanes, Volumes, Timings  
3: Clark Street & 15th Street

11/12/2018



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	16	952	20	22	1359
Future Volume (vph)	17	16	952	20	22	1359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	12	11
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	0	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.934		0.997			
Flt Protected	0.975					0.999
Satd. Flow (prot)	1670	0	3443	0	0	3452
Flt Permitted	0.975					0.924
Satd. Flow (perm)	1653	0	3443	0	0	3193
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	17		5			
Link Speed (mph)	30		30			30
Link Distance (ft)	381		1488			385
Travel Time (s)	8.7		33.8			8.8
Confl. Peds. (#/hr)	13			24	24	
Confl. Bikes (#/hr)		1		3		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	1%	0%	0%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	1046	0	0	1485
Turn Type	Perm		NA		Perm	NA
Protected Phases			2			6
Permitted Phases	8				6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	8.0		69.0		69.0	69.0
Minimum Split (s)	24.0		81.0		81.0	81.0
Total Split (s)	24.0		81.0		81.0	81.0
Total Split (%)	22.9%		77.1%		77.1%	77.1%
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	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?						
Recall Mode	None		C-Max		C-Max	C-Max
Act Effct Green (s)	8.3		95.1			95.1
Actuated g/C Ratio	0.08		0.91			0.91
v/c Ratio	0.24		0.34			0.51
Control Delay	32.5		1.6			2.4
Queue Delay	0.0		0.0			0.0
Total Delay	32.5		1.6			2.4
LOS	C		A			A

Lanes, Volumes, Timings  
 3: Clark Street & 15th Street

11/12/2018

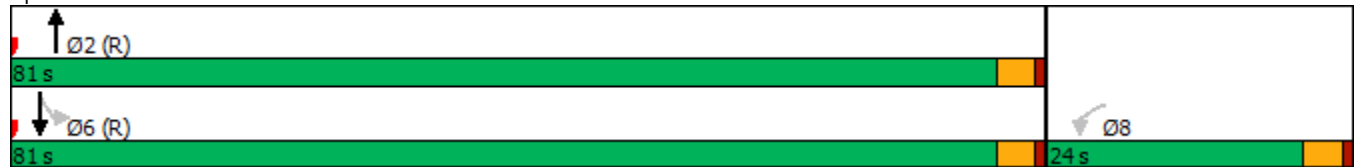


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach Delay	32.5		1.6			2.4
Approach LOS	C		A			A
Queue Length 50th (ft)	12		54			102
Queue Length 95th (ft)	43		77			144
Internal Link Dist (ft)	301		1408			305
Turn Bay Length (ft)						
Base Capacity (vph)	328		3120			2893
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.11		0.34			0.51

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	2.5
Intersection LOS:	A
Intersection Capacity Utilization	77.5%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 3: Clark Street & 15th Street



Lanes, Volumes, Timings  
1: Clark Street & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	894	120	227	1262	271	245	159	152	100	69	203
Future Volume (vph)	229	894	120	227	1262	271	245	159	152	100	69	203
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Storage Length (ft)	185		0	95		0	280		0	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			165			150			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		0.888	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3725	1599	1752	3689	1615	1805	1942	1568	1805	1642	0
Flt Permitted	0.093			0.173			0.286			0.651		
Satd. Flow (perm)	173	3725	1599	319	3689	1615	543	1942	1568	1237	1642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126			260			160		129	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		531			847			246			588	
Travel Time (s)		12.1			19.3			5.6			13.4	
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 (%)	2%	2%	1%	3%	3%	0%	0%	3%	3%	0%	8%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	241	941	126	239	1328	285	258	167	160	105	287	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	48.0	48.0	9.5	48.0	48.0	9.0	35.0	35.0	9.0	28.0	
Total Split (s)	13.0	48.0	48.0	13.0	48.0	48.0	16.0	35.0	35.0	9.0	28.0	
Total Split (%)	12.4%	45.7%	45.7%	12.4%	45.7%	45.7%	15.2%	33.3%	33.3%	8.6%	26.7%	
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)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	Max	
Act Effect Green (s)	55.0	43.0	43.0	55.0	43.0	43.0	41.0	30.0	30.0	31.4	23.4	
Actuated g/C Ratio	0.52	0.41	0.41	0.52	0.41	0.41	0.39	0.29	0.29	0.30	0.22	
v/c Ratio	1.00	0.62	0.17	0.79	0.88	0.35	0.71	0.30	0.28	0.26	0.62	
Control Delay	96.4	14.6	0.9	32.7	46.0	14.0	32.3	26.1	3.6	23.6	26.4	
Queue Delay	0.0	0.2	0.0	0.0	1.3	0.0	1.9	3.0	0.8	0.0	0.0	
Total Delay	96.4	14.7	0.9	32.7	47.3	14.0	34.2	29.1	4.3	23.6	26.4	
LOS	F	B	A	C	D	B	C	C	A	C	C	
Approach Delay		28.5			40.3			24.6			25.7	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	120	155	0	124	504	68	93	79	0	45	95	
Queue Length 95th (ft)	#281	98	m2	m132	m511	m72	#186	127	23	83	186	

Lanes, Volumes, Timings  
 1: Clark Street & Roosevelt Road

05/08/2018

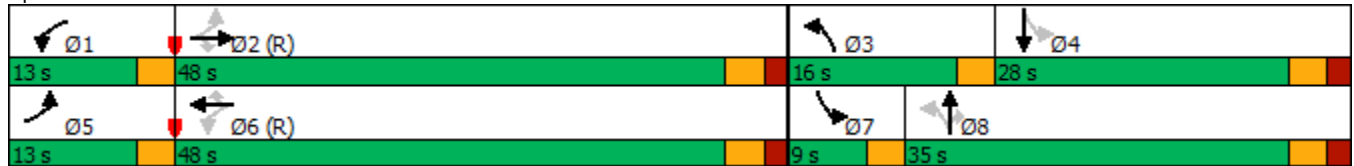


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		451			767			166			508	
Turn Bay Length (ft)	185			95			280					
Base Capacity (vph)	242	1526	730	303	1510	814	368	554	562	402	466	
Starvation Cap Reductn	0	94	0	0	0	0	35	289	196	0	0	
Spillback Cap Reductn	0	0	0	0	62	0	0	0	0	0	2	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.00	0.66	0.17	0.79	0.92	0.35	0.77	0.63	0.44	0.26	0.62	

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 48 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 32.9 Intersection LOS: C  
 Intersection Capacity Utilization 90.5% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Clark Street & Roosevelt Road



Lanes, Volumes, Timings  
2: Clark Street & 14th Street

11/12/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	46	64	94	1096	581	128	
Future Volume (vph)	46	64	94	1096	581	128	
Ideal Flow (vphpl)	1900	1900	1900	2000	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	25		100				
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	
Frt		0.850			0.973		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1805	1615	1805	3725	3456	0	
Flt Permitted	0.950		0.334				
Satd. Flow (perm)	1805	1615	635	3725	3456	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		67			51		
Link Speed (mph)	30			30	30		
Link Distance (ft)	269			771	313		
Travel Time (s)	6.1			17.5	7.1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	48	67	99	1154	747	0	
Turn Type	Prot	Perm	custom	NA	NA		
Protected Phases	4		5	2.5	6		2
Permitted Phases		4	2				
Minimum Split (s)	22.5	22.5	9.5		22.5		22.5
Total Split (s)	23.0	23.0	10.0		72.0		72.0
Total Split (%)	21.9%	21.9%	9.5%		68.6%		69%
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	1.0	1.0	0.0		1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0	3.0		4.0		
Lead/Lag							
Lead-Lag Optimize?							
Act Effect Green (s)	19.0	19.0	76.0	78.0	68.0		
Actuated g/C Ratio	0.18	0.18	0.72	0.74	0.65		
v/c Ratio	0.15	0.19	0.18	0.42	0.33		
Control Delay	37.7	10.6	6.5	8.8	8.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	37.7	10.6	6.5	8.8	8.1		
LOS	D	B	A	A	A		
Approach Delay	21.9			8.6	8.1		
Approach LOS	C			A	A		
Queue Length 50th (ft)	27	0	18	161	99		
Queue Length 95th (ft)	61	37	54	304	130		
Internal Link Dist (ft)	189			691	233		
Turn Bay Length (ft)			100				
Base Capacity (vph)	326	347	537	2767	2256		
Starvation Cap Reductn	0	0	0	0	0		

Lanes, Volumes, Timings  
 2: Clark Street & 14th Street

11/12/2018

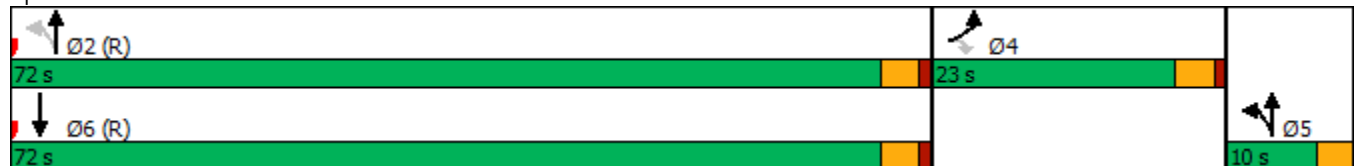


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.15	0.19	0.18	0.42	0.33		

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	57 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	55
Control Type:	Pretimed
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization	39.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 2: Clark Street & 14th Street





### Lanes, Volumes, Timings 3: Clark Street & East-West Drive/15th Street

11/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	0	41	19	0	31	102	1090	15	8	500	152
Future Volume (vph)	95	0	41	19	0	31	102	1090	15	8	500	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	25			25			100			100		
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
Frt		0.850			0.916			0.998			0.965	
Flt Protected	0.950				0.981		0.950			0.950		
Satd. Flow (prot)	1805	1615	0	0	1707	0	1805	3533	0	1805	3355	0
Flt Permitted	0.577				0.858		0.367			0.199		
Satd. Flow (perm)	1096	1615	0	0	1493	0	697	3533	0	378	3355	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		405			73			2				62
Link Speed (mph)		30			30			30				30
Link Distance (ft)		552			381			240				771
Travel Time (s)		12.5			8.7			5.5				17.5
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	5%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	43	0	0	53	0	107	1163	0	8	686	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		20.0	20.0		9.5	22.5		9.5	22.5	
Total Split (s)	12.0	32.0		20.0	20.0		10.0	63.0		10.0	63.0	
Total Split (%)	11.4%	30.5%		19.0%	19.0%		9.5%	60.0%		9.5%	60.0%	
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	1.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	4.0			4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	16.7	15.6			6.0		81.3	73.3		80.5	73.3	
Actuated g/C Ratio	0.16	0.15			0.06		0.77	0.70		0.77	0.70	
v/c Ratio	0.43	0.07			0.35		0.17	0.47		0.02	0.29	
Control Delay	43.9	0.2			12.5		3.8	9.2		2.8	9.2	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	43.9	0.2			12.5		3.8	9.2		2.8	9.2	
LOS	D	A			B		A	A		A	A	
Approach Delay		30.8			12.5			8.7			9.1	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)	59	0			0		15	186		1	138	
Queue Length 95th (ft)	106	0			25		30	263		m4	190	

# Lanes, Volumes, Timings

## 3: Clark Street & East-West Drive/15th Street

11/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		472			301			160				691
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	238	727			289		620	2467		392	2361	
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	0.42	0.06			0.18		0.17	0.47		0.02	0.29	

### 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: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 10.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 56.6%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

### Splits and Phases: 3: Clark Street & East-West Drive/15th Street



Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	290	104	39	347	48	92	812	15	40	503	82
Future Volume (vph)	179	290	104	39	347	48	92	812	15	40	503	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	130		0	70		0	50		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			40			115			80		
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
Frt		0.960			0.982			0.997			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	1725	0	1662	1772	0	1678	3343	0	1694	3349	0
Flt Permitted	0.201			0.332			0.350			0.214		
Satd. Flow (perm)	362	1725	0	581	1772	0	618	3343	0	382	3349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			8			2				25
Link Speed (mph)		30			30			30				30
Link Distance (ft)		452			523			416				711
Travel Time (s)		10.3			11.9			9.5				16.2
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 (%)	2%	3%	0%	5%	2%	0%	4%	4%	8%	3%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	402	0	40	403	0	94	844	0	41	597	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.0	27.0		8.0	27.0		9.0	37.0		9.0	37.0	
Total Split (s)	11.0	27.0		12.0	28.0		9.0	37.0		9.0	37.0	
Total Split (%)	12.9%	31.8%		14.1%	32.9%		10.6%	43.5%		10.6%	43.5%	
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	2.0		0.0	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)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	33.1	26.3		30.4	21.6		42.0	35.0		41.8	35.0	
Actuated g/C Ratio	0.39	0.31		0.36	0.25		0.49	0.41		0.49	0.41	
v/c Ratio	0.68	0.73		0.14	0.88		0.25	0.61		0.15	0.43	
Control Delay	33.7	38.8		15.8	52.0		12.7	23.1		11.9	19.2	
Queue Delay	0.0	0.0		0.0	0.0		0.2	0.0		0.0	0.1	
Total Delay	33.7	38.8		15.8	52.0		12.8	23.1		11.9	19.3	
LOS	C	D		B	D		B	C		B	B	
Approach Delay		37.2			48.7			22.0			18.8	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	76	177		12	198		25	193		11	118	

