

our people and our passion in every project

**PORT OF ROCHESTER  
TRAFFIC AND PARKING ANALYSIS**



**CITY OF ROCHESTER**  
Port of Rochester Marina Redevelopment / December 2010



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## **I. Executive Summary**

### **A. Introduction**

The purpose of the traffic and parking analysis is to document existing conditions, estimated future conditions and the expected impacts of the proposed redevelopment. The analysis was completed for peak summer season Friday and Saturday periods. The report also addresses Port and Beach Special Events.

The traffic study area includes Lake Avenue between Beach Avenue and the Lake Ontario State Parkway (LOSP), Corrigan Street, Portside Drive, North River Street (north of Portside Drive), River Street Extension from south of Portside Drive to River Street, River Street from River Street Extension to Latta Road, Latta Road between Lake Avenue and River Street, and LOSP at Lake Avenue.

The analysis of traffic impacts is based on

- 1) data collection including July 2007 intersection counts and an update based on July 2010 machine counts,
- 2) the redevelopment concept plan for the Port of Rochester (Appendix A),
- 3) meetings with the City of Rochester, Rochester Genesee Regional Transportation Authority (RGRTA), Monroe County and Ferry Terminal Managers and
- 4) a review of the Port of Rochester SEIS Traffic and Parking Analysis – Traffic Study – Traffic Generation and Distribution dated August 17, 2009 by the City of Rochester and Monroe County Department of Transportation.

### **B. Existing Traffic**

The July 2007 traffic counts indicate that the overall study area peak hours occurred between 6:30 and 7:30 p.m. on Friday and between 3:30 and 4:30 p.m. on Saturday. The port area (the 4 intersections on Corrigan Street and Portside Drive) peaked between 8:30 and 9:30 p.m. on Friday. Therefore these four intersections were evaluated during this Friday peak hour as well as during the 6:30 to 7:30 p.m. hour.

Study area intersections included:

1. Lake Avenue at Corrigan Street
2. Corrigan Street at North River Street
3. Lake Avenue at Portside Drive
4. Portside Drive at North River Street / River Street Extension
5. Lake Avenue at Latta Road
6. Latta Road at River Street
7. Lake Avenue at the Lake Ontario State Parkway (LOSP)

Traffic counts were conducted in July 2010 for the City of Rochester by the Monroe County Department of Transportation to update the July 2007 counts. The 2010 counts were 24-hour machine counts performed at six locations from Friday July 16th to Sunday July 25th:

1. Beach Avenue, west of Lake Avenue
2. Estes Street, south of Beach Avenue
3. Corrigan Street, east of Lake Avenue
4. North River Street, north of Portside Drive
5. Lake Avenue, south of Lakeland Avenue
6. River Street Extension, north of Latta Road.

The 2010 counts were used to adjust the intersection turn volumes either up or down based on the difference and then the traffic analysis was updated accordingly. The impact on intersection levels of service was acceptable with reserve capacity available to accommodate new Port traffic.

The existing traffic operations during the peak hours at the study intersections range from LOS A to C for all individual traffic movements according to Synchro except at the intersection of Lake Avenue with the Lake Ontario State Parkway (LOSP). The Level of Service (LOS) ranges from A to E for individual movements at this intersection. The Lake Avenue approach lanes at this intersection operate at LOS B or C during the peak hours and the LOSP approach lanes operate at LOS C, D or E.

### **C. 2020 No Build Traffic**

Growth of background traffic between 2010 and 2020 is expected to impact levels of service and vehicle delay to a small degree. Projected 2020 no build LOS is very similar to 2010 existing LOS at the study intersections.

### **D. 2020 Full Build Traffic**

The number of new trips on the roadway system generated by new development at the Port is projected to be 552, 218 and 562 during the Friday 6:30-7:30 p.m. peak, the Friday 8:30-9:30 p.m. peak and the Saturday 3:30-4:30 p.m. respectively. Table 2 contains a summary of the projected trip generation of the new development at the Port of Rochester.

The percentage of new traffic traveling on Lake Avenue south of the port is 90%. The other 10% is expected to mainly use Lake Avenue and Beach Avenue with very minor volume on Corrigan Street to the west. The trips shown to use Corrigan Street are expected beach goers traveling to overflow parking lots on Estes Street.

Latta Road west of Lake Avenue is expected to carry 5% of the new traffic, 20% on the Lake Ontario State Parkway west of Lake Avenue, 30% on the Lake Ontario State Parkway east of Lake Avenue and the remaining 35% on Lake Avenue south of the Lake Ontario State Parkway.

Two 2020 Full Build alternatives were evaluated as listed below:

- A. The **2020 Full Build traffic operations without North River Street** during the peak hours at the subject intersections are projected to operate at LOS D or better for all traffic movements according to Synchro except at four intersections: Corrigan Street with North River Street and Lake Avenue at 1) Corrigan Street, 2) Portside Drive and 3) the LOSP. The LOS is projected to range from A to E for movements at the Corrigan/North River intersection and from A to F for movements at the three Lake Avenue intersections. A traffic circulation plan without North River Street does not provide an alternate means of access for emergency vehicles.
- B. The **2020 Full Build traffic operations with North River Street** during the peak hours at the subject intersections are projected to operate at LOS D or better for all traffic movements according to Synchro except at two intersections on Lake Avenue: at Corrigan Street and at the LOSP. The LOS is projected to range from A to E for movements at the Corrigan Street intersection and from A to F at the LOSP intersection. Operations at the Lake/Corrigan intersection are expected to be acceptable with one movement at