# Lanes, Volumes, Timings

## 4: Clark Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m#139	#311		31	#351		50	258		26	166	
Internal Link Dist (ft)		372			443			336			631	
Turn Bay Length (ft)	130			70			50			90		
Base Capacity (vph)	268	548		337	485		382	1376		280	1393	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		46	0		0	86	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.68	0.73		0.12	0.83		0.28	0.61		0.15	0.46	

### Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 40 (47%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 29.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.2%  
 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: 4: Clark Street & 18th Street

37 s	12 s	27 s	9 s
37 s	11 s	28 s	9 s

Lanes, Volumes, Timings  
5: LaSalle Street/Delano Court & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	987	201	231	1444	34	146	0	167	90	0	16
Future Volume (vph)	12	987	201	231	1444	34	146	0	167	90	0	16
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	330		330	150		0	150		0	0		0
Storage Lanes	1		1	1		1	2		0	2		0
Taper Length (ft)	90			100			100			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1624	3226	1454	1624	3320	1411	3152	1454	0	3152	1454	0
Flt Permitted	0.077			0.180			0.950			0.950		
Satd. Flow (perm)	132	3226	1454	308	3320	1411	3152	1454	0	3152	1454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			212			94		269				192
Link Speed (mph)		30			30			30				30
Link Distance (ft)		591			531			358				187
Travel Time (s)		13.4			12.1			8.1				4.3
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%	6%	0%	0%	3%	3%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	1039	212	243	1520	36	154	176	0	95	17	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6						
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	23.0	23.0	9.5	23.0	23.0	9.5	23.0		22.5	23.0	
Total Split (s)	9.5	50.0	50.0	9.5	50.0	50.0	21.6	23.0		22.5	23.9	
Total Split (%)	9.0%	47.6%	47.6%	9.0%	47.6%	47.6%	20.6%	21.9%		21.4%	22.8%	
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	0.0	2.0	2.0	1.0	2.0		1.0	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)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	65.7	55.2	55.2	76.9	55.2	55.2	13.9	6.6		8.5	5.5	
Actuated g/C Ratio	0.63	0.53	0.53	0.73	0.53	0.53	0.13	0.06		0.08	0.05	
v/c Ratio	0.06	0.61	0.25	0.52	0.87	0.05	0.37	0.51		0.37	0.07	
Control Delay	5.5	20.2	2.9	19.4	20.8	0.6	44.0	5.7		49.3	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.5	20.2	2.9	19.4	21.0	0.6	44.0	5.7		49.3	0.5	
LOS	A	C	A	B	C	A	D	A		D	A	
Approach Delay		17.2			20.4			23.6				41.9
Approach LOS		B			C			C				D
Queue Length 50th (ft)	2	241	0	87	242	0	46	0		31	0	
Queue Length 95th (ft)	8	354	39	m122	#667	m0	81	3		56	0	

Lanes, Volumes, Timings

5: LaSalle Street/Delano Court & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		511			451			278			107	
Turn Bay Length (ft)	330		330	150			150					
Base Capacity (vph)	213	1695	864	471	1745	786	539	472		555	419	
Starvation Cap Reductn	0	0	0	0	19	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	0.06	0.61	0.25	0.52	0.88	0.05	0.29	0.37		0.17	0.04	

Intersection Summary

Area Type:	CBD
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	44 (42%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	20.2
Intersection LOS:	C
Intersection Capacity Utilization	77.0%
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: 5: LaSalle Street/Delano Court & Roosevelt Road

Ø2 (R)	Ø3	Ø4	Ø1
50 s	21.6 s	23.9 s	9.5 s
Ø6 (R)	Ø7	Ø8	Ø5
50 s	22.5 s	23 s	9.5 s



Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	390	47	20	436	65	351	181	124	59	150	69
Future Volume (vph)	96	390	47	20	436	65	351	181	124	59	150	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	50		0	50		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	70			70			100			100		
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>		0.984			0.981			0.939			0.953	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	1776	0	1662	1771	0	1728	1725	0	1745	1660	0
Fl <sub>t</sub> Permitted	0.154			0.317			0.478			0.332		
Satd. Flow (perm)	283	1776	0	554	1771	0	869	1725	0	610	1660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			10			39				26
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2669			452			304				432
Travel Time (s)		60.7			10.3			6.9				9.8
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%	2%	0%	5%	2%	0%	1%	0%	0%	0%	8%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	460	0	21	527	0	369	322	0	62	231	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	23.0		9.5	23.0		9.5	22.5		9.5	22.5	
Total Split (s)	10.0	34.0		10.0	34.0		16.0	25.0		16.0	25.0	
Total Split (%)	11.8%	40.0%		11.8%	40.0%		18.8%	29.4%		18.8%	29.4%	
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)	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		3.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	36.4	31.6		34.5	27.5		38.5	24.8		36.0	24.8	
Actuated g/C Ratio	0.43	0.37		0.41	0.32		0.45	0.29		0.42	0.29	
v/c Ratio	0.42	0.69		0.07	0.91		0.71	0.61		0.16	0.46	
Control Delay	28.6	41.1		5.7	38.7		25.4	30.4		14.6	27.3	
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0		0.0	0.0	
Total Delay	28.6	41.1		5.7	39.1		25.4	30.4		14.6	27.3	
LOS	C	D		A	D		C	C		B	C	
Approach Delay		38.9			37.8			27.7			24.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	44	243		4	258		134	138		18	95	

Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018

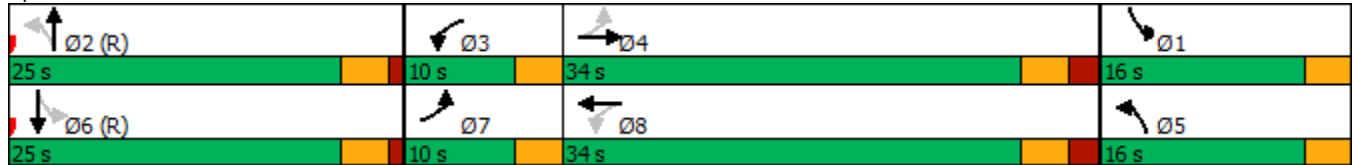


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m71	m#366		m6	m#396		#232	#237		40	167	
Internal Link Dist (ft)		2589			372			224			352	
Turn Bay Length (ft)	50			50			150			100		
Base Capacity (vph)	241	691		319	610		533	530		451	502	
Starvation Cap Reductn	0	0		0	6		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	0.67		0.07	0.87		0.69	0.61		0.14	0.46	

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: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 32.9 Intersection LOS: C  
 Intersection Capacity Utilization 77.9% 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: 6: Wentworth Avenue & 18th Street



Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1029	54	68	1050	215	224	657	88	101	94	65
Future Volume (vph)	95	1029	54	68	1050	215	224	657	88	101	94	65
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		0	120		235	180		0	160		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			35			100			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.850		0.982			0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1490	3081	1411	1593	3196	1439	1577	3121	0	1593	1489	0
Flt Permitted	0.101			0.118			0.610			0.182		
Satd. Flow (perm)	158	3081	1411	198	3196	1439	1013	3121	0	305	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			224		15			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		413			1647			3483			317	
Travel Time (s)		9.4			37.4			79.2			7.2	
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 (%)	9%	11%	3%	2%	7%	1%	3%	2%	4%	2%	5%	12%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	1072	56	71	1094	224	233	776	0	105	166	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	43.0	43.0	9.5	43.0	43.0	9.0	34.0		9.0	34.0	
Total Split (s)	14.0	43.0	43.0	14.0	43.0	43.0	9.0	34.0		9.0	34.0	
Total Split (%)	14.0%	43.0%	43.0%	14.0%	43.0%	43.0%	9.0%	34.0%		9.0%	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)	0.0	2.0	2.0	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)	49.1	39.7	39.7	47.2	38.7	38.7	40.4	31.6		40.4	31.6	
Actuated g/C Ratio	0.49	0.40	0.40	0.47	0.39	0.39	0.40	0.32		0.40	0.32	
v/c Ratio	0.51	0.88	0.09	0.36	0.88	0.32	0.52	0.78		0.50	0.34	
Control Delay	23.1	37.6	2.1	16.6	38.6	4.2	26.9	37.9		28.3	24.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.1	37.6	2.1	16.6	38.6	4.2	26.9	37.9		28.3	24.0	
LOS	C	D	A	B	D	A	C	D		C	C	
Approach Delay		34.8			31.9			35.4			25.7	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	30	315	0	21	326	0	103	240		42	65	
Queue Length 95th (ft)	64	#456	12	42	#471	47	166	#339		79	124	

Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018

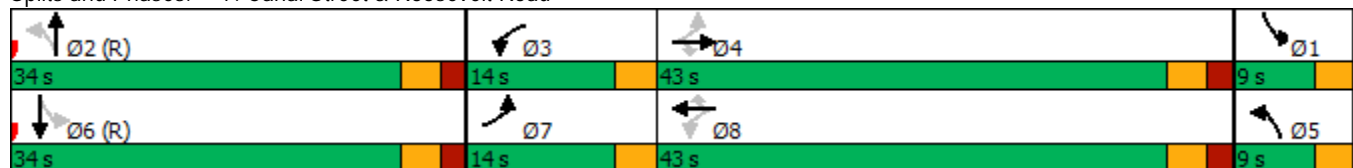


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		333			1567			3403			237	
Turn Bay Length (ft)	115			120		235	180			160		
Base Capacity (vph)	225	1236	618	251	1252	700	447	999		211	495	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.44	0.87	0.09	0.28	0.87	0.32	0.52	0.78		0.50	0.34	

Intersection Summary

Area Type:	CBD
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	83 (83%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	33.3
Intersection LOS:	C
Intersection Capacity Utilization	81.0%
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: 7: Canal Street & Roosevelt Road



Lanes, Volumes, Timings  
8: Wentworth/Wells & North Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	20	137	0	34	0	259	95	23	263	3
Future Volume (vph)	0	0	20	137	0	34	0	259	95	23	263	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25			25			100			100		
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			0.72	0.76	0.75			0.93		0.89	1.00	
Frt			0.865		0.850			0.964			0.998	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1644	1745	1169	0	0	1627	0	1745	1795	0
Flt Permitted				0.950						0.404		
Satd. Flow (perm)	0	0	1183	1333	1169	0	0	1627	0	663	1795	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			408		394			27				1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		199			328			541				921
Travel Time (s)		4.5			7.5			12.3				20.9
Confl. Peds. (#/hr)			100	100		100			100	100		100
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	21	144	36	0	0	373	0	24	280	0
Turn Type			Perm	pm+pt	NA			NA		custom	NA	
Protected Phases				3	8			2		1	16	
Permitted Phases			4	8						6		
Minimum Split (s)			20.0	15.0	22.5			23.0		9.5		
Total Split (s)			20.0	15.0	35.0			40.0		10.0		
Total Split (%)			23.5%	17.6%	41.2%			47.1%		11.8%		
Yellow Time (s)			3.0	3.0	3.0			3.0		3.0		
All-Red Time (s)			1.0	0.0	1.0			1.0		0.0		
Lost Time Adjust (s)			0.0	0.0	0.0			0.0		0.0		
Total Lost Time (s)			4.0	3.0	4.0			4.0		3.0		
Lead/Lag			Lag	Lead								
Lead-Lag Optimize?			Yes	Yes								
Act Effect Green (s)			16.0	32.0	31.0			36.0		44.0	47.0	
Actuated g/C Ratio			0.19	0.38	0.36			0.42		0.52	0.55	
v/c Ratio			0.04	0.26	0.05			0.53		0.06	0.28	
Control Delay			0.1	19.5	0.1			17.5		9.0	11.0	
Queue Delay			0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay			0.1	19.5	0.1			17.5		9.0	11.0	
LOS			A	B	A			B		A	B	
Approach Delay		0.1			15.6			17.5			10.8	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)			0	51	0			79		5	73	
Queue Length 95th (ft)			0	93	0			104		16	119	
Internal Link Dist (ft)		119			248			461			841	

Lanes, Volumes, Timings  
 8: Wentworth/Wells & North Access Drive

05/08/2018

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	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	23.0
Total Split (s)	40.0
Total Split (%)	47%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	



Lanes, Volumes, Timings  
 8: Wentworth/Wells & North Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)										100		
Base Capacity (vph)			553	560	676			704		432	992	
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			0.04	0.26	0.05			0.53		0.06	0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	14.4
Intersection LOS:	B
Intersection Capacity Utilization	44.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 8: Wentworth/Wells & North Access Drive

Ø2 (R)	Ø3	Ø4	Ø1
40 s	15 s	20 s	10 s
Ø6 (R)	Ø8		
40 s	35 s		

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Lane Group	Ø6
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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Lanes, Volumes, Timings  
 9: Wentworth/Wells & Middle Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	29	89	0	17	0	340	87	51	366	3
Future Volume (vph)	0	0	29	89	0	17	0	340	87	51	366	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	11	11	11
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25			25			100			100		
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			0.72	0.76	0.75			0.95		0.91		
Frt			0.865		0.850			0.972				0.999
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1644	1745	1169	0	0	1667	0	1745	1799	0
Flt Permitted				0.950						0.344		
Satd. Flow (perm)	0	0	1183	1333	1169	0	0	1667	0	578	1799	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			511		369			20				1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		228			298			713				541
Travel Time (s)		5.2			6.8			16.2				12.3
Confl. Peds. (#/hr)			100	100		100			100	100		
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	31	94	18	0	0	450	0	54	388	0
Turn Type			Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases				3	8			2		1	16	
Permitted Phases			4	8						16		
Minimum Split (s)			20.0	12.0	22.5			23.0		9.5		
Total Split (s)			20.0	12.0	32.0			42.0		11.0		
Total Split (%)			23.5%	14.1%	37.6%			49.4%		12.9%		
Yellow Time (s)			3.0	3.0	3.0			3.0		3.0		
All-Red Time (s)			1.0	0.0	1.0			1.0		0.0		
Lost Time Adjust (s)			0.0	0.0	0.0			0.0		0.0		
Total Lost Time (s)			4.0	3.0	4.0			4.0		3.0		
Lead/Lag			Lag	Lead								
Lead-Lag Optimize?			Yes	Yes								
Act Effect Green (s)			16.0	29.0	28.0			38.0		47.0	50.0	
Actuated g/C Ratio			0.19	0.34	0.33			0.45		0.55	0.59	
v/c Ratio			0.05	0.19	0.03			0.60		0.13	0.37	
Control Delay			0.1	20.7	0.1			15.6		8.2	9.9	
Queue Delay			0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay			0.1	20.7	0.1			15.6		8.2	9.9	
LOS			A	C	A			B		A	A	
Approach Delay		0.1			17.4			15.6			9.7	
Approach LOS		A			B			B			A	
Queue Length 50th (ft)			0	35	0			83		12	89	
Queue Length 95th (ft)			0	69	0			162		26	128	
Internal Link Dist (ft)		148			218			633			461	

Lanes, Volumes, Timings  
 9: Wentworth/Wells & Middle Access Drive

05/08/2018

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	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	23.0
Total Split (s)	42.0
Total Split (%)	49%
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lanes, Volumes, Timings

9: Wentworth/Wells & Middle Access Drive

05/08/2018

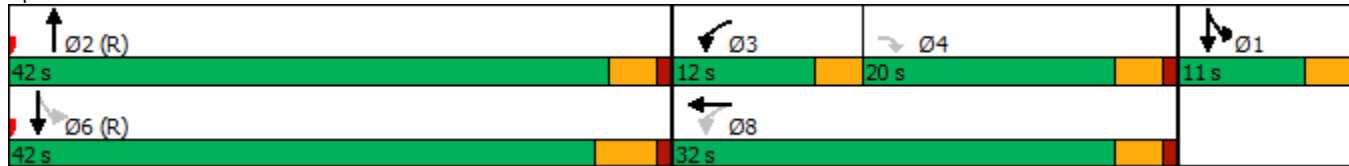


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)										100		
Base Capacity (vph)			637	498	632			756		429	1058	
Starvation Cap Reductn			0	0	0			0		0	0	
Spillback Cap Reductn			0	0	0			0		0	0	
Storage Cap Reductn			0	0	0			0		0	0	
Reduced v/c Ratio			0.05	0.19	0.03			0.60		0.13	0.37	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	65
Control Type:	Pretimed
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	12.8
Intersection LOS:	B
Intersection Capacity Utilization	53.6%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 9: Wentworth/Wells & Middle Access Drive



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Lane Group	Ø6
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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Lanes, Volumes, Timings  
10: Wentworth/Wells & East-West Drive

05/08/2018

							Ø6
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (vph)	65	85	345	131	234	251	
Future Volume (vph)	65	85	345	131	234	251	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	
Storage Length (ft)	0	100		0	100		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.76	0.75	0.93		0.92		
Frt		0.850	0.963				
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1745	1561	1634	0	1745	1818	
Flt Permitted	0.950				0.362		
Satd. Flow (perm)	1333	1169	1634	0	610	1818	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		89	33				
Link Speed (mph)	30		30			30	
Link Distance (ft)	252		173			713	
Travel Time (s)	5.7		3.9			16.2	
Confl. Peds. (#/hr)	100	100		100	100		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	1%	0%	0%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	68	89	501	0	246	264	
Turn Type	Prot	Perm	NA		custom	NA	
Protected Phases	8		2		1	1 6	6
Permitted Phases		8			6		
Minimum Split (s)	22.5	22.5	23.0		9.5		23.0
Total Split (s)	25.0	25.0	49.0		11.0		49.0
Total Split (%)	29.4%	29.4%	57.6%		12.9%		58%
Yellow Time (s)	3.5	3.5	4.0		3.5		4.0
All-Red Time (s)	1.0	1.0	1.0		0.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.5	4.5	5.0		3.5		
Lead/Lag							
Lead-Lag Optimize?							
Act Effect Green (s)	20.5	20.5	44.0		53.0	56.5	
Actuated g/C Ratio	0.24	0.24	0.52		0.62	0.66	
v/c Ratio	0.16	0.26	0.58		0.51	0.22	
Control Delay	26.8	8.2	16.5		9.3	4.4	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.8	8.2	16.5		9.3	4.4	
LOS	C	A	B		A	A	
Approach Delay	16.3		16.5			6.8	
Approach LOS	B		B			A	
Queue Length 50th (ft)	29	0	162		33	35	
Queue Length 95th (ft)	62	36	258		51	54	
Internal Link Dist (ft)	172		93			633	

Lanes, Volumes, Timings  
 10: Wentworth/Wells & East-West Drive

05/08/2018



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Turn Bay Length (ft)		100			100		
Base Capacity (vph)	420	349	861		480	1208	
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	0.16	0.26	0.58		0.51	0.22	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Pretimed
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	12.2
Intersection LOS:	B
Intersection Capacity Utilization	67.0%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 10: Wentworth/Wells & East-West Drive



Lanes, Volumes, Timings  
12: Clark Street

05/08/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	103	14	16	453	310	100	
Future Volume (vph)	103	14	16	453	310	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	75			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	25		75				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.967		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1624	1454	1624	1676	1605	0	
Flt Permitted	0.950		0.459				
Satd. Flow (perm)	1624	1454	785	1676	1605	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		15			29		
Link Speed (mph)	30			30	30		
Link Distance (ft)	158			556	246		
Travel Time (s)	3.6			12.6	5.6		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	4%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	108	15	17	477	431	0	
Turn Type	Prot	Perm	custom	NA	NA		
Protected Phases	4		5	2 5	6	2	
Permitted Phases		4	2				
Detector Phase	4	4	5	2 5	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5		22.5	22.5	
Total Split (s)	26.0	26.0	10.0		69.0	69.0	
Total Split (%)	24.8%	24.8%	9.5%		65.7%	66%	
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0	3.0		4.0		
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		C-Max	C-Max	
Act Effect Green (s)	12.3	12.3	82.7	84.7	69.4		
Actuated g/C Ratio	0.12	0.12	0.79	0.81	0.66		
v/c Ratio	0.57	0.08	0.02	0.35	0.40		
Control Delay	54.9	18.4	2.5	3.9	4.4		
Queue Delay	0.1	0.0	0.0	0.0	0.8		
Total Delay	55.0	18.4	2.5	3.9	5.2		
LOS	D	B	A	A	A		
Approach Delay	50.5			3.9	5.2		
Approach LOS	D			A	A		
Queue Length 50th (ft)	70	0	2	66	45		
Queue Length 95th (ft)	120	19	7	131	m89		

Lanes, Volumes, Timings  
12: Clark Street

05/08/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Internal Link Dist (ft)	78			476	166		
Turn Bay Length (ft)			75				
Base Capacity (vph)	340	316	716	1352	1071		
Starvation Cap Reductn	0	0	0	0	358		
Spillback Cap Reductn	21	0	0	15	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.34	0.05	0.02	0.36	0.60		

Intersection Summary

Area Type:	CBD
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	25 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	9.9
Intersection LOS:	A
Intersection Capacity Utilization	39.5%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Clark Street



Lanes, Volumes, Timings  
28: Roosevelt Road & State Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	710	254	28	1212	181	362	684	61	50	267	186
Future Volume (vph)	185	710	254	28	1212	181	362	684	61	50	267	186
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	117		0	75		0	95		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			75			120			135		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.91	0.99		0.67	0.94	0.97		0.93	0.93	
Frt			0.850			0.850		0.988			0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1562	3138	1346	1518	3196	1358	1562	2963	0	1269	2683	0
Flt Permitted	0.085			0.312			0.361			0.141		
Satd. Flow (perm)	140	3138	1231	491	3196	914	557	2963	0	176	2683	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			265			185		9			144	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		847			502			605			629	
Travel Time (s)		19.3			11.4			13.8			14.3	
Confl. Peds. (#/hr)	218		33	33		218	85		367	367		85
Confl. Bikes (#/hr)			34			20			7			2
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 (%)	4%	9%	8%	7%	7%	7%	4%	5%	5%	28%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	193	740	265	29	1263	189	377	777	0	52	472	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	24.5	24.5	9.5	23.5	23.5	9.5	23.5		9.5	23.5	
Total Split (s)	10.0	49.0	49.0	10.0	49.0	49.0	11.0	35.0		11.0	35.0	
Total Split (%)	9.5%	46.7%	46.7%	9.5%	46.7%	46.7%	10.5%	33.3%		10.5%	33.3%	
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	3.0	3.0	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0	6.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	54.2	47.0	47.0	52.2	43.9	43.9	40.1	30.0		39.5	30.0	
Actuated g/C Ratio	0.52	0.45	0.45	0.50	0.42	0.42	0.38	0.29		0.38	0.29	
v/c Ratio	1.16	0.53	0.38	0.09	0.95	0.39	1.30	0.91		0.36	0.54	
Control Delay	148.2	10.5	2.6	12.5	44.9	5.6	184.7	52.1		26.5	24.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	148.2	10.5	2.6	12.5	44.9	5.6	184.7	52.1		26.5	24.2	
LOS	F	B	A	B	D	A	F	D		C	C	

Lanes, Volumes, Timings  
 28: Roosevelt Road & State Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		30.9			39.2			95.4			24.4	
Approach LOS		C			D			F			C	
Queue Length 50th (ft)	~98	194	9	9	420	2	~270	262		21	96	
Queue Length 95th (ft)	#244	213	20	23	#572	47	#510	#378		46	149	
Internal Link Dist (ft)		767			422			525			549	
Turn Bay Length (ft)	117			75			95			100		
Base Capacity (vph)	167	1404	697	315	1339	490	290	853		150	869	
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	1.16	0.53	0.38	0.09	0.94	0.39	1.30	0.91		0.35	0.54	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 30 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.30  
 Intersection Signal Delay: 50.0 Intersection LOS: D  
 Intersection Capacity Utilization 101.1% 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: 28: Roosevelt Road & State Street

Ø2 (R)	Ø3	Ø4	Ø1
35 s	10 s	49 s	11 s
Ø6 (R)	Ø7	Ø8	Ø5
35 s	10 s	49 s	11 s



Lanes, Volumes, Timings  
43: Canal Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	433	76	19	410	388	146	871	35	101	184	67
Future Volume (vph)	286	433	76	19	410	388	146	871	35	101	184	67
Ideal Flow (vphp)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	195		0	100		100	65		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			70			95			75		
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		1.00		0.98	0.99	1.00			0.99	
Frt		0.978				0.850		0.994			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	1768	0	1719	1961	1583	1671	3483	0	1805	3202	0
Flt Permitted	0.160			0.427			0.588			0.136		
Satd. Flow (perm)	284	1768	0	771	1961	1544	1028	3483	0	258	3202	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				191		5			67	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		937			2669			501			3483	
Travel Time (s)		21.3			60.7			11.4			79.2	
Confl. Peds. (#/hr)	4		5	5		4	6					6
Confl. Bikes (#/hr)			33			10			17			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 (%)	7%	2%	19%	5%	2%	2%	8%	3%	0%	0%	7%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	301	536	0	20	432	408	154	954	0	106	265	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	28.0		28.0	28.0	28.0	9.0	34.0		9.0	34.0	
Total Split (s)	14.0	42.0		28.0	28.0	28.0	9.0	34.0		9.0	34.0	
Total Split (%)	16.5%	49.4%		32.9%	32.9%	32.9%	10.6%	40.0%		10.6%	40.0%	
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	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	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	38.0	36.0		22.0	22.0	22.0	38.0	29.8		37.8	29.8	
Actuated g/C Ratio	0.45	0.42		0.26	0.26	0.26	0.45	0.35		0.44	0.35	
v/c Ratio	0.98	0.71		0.10	0.85	0.75	0.30	0.78		0.48	0.23	
Control Delay	67.8	25.6		24.3	40.7	21.8	15.1	30.2		20.0	15.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	67.8	25.6		24.3	40.7	21.8	15.1	30.2		20.0	15.3	
LOS	E	C		C	D	C	B	C		C	B	
Approach Delay		40.8			31.3			28.1			16.6	

Lanes, Volumes, Timings  
 43: Canal Street & 18th Street

05/08/2018

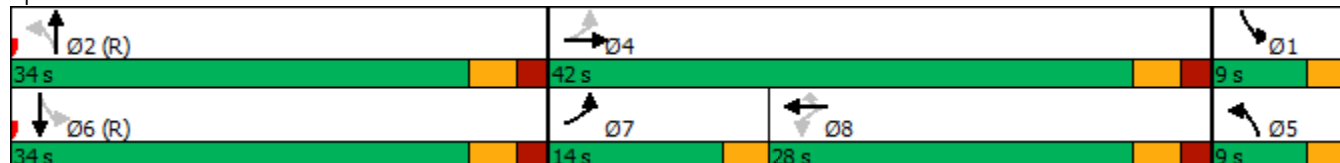


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		D			C				C			B
Queue Length 50th (ft)	106	218		7	223	95	46	238		31	38	
Queue Length 95th (ft)	#266	336		m9	m#322	m168	83	315		59	66	
Internal Link Dist (ft)		857			2589			421			3403	
Turn Bay Length (ft)	195			100		100	65			110		
Base Capacity (vph)	308	776		208	530	557	505	1225		224	1167	
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	0.98	0.69		0.10	0.82	0.73	0.30	0.78		0.47	0.23	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 56 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay: 31.0 Intersection LOS: C  
 Intersection Capacity Utilization 83.6% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 43: Canal Street & 18th Street



Lanes, Volumes, Timings  
109: Wells Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Volume (vph)	39	6	8	226	1	303	10	456	169	112	331	10
Future Volume (vph)	39	6	8	226	1	303	10	456	169	112	331	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	10	12	12	10	12	12
Storage Length (ft)	0		0	0		0	75		0	75		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.93			0.82			0.95		0.96		
Frt		0.980			0.923			0.959			0.995	
Flt Protected		0.964			0.979		0.950			0.950		
Satd. Flow (prot)	0	1537	0	0	1300	0	1501	1538	0	1501	1685	0
Flt Permitted		0.638			0.838		0.404			0.095		
Satd. Flow (perm)	0	982	0	0	1003	0	638	1538	0	144	1685	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			84			21			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		250			153			520			246	
Travel Time (s)		5.7			3.5			11.8			5.6	
Confl. Peds. (#/hr)	101		182	182		101			132	132		
Confl. Bikes (#/hr)									7			
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 (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	558	0	11	658	0	118	359	0
Turn Type	Perm	NA		custom	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		11	8 11			2		1	1 6	
Permitted Phases	4			8			2			1 6		
Detector Phase	4	4		11	8 11		2	2		1	1 6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0		5.0		
Minimum Split (s)	42.0	42.0		9.5			44.0	44.0		9.0		
Total Split (s)	42.0	42.0		10.0			44.0	44.0		9.0		
Total Split (%)	40.0%	40.0%		9.5%			41.9%	41.9%		8.6%		
Yellow Time (s)	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		
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?												
Recall Mode	None	None		None			C-Max	C-Max		None		
Act Effect Green (s)		38.0			48.0		40.0	40.0		45.0	49.0	
Actuated g/C Ratio		0.36			0.46		0.38	0.38		0.43	0.47	
v/c Ratio		0.15			1.06		0.05	1.10		0.94	0.46	
Control Delay		21.4			81.5		21.4	98.7		104.5	21.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		21.4			81.5		21.4	98.7		104.5	21.2	
LOS		C			F		C	F		F	C	

Lanes, Volumes, Timings  
 109: Wells Street & Polk Street

05/08/2018

Lane Group	Ø6	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 (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	6	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	42.0	40.0
Total Split (s)	44.0	42.0
Total Split (%)	42%	40%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	C-Max	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		

Lanes, Volumes, Timings  
 109: Wells Street & Polk Street

05/08/2018

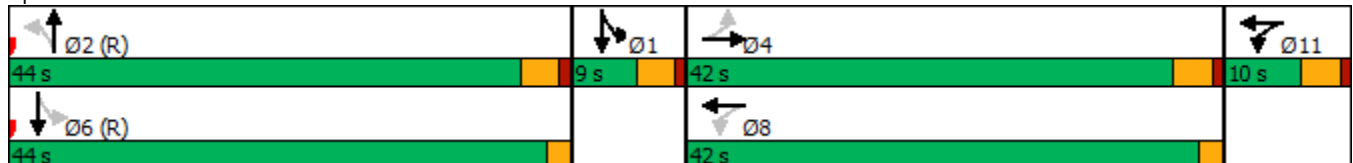


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		21.4			81.5			97.4				41.8
Approach LOS		C			F			F				D
Queue Length 50th (ft)		21			-316		5	-495		44		157
Queue Length 95th (ft)		50			#522		17	#720		#156		238
Internal Link Dist (ft)		170			73			440				166
Turn Bay Length (ft)							75			75		
Base Capacity (vph)		360			526		243	598		126		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		0.15			1.06		0.05	1.10		0.94		0.46

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 100 (95%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 74.9  
 Intersection LOS: E  
 Intersection Capacity Utilization 95.0%  
 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: 109: Wells Street & Polk Street



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Lane Group	Ø6	Ø8
Approach Delay		
Approach LOS		
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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Lanes, Volumes, Timings  
111: Clark Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↖	↗	↗	↖	↖	↗	↗	↕
Traffic Volume (vph)	50	125	140	51	232	56	470	1070	403	45	889	66
Future Volume (vph)	50	125	140	51	232	56	470	1070	403	45	889	66
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	11	12	11	10	10	11	11	10	11	11	12
Storage Length (ft)	0		60	55		50	95		0	87		50
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (ft)	25			80			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		0.91		0.91		0.85	0.97		0.78		0.99	
Frt		0.940				0.850			0.850		0.990	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1413	0	1555	1663	1209	1555	1723	1343	1555	3046	0
Flt Permitted		0.779		0.257			0.181			0.087		
Satd. Flow (perm)	0	1096	0	382	1663	1024	288	1723	1049	142	3046	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		40										10
Link Speed (mph)		30			30			30				30
Link Distance (ft)		288			672			705				202
Travel Time (s)		6.5			15.3			16.0				4.6
Confl. Peds. (#/hr)	78		149	149		78	120		182	182		120
Confl. Bikes (#/hr)			3			6			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 (%)	1%	1%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Parking (#/hr)						0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	328	0	53	242	58	490	1115	420	47	995	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3 4			8		5	2		1	6	
Permitted Phases	3 4			8		8	2		2	6		
Detector Phase	3	3 4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0			22.0	22.0	22.0	9.5	50.0	50.0	9.5	50.0	
Total Split (s)	14.0			22.0	22.0	22.0	13.0	51.0	51.0	13.0	51.0	
Total Split (%)	14.0%			22.0%	22.0%	22.0%	13.0%	51.0%	51.0%	13.0%	51.0%	
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	0.0	2.0	2.0	0.0	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	3.0	5.0	5.0	3.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max			Max	Max	Max	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)		28.0		17.0	17.0	17.0	58.0	46.0	46.0	56.3	46.0	
Actuated g/C Ratio		0.28		0.17	0.17	0.17	0.58	0.46	0.46	0.56	0.46	
v/c Ratio		0.89		0.83	0.86	0.33	1.67	1.41	0.87	0.24	0.71	
Control Delay		57.0		115.4	68.9	42.7	336.2	217.0	45.3	10.9	24.8	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		57.0		115.4	68.9	42.7	336.2	217.0	45.3	10.9	24.8	



Lane Group	Ø4
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 (%)	
Parking (#/hr)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	22%
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Lanes, Volumes, Timings  
111: Clark Street & Polk Street

05/08/2018

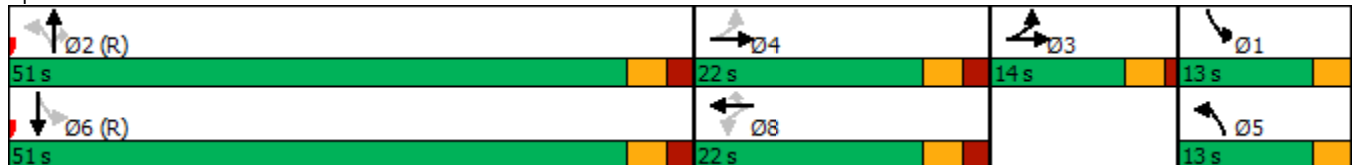


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E		F	E	D	F	F	D	B	C	
Approach Delay		57.0			71.5			210.2			24.2	
Approach LOS		E			E			F			C	
Queue Length 50th (ft)		160		33	152	33	-367	-959	234	11	256	
Queue Length 95th (ft)		#248		#107	#286	73	#567	#1207	#425	26	332	
Internal Link Dist (ft)		208			592			625			122	
Turn Bay Length (ft)				55		50	95			87		
Base Capacity (vph)		367		64	282	174	293	792	482	223	1406	
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		0.89		0.83	0.86	0.33	1.67	1.41	0.87	0.21	0.71	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.67  
 Intersection Signal Delay: 132.0 Intersection LOS: F  
 Intersection Capacity Utilization 118.6% 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.

Splits and Phases: 111: Clark Street & Polk Street



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Lane Group	Ø4
LOS	
Approach Delay	
Approach LOS	
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 AWSC  
 11: 3W Access Drive/LaSalle Street & East-West Drive

05/08/2018

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	294	53	18	18	24	215	31	28	17	66	29	95
Future Vol, veh/h	294	53	18	18	24	215	31	28	17	66	29	95
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	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	309	56	19	19	25	226	33	29	18	69	31	100
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	14.7	10.6	9.9	10.3
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	81%	7%	100%	0%
Vol Thru, %	0%	62%	15%	9%	0%	23%
Vol Right, %	0%	38%	5%	84%	0%	77%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	45	365	257	66	124
LT Vol	31	0	294	18	66	0
Through Vol	0	28	53	24	0	29
RT Vol	0	17	18	215	0	95
Lane Flow Rate	33	47	384	271	69	131
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.064	0.083	0.559	0.362	0.132	0.209
Departure Headway (Hd)	7.053	6.272	5.236	4.819	6.833	5.776
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	570	688	747	525	620
Service Time	4.803	4.021	3.269	2.856	4.576	3.52
HCM Lane V/C Ratio	0.065	0.082	0.558	0.363	0.131	0.211
HCM Control Delay	10.3	9.6	14.7	10.6	10.6	10.1
HCM Lane LOS	B	A	B	B	B	B
HCM 95th-tile Q	0.2	0.3	3.5	1.7	0.5	0.8

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↘			↑
Traffic Vol, veh/h	0	9	467	24	0	316
Future Vol, veh/h	0	9	467	24	0	316
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	9	492	25	0	333

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	505	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-
Pot Cap-1 Maneuver	0	567	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	567	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	567
HCM Lane V/C Ratio	-	-	0.017
HCM Control Delay (s)	-	-	11.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

HCM 6th TWSC  
 36: Clark Street & Access 3E

11/12/2018

**Intersection**

Int Delay, s/veh 0.3

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	10	5	22	1197	514	46
Future Vol, veh/h	10	5	22	1197	514	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	11	5	23	1260	541	48

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	1241	295	589	0	-	0
Stage 1	565	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	170	707	996	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	166	707	996	-	-	-
Mov Cap-2 Maneuver	166	-	-	-	-	-
Stage 1	526	-	-	-	-	-
Stage 2	472	-	-	-	-	-

**Approach** EB NB SB

























HCM Control Delay, s	22.2	0.2	0
HCM LOS	C		

**Minor Lane/Major Mvmt** NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h)	996	-	166	707	-	-
HCM Lane V/C Ratio	0.023	-	0.063	0.007	-	-
HCM Control Delay (s)	8.7	-	28.2	10.1	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0	-	-

Lanes, Volumes, Timings  
1: Clark Street & Roosevelt Road

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	321	1257	234	191	1123	215	229	306	268	173	126	336
Future Volume (vph)	321	1257	234	191	1123	215	229	306	268	173	126	336
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Storage Length (ft)	185		0	95		0	280		0	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	100			165			150			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
Ped Bike Factor	0.99		0.87	0.99		0.88			0.87	0.94	0.89	
Frt			0.850			0.850			0.850		0.891	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3353	1439	1577	3320	1454	1624	1748	1411	1624	1321	0
Flt Permitted	0.095			0.095			0.154			0.382		
Satd. Flow (perm)	157	3353	1258	156	3320	1277	263	1748	1231	611	1321	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			222			222			262		117	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		531			825			246			588	
Travel Time (s)		12.1			18.8			5.6			13.4	
Confl. Peds. (#/hr)	71		70	70		71	100		100	100		100
Confl. Bikes (#/hr)			21			15			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 (%)	2%	2%	1%	3%	3%	0%	0%	3%	3%	0%	8%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	331	1296	241	197	1158	222	236	315	276	178	476	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	46.0	46.0	9.5	46.0	46.0	9.5	32.0	32.0	9.5	28.0	
Total Split (s)	16.0	47.0	47.0	16.0	47.0	47.0	14.0	32.0	32.0	10.0	28.0	
Total Split (%)	15.2%	44.8%	44.8%	15.2%	44.8%	44.8%	13.3%	30.5%	30.5%	9.5%	26.7%	
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)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	Max	
Act Effct Green (s)	57.0	42.0	42.0	57.0	42.0	42.0	39.0	27.0	27.0	32.0	23.0	
Actuated g/C Ratio	0.54	0.40	0.40	0.54	0.40	0.40	0.37	0.26	0.26	0.30	0.22	
v/c Ratio	1.26	0.97	0.38	0.76	0.87	0.34	0.98	0.70	0.54	0.70	1.25	
Control Delay	166.9	43.8	10.1	38.1	34.0	8.1	78.0	39.2	6.6	42.5	161.6	
Queue Delay	0.0	2.3	0.0	0.0	0.0	0.0	0.0	45.8	1.0	0.0	0.3	
Total Delay	166.9	46.1	10.1	38.1	34.0	8.1	78.0	85.1	7.6	42.5	161.9	
LOS	F	D	B	D	C	A	E	F	A	D	F	
Approach Delay		62.9			30.9			57.2			129.4	



Lanes, Volumes, Timings  
 1: Clark Street & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			C			E			F		
Queue Length 50th (ft)	~242	289	29	106	285	21	105	202	22	83	~337	
Queue Length 95th (ft)	m#322	m#570	m54	m110	m308	m27	#264	269	27	#157	#539	
Internal Link Dist (ft)	451			745			166			508		
Turn Bay Length (ft)	185			95			280					
Base Capacity (vph)	263	1341	636	260	1328	644	240	449	511	253	380	
Starvation Cap Reductn	0	21	0	0	0	0	0	154	80	0	0	
Spillback Cap Reductn	0	0	7	0	0	0	0	0	0	0	10	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.26	0.98	0.38	0.76	0.87	0.34	0.98	1.07	0.64	0.70	1.29	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 39 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.26  
 Intersection Signal Delay: 60.5 Intersection LOS: E  
 Intersection Capacity Utilization 117.7% ICU Level of Service H  
 Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

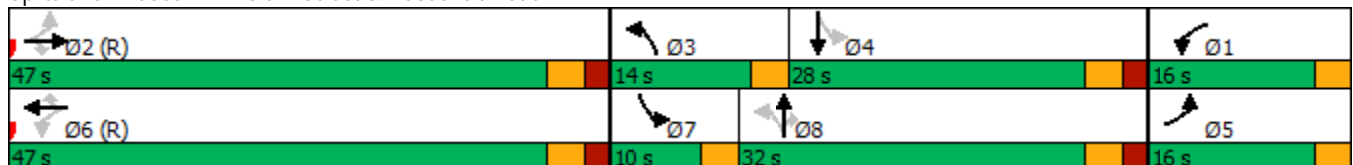
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 1: Clark Street & Roosevelt Road



## Lanes, Volumes, Timings 2: Clark Street & 14th Street

11/12/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	155	133	95	1125	1399	66	
Future Volume (vph)	155	133	95	1125	1399	66	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	100			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	25		100				
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95	
Frt		0.850			0.993		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1805	1615	1805	3539	3518	0	
Flt Permitted	0.950		0.102				
Satd. Flow (perm)	1805	1615	194	3539	3518	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		136			9		
Link Speed (mph)	30			30	30		
Link Distance (ft)	269			771	313		
Travel Time (s)	6.1			17.5	7.1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	163	140	100	1184	1542	0	
Turn Type	Prot	Perm	custom	NA	NA		
Protected Phases	4		5	2 5	6	2	
Permitted Phases		4	2				
Detector Phase	4	4	5	2 5	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	9.0		22.5	22.5	
Total Split (s)	24.0	24.0	9.0		72.0	72.0	
Total Split (%)	22.9%	22.9%	8.6%		68.6%	69%	
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0	3.0		4.0		
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		C-Max	C-Max	
Act Effect Green (s)	14.7	14.7	80.3	82.3	68.2		
Actuated g/C Ratio	0.14	0.14	0.76	0.78	0.65		
v/c Ratio	0.65	0.41	0.31	0.43	0.67		
Control Delay	54.2	10.9	12.6	3.2	13.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	54.2	10.9	12.6	3.2	13.3		
LOS	D	B	B	A	B		
Approach Delay	34.2			3.9	13.3		
Approach LOS	C			A	B		
Queue Length 50th (ft)	105	2	11	81	308		
Queue Length 95th (ft)	164	54	m48	98	383		

Lanes, Volumes, Timings  
 2: Clark Street & 14th Street

11/12/2018

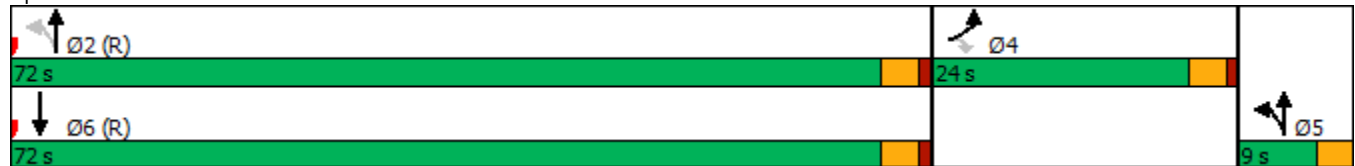


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Internal Link Dist (ft)	189			691	233		
Turn Bay Length (ft)			100				
Base Capacity (vph)	343	417	318	2774	2288		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.48	0.34	0.31	0.43	0.67		

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	11.5
Intersection LOS:	B
Intersection Capacity Utilization	64.6%
ICU Level of Service	C
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Clark Street & 14th Street



Lanes, Volumes, Timings  
3: Clark Street & East-West Drive/15th Street

11/12/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	0	127	17	0	16	73	1017	20	22	1458	99
Future Volume (vph)	187	0	127	17	0	16	73	1017	20	22	1458	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (ft)	50			25			100			100		
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		0.95			0.98			1.00			0.99	
Frt		0.850			0.934			0.997			0.990	
Flt Protected	0.950				0.975		0.950			0.950		
Satd. Flow (prot)	1805	1526	0	0	1681	0	1805	3553	0	1805	3535	0
Flt Permitted	0.705				0.891		0.083			0.209		
Satd. Flow (perm)	1340	1526	0	0	1508	0	158	3553	0	397	3535	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		137			73			3			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		552			381			360			771	
Travel Time (s)		12.5			8.7			8.2			17.5	
Confl. Peds. (#/hr)			25	25			50		50	50		50
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%	0%	0%	0%	0%	6%	0%	1%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	197	134	0	0	35	0	77	1092	0	23	1639	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		18.0	18.0		9.5	22.5		9.5	22.5	
Total Split (s)	18.0	36.0		18.0	18.0		10.0	59.0		10.0	59.0	
Total Split (%)	17.1%	34.3%		17.1%	17.1%		9.5%	56.2%		9.5%	56.2%	
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	1.0		1.0	1.0		0.0	1.0		0.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	4.0			4.0		3.0	4.0		3.0	4.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	19.8	18.8			5.6		76.8	70.0		76.5	70.0	
Actuated g/C Ratio	0.19	0.18			0.05		0.73	0.67		0.73	0.67	
v/c Ratio	0.63	0.35			0.23		0.34	0.46		0.06	0.70	
Control Delay	46.9	8.3			5.2		8.7	10.7		4.8	10.1	
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay	46.9	8.3			5.2		8.7	10.7		4.8	10.1	
LOS	D	A			A		A	B		A	B	
Approach Delay		31.2			5.2			10.6			10.1	
Approach LOS		C			A			B			B	

Lanes, Volumes, Timings  
 3: Clark Street & East-West Drive/15th Street

11/12/2018

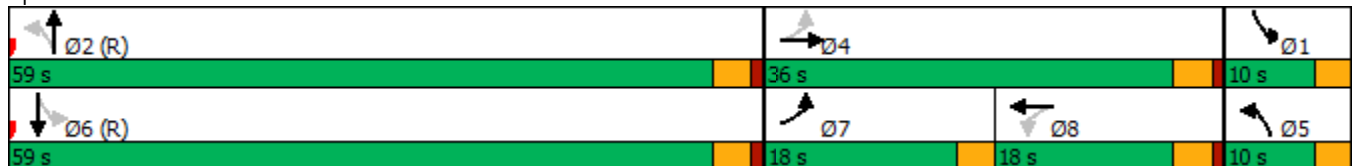


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	114	0			0		14	203		4	196	
Queue Length 95th (ft)	185	46			7		28	274		m7	248	
Internal Link Dist (ft)		472			301			280			691	
Turn Bay Length (ft)							100			100		
Base Capacity (vph)	331	560			264		233	2368		391	2358	
Starvation Cap Reductn	0	0			0		0	0		0	5	
Spillback Cap Reductn	0	0			0		0	0		0	0	
Storage Cap Reductn	0	0			0		0	0		0	0	
Reduced v/c Ratio	0.60	0.24			0.13		0.33	0.46		0.06	0.70	

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: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 12.4 Intersection LOS: B  
 Intersection Capacity Utilization 75.1% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Clark Street & East-West Drive/15th Street



Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	378	165	34	342	58	144	797	13	96	981	132
Future Volume (vph)	173	378	165	34	342	58	144	797	13	96	981	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	130		0	70		0	50		0	90		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	100			40			115			80		
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		0.99	0.99	
Frt		0.954			0.978			0.998			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1728	1729	0	1745	1771	0	1745	3445	0	1745	3346	0
Flt Permitted	0.207			0.165			0.122			0.207		
Satd. Flow (perm)	374	1729	0	303	1771	0	224	3445	0	375	3346	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			10			2			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		452			523			416			1127	
Travel Time (s)		10.3			11.9			9.5			25.6	
Confl. Peds. (#/hr)	15		20	20		15	15		44	44		15
Confl. Bikes (#/hr)			11			13						6
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 (%)	1%	0%	0%	0%	1%	0%	0%	1%	0%	0%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	572	0	36	421	0	152	853	0	101	1172	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.0	27.0		8.0	27.0		9.0	39.0		9.0	39.0	
Total Split (s)	9.0	28.0		9.0	28.0		9.0	39.0		9.0	39.0	
Total Split (%)	10.6%	32.9%		10.6%	32.9%		10.6%	45.9%		10.6%	45.9%	
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	2.0		0.0	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)	3.0	5.0		3.0	5.0		3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effect Green (s)	32.2	26.6		30.9	23.0		42.0	34.0		42.0	34.0	
Actuated g/C Ratio	0.38	0.31		0.36	0.27		0.49	0.40		0.49	0.40	
v/c Ratio	0.77	1.03		0.17	0.87		0.70	0.62		0.36	0.87	
Control Delay	32.1	53.2		17.7	48.8		30.5	22.7		13.8	31.5	
Queue Delay	0.0	0.0		0.0	23.5		0.3	0.0		0.0	0.2	
Total Delay	32.1	53.2		17.7	72.3		30.9	22.7		13.8	31.7	
LOS	C	D		B	E		C	C		B	C	

Lanes, Volumes, Timings  
4: Clark Street & 18th Street

05/08/2018

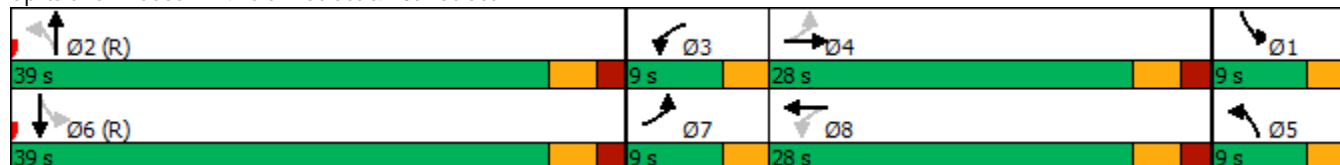


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		48.1			68.0			23.9				30.3
Approach LOS		D			E			C				C
Queue Length 50th (ft)	47	-339		12	209		39	186		25	291	
Queue Length 95th (ft)	m55	m#339		30	#374		#110	247		50	#416	
Internal Link Dist (ft)		372			443			336			1047	
Turn Bay Length (ft)	130			70			50			90		
Base Capacity (vph)	237	558		212	486		218	1379		282	1351	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	74		3	0		0	11	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.77	1.03		0.17	1.02		0.71	0.62		0.36	0.87	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 54 (64%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 37.2 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Clark Street & 18th Street





# Lanes, Volumes, Timings

## 5: LaSalle Street/Delano Court & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1414	189	322	1267	98	319	0	305	90	0	90
Future Volume (vph)	90	1414	189	322	1267	98	319	0	305	90	0	90
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	330		330	150		0	150		0	0		0
Storage Lanes	1		1	1		1	2		0	2		0
Taper Length (ft)	90			100			100			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor			0.89			0.68	0.92	0.95		0.97	0.93	
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3725	1615	1805	3689	1599	3502	1527	0	3467	1507	0
Flt Permitted	0.167			0.081			0.950			0.950		
Satd. Flow (perm)	317	3725	1445	154	3689	1094	3222	1527	0	3374	1507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			199			103		233			125	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		591			531			358			187	
Travel Time (s)		13.4			12.1			8.1			4.3	
Confl. Peds. (#/hr)	188		50	50		188	26		20	20		26
Confl. Bikes (#/hr)			18			18			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 (%)	0%	2%	0%	0%	3%	1%	0%	0%	0%	1%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	1488	199	339	1334	103	336	321	0	95	95	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6						
Detector Phase	5	2	2	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.0	23.0	23.0	9.5	23.0	23.0	9.5	20.0		18.0	20.0	
Total Split (s)	9.0	52.0	52.0	15.0	58.0	58.0	18.0	20.0		18.0	20.0	
Total Split (%)	8.6%	49.5%	49.5%	14.3%	55.2%	55.2%	17.1%	19.0%		17.1%	19.0%	
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	0.0	2.0	2.0	1.0	2.0		1.0	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)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	5.0		4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	
Act Effect Green (s)	56.0	47.2	47.2	72.5	62.4	62.4	13.4	14.3		8.3	9.2	
Actuated g/C Ratio	0.53	0.45	0.45	0.69	0.59	0.59	0.13	0.14		0.08	0.09	
v/c Ratio	0.36	0.89	0.26	0.80	0.61	0.15	0.75	0.79		0.35	0.39	
Control Delay	12.0	34.6	3.4	46.2	9.6	1.2	55.6	26.9		48.9	8.1	
Queue Delay	0.0	1.4	0.0	0.0	0.3	0.0	0.0	0.2		0.0	0.0	
Total Delay	12.0	36.0	3.4	46.2	9.9	1.2	55.6	27.1		48.9	8.1	
LOS	B	D	A	D	A	A	E	C		D	A	
Approach Delay		31.0			16.3			41.7			28.5	

Lanes, Volumes, Timings

5: LaSalle Street/Delano Court & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			B			D			C		
Queue Length 50th (ft)	19	470	0	195	157	0	112	56		31	0	
Queue Length 95th (ft)	46	#582	40	m#264	m169	m0	161	153		56	27	
Internal Link Dist (ft)	511			451			278			107		
Turn Bay Length (ft)	330		330		150		150					
Base Capacity (vph)	266	1675	759	424	2193	692	466	432		462	322	
Starvation Cap Reductn	0	0	0	0	278	0	0	0		0	0	
Spillback Cap Reductn	0	70	0	0	0	0	0	4		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.36	0.93	0.26	0.80	0.70	0.15	0.72	0.75		0.21	0.30	

Intersection Summary

Area Type: Other  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 48 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 26.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 95.0%  
 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: 5: LaSalle Street/Delano Court & Roosevelt Road



Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	575	111	51	468	99	324	382	48	93	477	124
Future Volume (vph)	110	575	111	51	468	99	324	382	48	93	477	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	11	11
Storage Length (ft)	50		0	50		0	150		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	70			70			100			100		
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		0.976			0.974			0.983			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	1778	0	1745	1774	0	1745	1801	0	1745	1780	0
Flt Permitted	0.132			0.137			0.126			0.333		
Satd. Flow (perm)	242	1778	0	252	1774	0	231	1801	0	612	1780	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			13			9				17
Link Speed (mph)		30			30			30				30
Link Distance (ft)		2655			452			304				432
Travel Time (s)		60.3			10.3			6.9				9.8
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%	1%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	112	700	0	52	579	0	331	439	0	95	614	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	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	8.0	23.0		8.0	23.0		9.5	22.5		9.0	22.5	
Total Split (s)	8.0	32.0		8.0	32.0		11.0	36.0		9.0	34.0	
Total Split (%)	9.4%	37.6%		9.4%	37.6%		12.9%	42.4%		10.6%	40.0%	
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)	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		3.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Act Effct Green (s)	35.2	30.2		34.6	28.6		41.2	33.8		37.0	30.0	
Actuated g/C Ratio	0.41	0.36		0.41	0.34		0.48	0.40		0.44	0.35	
v/c Ratio	0.60	1.10		0.27	0.96		1.30	0.61		0.28	0.96	
Control Delay	21.1	84.7		20.4	51.3		184.3	25.1		13.9	55.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.1	84.7		20.4	51.3		184.3	25.1		13.9	55.4	
LOS	C	F		C	D		F	C		B	E	
Approach Delay		76.0			48.8			93.5			49.8	
Approach LOS		E			D			F			D	
Queue Length 50th (ft)	34	-476		17	-260		-179	185		26	309	

Lanes, Volumes, Timings  
6: Wentworth Avenue & 18th Street

05/08/2018

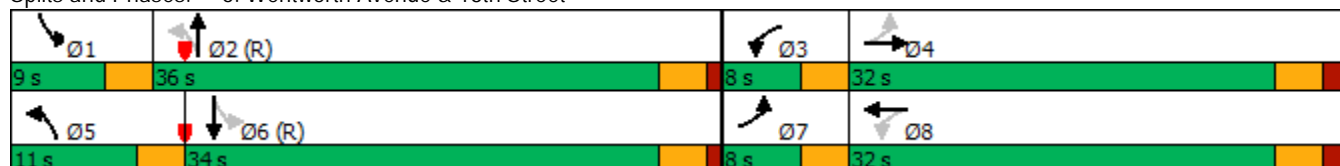


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	m39	m#634		m22	m#433		#343	287		51	#528	
Internal Link Dist (ft)		2575			372			224			352	
Turn Bay Length (ft)	50			50			150			100		
Base Capacity (vph)	188	639		190	605		254	721		346	639	
Starvation Cap Reductn	0	0		0	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	0.60	1.10		0.27	0.96		1.30	0.61		0.27	0.96	

Intersection Summary

Area Type: Other  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 52 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.30  
 Intersection Signal Delay: 68.4 Intersection LOS: E  
 Intersection Capacity Utilization 105.9% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Wentworth Avenue & 18th Street



Lanes, Volumes, Timings  
7: Canal Street & Roosevelt Road

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	1180	190	166	1040	223	127	681	106	197	335	98
Future Volume (vph)	145	1180	190	166	1040	223	127	681	106	197	335	98
Ideal Flow (vphpl)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	115		0	120		235	180		0	160		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	100			35			100			60		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00		0.88	0.99		0.97	0.95	0.98		0.97	0.96	
Frt			0.850			0.850		0.980			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3320	1439	1608	3257	1377	1624	3044	0	1608	1564	0
Flt Permitted	0.115			0.114			0.177			0.142		
Satd. Flow (perm)	193	3320	1260	191	3257	1332	287	3044	0	234	1564	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			228		17			15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		400			1814			3479			633	
Travel Time (s)		9.1			41.2			79.1			14.4	
Confl. Peds. (#/hr)	5		123	123		5	132		113	113		132
Confl. Bikes (#/hr)			11			26			2			15
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 (%)	2%	3%	1%	1%	5%	3%	0%	3%	1%	1%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	1204	194	169	1061	228	130	803	0	201	442	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	39.0	39.0	9.5	39.0	39.0	9.5	33.0		9.5	33.0	
Total Split (s)	14.0	39.0	39.0	14.0	39.0	39.0	14.0	33.0		14.0	33.0	
Total Split (%)	14.0%	39.0%	39.0%	14.0%	39.0%	39.0%	14.0%	33.0%		14.0%	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	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	
Act Effect Green (s)	46.6	34.8	34.8	47.4	35.2	35.2	41.0	28.2		41.0	28.2	
Actuated g/C Ratio	0.47	0.35	0.35	0.47	0.35	0.35	0.41	0.28		0.41	0.28	
v/c Ratio	0.65	1.04	0.35	0.72	0.93	0.37	0.50	0.92		0.82	0.98	
Control Delay	31.2	71.7	6.2	36.8	46.1	5.1	24.1	51.9		48.4	74.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.2	71.7	6.2	36.8	46.1	5.1	24.1	51.9		48.4	74.0	
LOS	C	E	A	D	D	A	C	D		D	E	

Lanes, Volumes, Timings  
 7: Canal Street & Roosevelt Road

05/08/2018

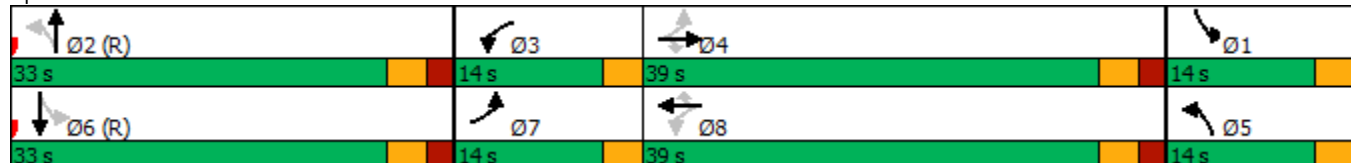


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		59.6			38.6			48.1			66.0	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	50	-448	4	58	343	0	49	257		80	272	
Queue Length 95th (ft)	107	#580	52	#145	#484	50	88	#378		#198	#477	
Internal Link Dist (ft)		320			1734			3399			553	
Turn Bay Length (ft)	115			120		235	180			160		
Base Capacity (vph)	246	1154	558	247	1146	616	265	869		247	451	
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	0.60	1.04	0.35	0.68	0.93	0.37	0.49	0.92		0.81	0.98	

Intersection Summary

Area Type:	CBD
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	85 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	51.5
Intersection LOS:	D
Intersection Capacity Utilization:	97.3%
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: 7: Canal Street & Roosevelt Road



Lanes, Volumes, Timings  
8: Wentworth/Wells & North Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗	↖		↗		↖		↖	↗	
Traffic Volume (vph)	0	0	10	222	0	54	0	349	244	59	314	12
Future Volume (vph)	0	0	10	222	0	54	0	349	244	59	314	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	11	12	11	11	11	11	12
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			100			100		
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			0.72	0.76		0.75		0.90			1.00	
Frt			0.865			0.850		0.944			0.994	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1479	1570	0	1405	0	1383	0	1570	1606	0
Flt Permitted				0.950						0.226		
Satd. Flow (perm)	0	0	1065	1200	0	1052	0	1383	0	374	1606	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			340			57		57				4
Link Speed (mph)		30			30			30				30
Link Distance (ft)		199			328			541				800
Travel Time (s)		4.5			7.5			12.3				18.2
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
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%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	11	234	0	57	0	624	0	62	344	0
Turn Type			Perm	pm+pt		Perm		NA		custom	NA	
Protected Phases				3				2		1	1	6
Permitted Phases			4	8		8				6		
Minimum Split (s)			20.0	12.0		22.5		23.0		8.0		
Total Split (s)			20.0	12.0		32.0		45.0		8.0		
Total Split (%)			23.5%	14.1%		37.6%		52.9%		9.4%		
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		0.0		
Lost Time Adjust (s)			0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)			4.0	4.0		4.0		4.0		3.0		
Lead/Lag			Lag	Lead								
Lead-Lag Optimize?			Yes	Yes								
Act Effect Green (s)			16.0	28.0		28.0		41.0		47.0	50.0	
Actuated g/C Ratio			0.19	0.33		0.33		0.48		0.55	0.59	
v/c Ratio			0.02	0.54		0.15		0.90		0.22	0.36	
Control Delay			0.1	28.3		7.0		25.2		9.6	10.4	
Queue Delay			0.0	0.0		0.0		0.0		0.0	0.0	
Total Delay			0.1	28.3		7.0		25.2		9.6	10.4	
LOS			A	C		A		C		A	B	
Approach Delay		0.1			24.1			25.2			10.3	
Approach LOS		A			C			C			B	
Queue Length 50th (ft)			0	97		0		107		13	87	
Queue Length 95th (ft)			0	165		25		m#175		29	140	
Internal Link Dist (ft)		119			248			461			720	



Lanes, Volumes, Timings  
 8: Wentworth/Wells & North Access Drive

05/08/2018

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	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	23.0
Total Split (s)	45.0
Total Split (%)	53%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	

Lanes, Volumes, Timings  
 8: Wentworth/Wells & North Access Drive

05/08/2018

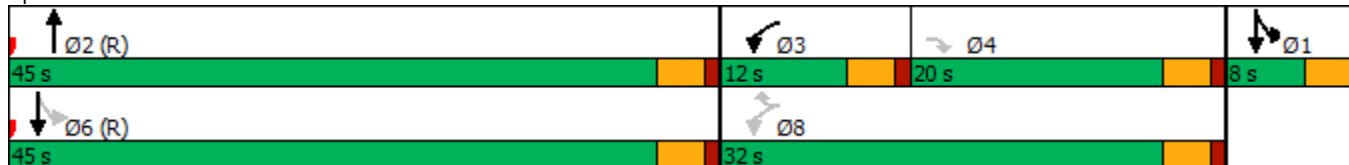


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)										100		
Base Capacity (vph)			476	430		384		696		277	946	
Starvation Cap Reductn			0	0		0		0		0	0	
Spillback Cap Reductn			0	0		0		0		0	0	
Storage Cap Reductn			0	0		0		0		0	0	
Reduced v/c Ratio			0.02	0.54		0.15		0.90		0.22	0.36	

Intersection Summary

Area Type: CBD  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.90  
 Intersection Signal Delay: 20.2 Intersection LOS: C  
 Intersection Capacity Utilization 67.3% 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: 8: Wentworth/Wells & North Access Drive



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Lane Group	Ø6
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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Lanes, Volumes, Timings  
 9: Wentworth/Wells & Middle Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	16	169	0	61	0	544	157	28	506	12
Future Volume (vph)	0	0	16	169	0	61	0	544	157	28	506	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	100		0	100		0
Storage Lanes	0		1	1		1	0		0	1		0
Taper Length (ft)	25			25			100			100		
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			0.68	0.76		0.75		0.94			1.00	
Frt			0.865			0.850		0.970			0.996	
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	1450	1624	0	1454	0	1565	0	1624	1698	0
Flt Permitted				0.950						0.181		
Satd. Flow (perm)	0	0	990	1241	0	1088	0	1565	0	310	1698	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			258			64		26				3
Link Speed (mph)		30			30			30				30
Link Distance (ft)		228			298			713				541
Travel Time (s)		5.2			6.8			16.2				12.3
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
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%	2%	0%	2%	0%	2%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	17	178	0	64	0	738	0	29	546	0
Turn Type			Perm	pm+pt		Perm		NA		custom	NA	
Protected Phases				3				2		1	1	6
Permitted Phases			4	8		8				6		
Minimum Split (s)			18.0	10.0		22.5		23.0		8.0		
Total Split (s)			18.0	10.0		28.0		49.0		8.0		
Total Split (%)			21.2%	11.8%		32.9%		57.6%		9.4%		
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		0.0		
Lost Time Adjust (s)			0.0	0.0		0.0		0.0		0.0		
Total Lost Time (s)			4.0	4.0		4.0		4.0		3.0		
Lead/Lag			Lag	Lead								
Lead-Lag Optimize?			Yes	Yes								
Act Effect Green (s)			14.0	24.0		24.0		45.0		51.0	54.0	
Actuated g/C Ratio			0.16	0.28		0.28		0.53		0.60	0.64	
v/c Ratio			0.04	0.47		0.18		0.88		0.11	0.51	
Control Delay			0.2	29.6		7.9		23.3		7.0	11.4	
Queue Delay			0.0	0.0		0.0		0.0		0.0	0.2	
Total Delay			0.2	29.6		7.9		23.3		7.0	11.6	
LOS			A	C		A		C		A	B	
Approach Delay		0.3			23.9			23.3			11.4	
Approach LOS		A			C			C			B	
Queue Length 50th (ft)			0	76		0		143		7	150	
Queue Length 95th (ft)			0	134		29		#565		m14	200	
Internal Link Dist (ft)		148			218			633			461	
Turn Bay Length (ft)										100		

Lanes, Volumes, Timings  
 9: Wentworth/Wells & Middle Access Drive

05/08/2018

Lane Group	Ø6
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
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)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	6
Permitted Phases	
Minimum Split (s)	23.0
Total Split (s)	49.0
Total Split (%)	58%
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	

Lanes, Volumes, Timings  
 9: Wentworth/Wells & Middle Access Drive

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Base Capacity (vph)			378	377		353		840		263	1079	
Starvation Cap Reductn			0	0		0		0		0	119	
Spillback Cap Reductn			0	0		0		0		0	0	
Storage Cap Reductn			0	0		0		0		0	0	
Reduced v/c Ratio			0.04	0.47		0.18		0.88		0.11	0.57	

Intersection Summary

Area Type: CBD  
 Cycle Length: 85  
 Actuated Cycle Length: 85  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Pretimed  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 18.8 Intersection LOS: B  
 Intersection Capacity Utilization 65.4% 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: 9: Wentworth/Wells & Middle Access Drive



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Lane Group	Ø6
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

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Lanes, Volumes, Timings  
10: Wentworth/Wells & East-West Drive

05/08/2018

							Ø6
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	176	290	423	70	238	453	
Future Volume (vph)	176	290	423	70	238	453	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	100		0	100		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.76	0.75	0.96		0.92		
Frt		0.850	0.981				
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1805	1615	1797	0	1805	1900	
Flt Permitted	0.950				0.344		
Satd. Flow (perm)	1379	1209	1797	0	604	1900	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		305	15				
Link Speed (mph)	30		30			30	
Link Distance (ft)	252		203			713	
Travel Time (s)	5.7		4.6			16.2	
Confl. Peds. (#/hr)	100	100		100	100		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	185	305	519	0	251	477	
Turn Type	Prot	Perm	NA		custom	NA	
Protected Phases	8		2		1	1 6	6
Permitted Phases		8			6		
Minimum Split (s)	22.5	22.5	23.0		9.5		23.0
Total Split (s)	25.0	25.0	49.0		11.0		49.0
Total Split (%)	29.4%	29.4%	57.6%		12.9%		58%
Yellow Time (s)	3.0	3.0	3.0		3.0		3.0
All-Red Time (s)	1.0	1.0	1.0		0.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0	4.0		3.0		
Lead/Lag							
Lead-Lag Optimize?							
Act Effect Green (s)	21.0	21.0	45.0		54.0	57.0	
Actuated g/C Ratio	0.25	0.25	0.53		0.64	0.67	
v/c Ratio	0.42	0.58	0.54		0.51	0.37	
Control Delay	30.3	8.3	15.4		6.7	4.4	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	30.3	8.3	15.4		6.7	4.4	
LOS	C	A	B		A	A	
Approach Delay	16.6		15.4			5.2	
Approach LOS	B		B			A	
Queue Length 50th (ft)	83	0	167		35	83	
Queue Length 95th (ft)	144	68	256		43	87	
Internal Link Dist (ft)	172		123			633	
Turn Bay Length (ft)		100			100		

Lanes, Volumes, Timings  
 10: Wentworth/Wells & East-West Drive

05/08/2018

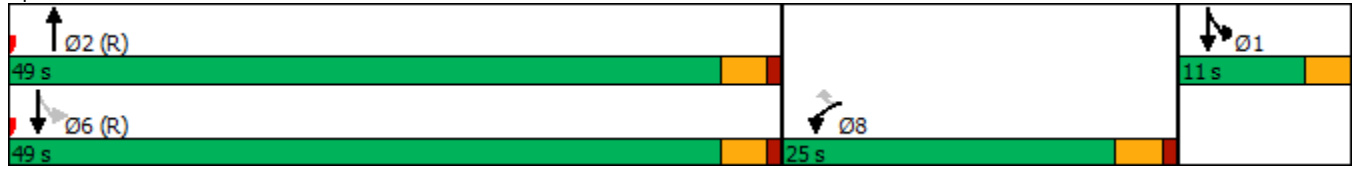


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Base Capacity (vph)	445	528	958		496	1274	
Starvation Cap Reductn	0	0	0		0	0	
Spillback Cap Reductn	0	0	0		0	0	
Storage Cap Reductn	0	0	0		0	0	
Reduced v/c Ratio	0.42	0.58	0.54		0.51	0.37	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	60
Control Type:	Pretimed
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	11.5
Intersection LOS:	B
Intersection Capacity Utilization	65.5%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 10: Wentworth/Wells & East-West Drive



Lanes, Volumes, Timings  
12: Clark Street

05/08/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Lane Configurations							
Traffic Volume (vph)	177	23	22	627	400	150	
Future Volume (vph)	177	23	22	627	400	150	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	75			0	
Storage Lanes	1	1	1			0	
Taper Length (ft)	25		75				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.963		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1624	1454	1624	1676	1623	0	
Flt Permitted	0.950		0.345				
Satd. Flow (perm)	1624	1454	590	1676	1623	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		24			33		
Link Speed (mph)	30			30	30		
Link Distance (ft)	156			556	246		
Travel Time (s)	3.5			12.6	5.6		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	186	24	23	660	579	0	
Turn Type	Prot	Perm	custom	NA	NA		
Protected Phases	4		5	2 5	6	2	
Permitted Phases		4	2				
Detector Phase	4	4	5	2 5	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5	9.0		22.5	22.5	
Total Split (s)	28.0	28.0	9.0		68.0	68.0	
Total Split (%)	26.7%	26.7%	8.6%		64.8%	65%	
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	1.0	0.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0		
Total Lost Time (s)	4.0	4.0	3.0		4.0		
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None		C-Max	C-Max	
Act Effect Green (s)	17.2	17.2	77.8	79.8	65.3		
Actuated g/C Ratio	0.16	0.16	0.74	0.76	0.62		
v/c Ratio	0.70	0.09	0.04	0.52	0.57		
Control Delay	54.8	13.7	4.0	7.5	8.2		
Queue Delay	0.6	0.0	0.0	0.2	5.5		
Total Delay	55.4	13.7	4.0	7.7	13.7		
LOS	E	B	A	A	B		
Approach Delay	50.7			7.6	13.7		
Approach LOS	D			A	B		
Queue Length 50th (ft)	119	0	3	146	124		
Queue Length 95th (ft)	181	22	11	283	m137		

Lanes, Volumes, Timings  
12: Clark Street

05/08/2018



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2
Internal Link Dist (ft)	76			476	166		
Turn Bay Length (ft)			75				
Base Capacity (vph)	371	350	550	1273	1022		
Starvation Cap Reductn	0	0	0	0	374		
Spillback Cap Reductn	39	0	0	142	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.56	0.07	0.04	0.58	0.89		

Intersection Summary

Area Type:	CBD
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	94 (90%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	16.1
Intersection LOS:	B
Intersection Capacity Utilization	54.2%
ICU Level of Service	A
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 12: Clark Street



Lanes, Volumes, Timings  
44: Wells Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (vph)	20	2	3	178	6	261	5	442	166	170	666	46
Future Volume (vph)	20	2	3	178	6	261	5	442	166	170	666	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	10	12	12	10	12	12
Storage Length (ft)	0		0	0		0	75		0	75		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			75			75		
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		0.93			0.82			0.92		0.94		
Frt		0.984			0.921			0.959			0.990	
Flt Protected		0.961			0.980		0.950			0.950		
Satd. Flow (prot)	0	1546	0	0	1308	0	1501	1495	0	1501	1676	0
Flt Permitted		0.728			0.864		0.106			0.101		
Satd. Flow (perm)	0	1127	0	0	1028	0	168	1495	0	150	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			87			20			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		341			153			564			244	
Travel Time (s)		7.8			3.5			12.8			5.5	
Confl. Peds. (#/hr)	83		193	193		83			190	190		
Confl. Bikes (#/hr)						3			6			
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 (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	468	0	5	640	0	179	749	0
Turn Type	Perm	NA		custom	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		15	8 15			2		1	1 6	
Permitted Phases	4			8			2			1 6		
Detector Phase	4	4		15	8 15		2	2		1	1 6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0			5.0	5.0		5.0		
Minimum Split (s)	40.0	40.0		9.5			41.0	41.0		9.5		
Total Split (s)	40.0	40.0		10.0			41.0	41.0		14.0		
Total Split (%)	38.1%	38.1%		9.5%			39.0%	39.0%		13.3%		
Yellow Time (s)	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		
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?												
Recall Mode	None	None		None			C-Max	C-Max		None		
Act Effect Green (s)		34.5			45.3		37.7	37.7		47.7	51.7	
Actuated g/C Ratio		0.33			0.43		0.36	0.36		0.45	0.49	
v/c Ratio		0.07			0.91		0.08	1.17		0.91	0.91	
Control Delay		22.0			45.5		27.2	125.2		85.2	41.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.0			45.5		27.2	125.2		85.2	41.2	
LOS		C			D		C	F		F	D	

Lanes, Volumes, Timings  
 44: Wells Street & Polk Street

05/08/2018

Lane Group	Ø6	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 (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	6	8
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	5.0	5.0
Minimum Split (s)	39.0	38.0
Total Split (s)	41.0	40.0
Total Split (%)	39%	38%
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	C-Max	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		

Lanes, Volumes, Timings  
 44: Wells Street & Polk Street

05/08/2018

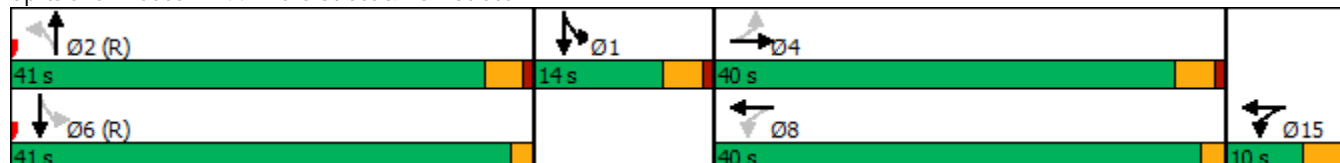


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.0			45.5			124.5				49.7
Approach LOS		C			D			F				D
Queue Length 50th (ft)		10			205		2	~513		82		448
Queue Length 95th (ft)		30			#382		12	#736		#215		#708
Internal Link Dist (ft)		261			73			484				164
Turn Bay Length (ft)							75			75		
Base Capacity (vph)		388			520		60	548		196		827
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		0.07			0.90		0.08	1.17		0.91		0.91

Intersection Summary

Area Type: CBD  
 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: 1.17  
 Intersection Signal Delay: 71.7  
 Intersection LOS: E  
 Intersection Capacity Utilization 90.9%  
 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: 44: Wells Street & Polk Street





Lane Group	Ø6	Ø8
Approach Delay		
Approach LOS		
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  
46: Clark Street & Polk Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗	↖	↖	↗	↖	↖	↕	↕
Traffic Volume (vph)	33	118	199	87	164	33	319	1054	408	53	1226	68
Future Volume (vph)	33	118	199	87	164	33	319	1054	408	53	1226	68
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	2000	1900	1900	1900	1900
Lane Width (ft)	12	11	12	11	10	10	11	11	11	11	12	12
Storage Length (ft)	0		0	55		40	95		0	87		50
Storage Lanes	0		0	1		1	1		1	1		0
Taper Length (ft)	25			80			70			70		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor		0.89		0.91		0.68	0.97		0.71		0.98	
Frt		0.923				0.850			0.850		0.992	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1370	0	1555	1663	1209	1555	1723	1391	1555	3136	0
Flt Permitted		0.966		0.284			0.093			0.093		
Satd. Flow (perm)	0	1303	0	424	1663	826	148	1723	990	152	3136	0
Right Turn on Red			Yes			No			No			Yes
Satd. Flow (RTOR)		69										7
Link Speed (mph)		30			30			30				30
Link Distance (ft)		126			672			705				179
Travel Time (s)		2.9			15.3			16.0				4.1
Confl. Peds. (#/hr)	125		159	159		125	255		224	224		255
Confl. Bikes (#/hr)			4			4			1			2
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 (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Parking (#/hr)						0						
Mid-Block Traffic (%)		3%			0%			0%				0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	368	0	92	173	35	336	1109	429	56	1363	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	3 4			8		5	2		1	6	
Permitted Phases	3 4			8		8	2		2	6		
Detector Phase	3	3 4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0			5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0			26.0	26.0	26.0	9.5	46.0	46.0	9.5	46.0	
Total Split (s)	13.0			26.0	26.0	26.0	13.0	48.0	48.0	13.0	48.0	
Total Split (%)	13.0%			26.0%	26.0%	26.0%	13.0%	48.0%	48.0%	13.0%	48.0%	
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	0.0	2.0	2.0	0.0	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	3.0	5.0	5.0	3.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max			Max	Max	Max	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)		31.0		21.0	21.0	21.0	55.0	43.0	43.0	54.1	43.0	
Actuated g/C Ratio		0.31		0.21	0.21	0.21	0.55	0.43	0.43	0.54	0.43	
v/c Ratio		0.81		1.03	0.50	0.20	1.51	1.50	1.01	0.27	1.01	
Control Delay		38.6		147.3	40.5	36.2	277.0	257.5	76.4	12.5	55.7	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
 46: Clark Street & Polk Street

05/08/2018

Lane Group	Ø4
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 (%)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	26%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Lanes, Volumes, Timings  
46: Clark Street & Polk Street

05/08/2018

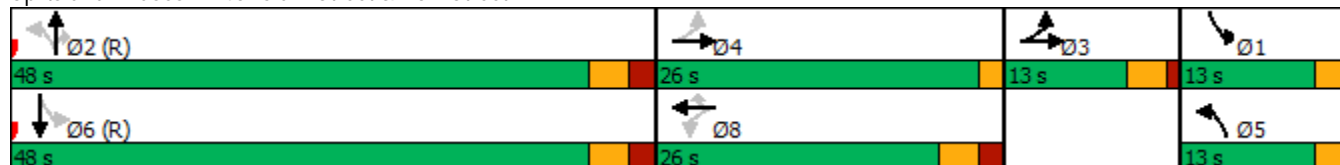


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		38.6		147.3	40.5	36.2	277.0	257.5	76.4	12.5	55.7	
LOS		D		F	D	D	F	F	E	B	E	
Approach Delay		38.6			72.7			219.5				54.0
Approach LOS		D			E			F				D
Queue Length 50th (ft)		164		-63	98	19	-257	-985	-272	15	-454	
Queue Length 95th (ft)		#333		#165	166	47	#433	#1232	#476	32	#617	
Internal Link Dist (ft)		46			592			625				99
Turn Bay Length (ft)				55		40	95			87		
Base Capacity (vph)		457		89	349	173	222	740	425	223	1352	
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		0.81		1.03	0.50	0.20	1.51	1.50	1.01	0.25	1.01	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.51  
 Intersection Signal Delay: 132.3 Intersection LOS: F  
 Intersection Capacity Utilization 121.8% 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: 46: Clark Street & Polk Street



























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Lane Group	Ø4
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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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Lanes, Volumes, Timings  
88: Roosevelt Road & State Street

05/08/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	927	623	41	1069	112	249	433	55	63	690	193
Future Volume (vph)	234	927	623	41	1069	112	249	433	55	63	690	193
Ideal Flow (vphp)	1900	2000	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	117		0	75		0	95		0	100		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	150			75			120			135		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.96		0.92	0.99		0.66	0.97	0.96		0.86	0.96	
Frt			0.850			0.850		0.983			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1593	3257	1425	1518	3288	1275	1577	2968	0	1504	2967	0
Flt Permitted	0.093			0.191			0.130			0.340		
Satd. Flow (perm)	149	3257	1313	302	3288	847	210	2968	0	463	2967	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			313			118		13			35	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		825			434			382			328	
Travel Time (s)		18.8			9.9			8.7			7.5	
Confl. Peds. (#/hr)	524		72	72		524	163		434	434		163
Confl. Bikes (#/hr)			27			21			8			15
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%	5%	2%	7%	4%	14%	3%	4%	0%	8%	2%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	246	976	656	43	1125	118	262	514	0	66	929	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	7	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	26.0	26.0	5.0	26.0	26.0	7.0	6.0		7.0	6.0	
Minimum Split (s)	8.0	47.0	47.0	8.0	44.0	44.0	10.0	37.0		10.0	37.0	
Total Split (s)	11.0	47.0	47.0	8.0	44.0	44.0	13.0	37.0		13.0	37.0	
Total Split (%)	10.5%	44.8%	44.8%	7.6%	41.9%	41.9%	12.4%	35.2%		12.4%	35.2%	
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	0.0	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	0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Max		None	C-Max	
Act Effct Green (s)	51.7	44.9	44.9	45.7	38.7	38.7	44.3	32.0		43.4	32.0	
Actuated g/C Ratio	0.49	0.43	0.43	0.44	0.37	0.37	0.42	0.30		0.41	0.30	
v/c Ratio	1.34	0.70	0.89	0.23	0.93	0.31	1.17	0.56		0.23	1.00	
Control Delay	208.6	27.4	25.5	17.0	46.0	6.5	141.9	32.7		19.0	65.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	208.6	27.4	25.5	17.0	46.0	6.5	141.9	32.7		19.0	65.7	
LOS	F	C	C	B	D	A	F	C		B	E	
Approach Delay		50.5			41.4			69.6			62.6	

Lanes, Volumes, Timings  
 88: Roosevelt Road & State Street

05/08/2018

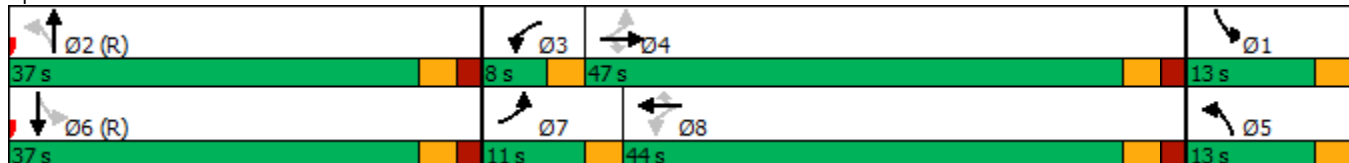


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			E			E		
Queue Length 50th (ft)	~178	195	135	14	375	0	~166	148		25	~317	
Queue Length 95th (ft)	m#233	m217	m#156	33	#511	39	#329	203		51	#463	
Internal Link Dist (ft)	745			354			302			248		
Turn Bay Length (ft)	117			75			95			100		
Base Capacity (vph)	183	1391	740	189	1221	388	223	913		293	928	
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	1.34	0.70	0.89	0.23	0.92	0.30	1.17	0.56		0.23	1.00	

Intersection Summary

Area Type: CBD  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 101 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.34  
 Intersection Signal Delay: 53.6 Intersection LOS: D  
 Intersection Capacity Utilization 106.9% 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.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 88: Roosevelt Road & State Street





Lanes, Volumes, Timings  
92: Canal Street & 18th Street

05/08/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	520	148	56	408	253	163	837	31	197	761	102
Future Volume (vph)	360	520	148	56	408	253	163	837	31	197	761	102
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	11	12	9	11	12	12	12	12	12	12	12
Storage Length (ft)	195		0	100		100	65		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			70			95			75		
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		1.00		0.96	1.00	1.00		1.00	0.99	
Frt		0.967				0.850		0.995			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1577	1750	0	1593	1914	1599	1770	3520	0	1787	3475	0
Flt Permitted	0.178			0.184			0.148			0.148		
Satd. Flow (perm)	295	1750	0	307	1914	1534	275	3520	0	278	3475	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				186		4			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		488			2655			487			3479	
Travel Time (s)		11.1			60.3			11.1			79.1	
Confl. Peds. (#/hr)	7		14	14		7	4		4	4		4
Confl. Bikes (#/hr)			12			29			2			23
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 (%)	3%	1%	0%	2%	1%	1%	2%	2%	0%	1%	1%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	689	0	58	421	261	168	895	0	203	890	0
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	7	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		7.0	7.0	7.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	9.5	30.0		30.0	30.0	30.0	9.5	30.0		9.5	30.0	
Total Split (s)	13.0	43.0		30.0	30.0	30.0	12.0	30.0		12.0	30.0	
Total Split (%)	15.3%	50.6%		35.3%	35.3%	35.3%	14.1%	35.3%		14.1%	35.3%	
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	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	0.0		0.0	0.0	
Total Lost Time (s)	3.0	5.0		5.0	5.0	5.0	3.0	5.0		3.0	5.0	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	
Act Effect Green (s)	37.9	35.9		22.9	22.9	22.9	38.1	27.1		38.1	27.1	
Actuated g/C Ratio	0.45	0.42		0.27	0.27	0.27	0.45	0.32		0.45	0.32	
v/c Ratio	1.32	0.92		0.71	0.82	0.48	0.60	0.79		0.71	0.79	
Control Delay	186.2	41.1		32.4	26.5	6.9	23.8	33.6		31.1	33.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	186.2	41.1		32.4	26.5	6.9	23.8	33.6		31.1	33.2	
LOS	F	D		C	C	A	C	C		C	C	

Lanes, Volumes, Timings  
 92: Canal Street & 18th Street

05/08/2018

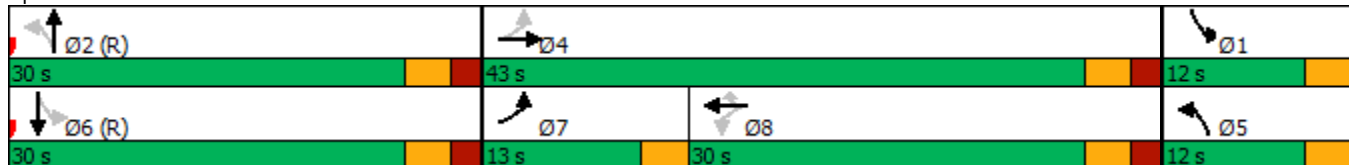


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		91.9			20.1			32.1				32.8
Approach LOS		F			C			C				C
Queue Length 50th (ft)	~195	312		30	219	39	52	235		64		231
Queue Length 95th (ft)	#366	#531		m27	m207	m35	#99	#340		#153		#335
Internal Link Dist (ft)		408			2575			407				3399
Turn Bay Length (ft)	195			100		100	65			110		
Base Capacity (vph)	282	794		90	562	582	286	1126		289		1120
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	1.32	0.87		0.64	0.75	0.45	0.59	0.79		0.70		0.79

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: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.32  
 Intersection Signal Delay: 46.1 Intersection LOS: D  
 Intersection Capacity Utilization 93.4% 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: 92: Canal Street & 18th Street



HCM 6th AWSC  
 11: 3W Access Drive/LaSalle Street & East-West Drive

05/08/2018

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	213	79	28	28	73	73	32	28	17	218	46	359
Future Vol, veh/h	213	79	28	28	73	73	32	28	17	218	46	359
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	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	224	83	29	29	77	77	34	29	18	229	48	378
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	17.2	12.1	10.7	17.5
HCM LOS	C	B	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	67%	16%	100%	0%
Vol Thru, %	0%	62%	25%	42%	0%	11%
Vol Right, %	0%	38%	9%	42%	0%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	32	45	320	174	218	405
LT Vol	32	0	213	28	218	0
Through Vol	0	28	79	73	0	46
RT Vol	0	17	28	73	0	359
Lane Flow Rate	34	47	337	183	229	426
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.073	0.092	0.573	0.314	0.432	0.667
Departure Headway (Hd)	7.773	6.987	6.122	6.166	6.771	5.63
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	463	516	586	579	530	639
Service Time	5.473	4.687	4.197	4.255	4.541	3.399
HCM Lane V/C Ratio	0.073	0.091	0.575	0.316	0.432	0.667
HCM Control Delay	11.1	10.4	17.2	12.1	14.6	19.1
HCM Lane LOS	B	B	C	B	B	C
HCM 95th-tile Q	0.2	0.3	3.6	1.3	2.2	5

**Intersection**

Int Delay, s/veh 1.1

**Movement** EBL EBR NBL NBT SBT SBR

Lane Configurations	↘	↗	↘	↑↑	↑↑	
Traffic Vol, veh/h	31	14	21	1079	1556	46
Future Vol, veh/h	31	14	21	1079	1556	46
Conflicting Peds, #/hr	50	50	100	0	0	100
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	100	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	33	15	22	1136	1638	48

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	2424	993	1786	0	-	0
Stage 1	1762	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 27	248	352	-	-	-
Stage 1	126	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 21	214	318	-	-	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	106	-	-	-	-	-
Stage 2	434	-	-	-	-	-

**Approach** EB NB SB

HCM Control Delay, s 57.3 0.3 0  
HCM LOS F

**Minor Lane/Major Mvmt** NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h)	318	-	84	214	-	-
HCM Lane V/C Ratio	0.07	-	0.388	0.069	-	-
HCM Control Delay (s)	17.2	-	72.8	23.1	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.5	0.2	-	-

**Notes**

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

HCM 6th TWSC  
 34: Wentworth/Wells & 3W Access

05/08/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↘			↑
Traffic Vol, veh/h	0	9	484	38	0	628
Future Vol, veh/h	0	9	484	38	0	628
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	0	9	509	40	0	661

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	529	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-
Pot Cap-1 Maneuver	0	554	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	554	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	554
HCM Lane V/C Ratio	-	-	0.017
HCM Control Delay (s)	-	-	11.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1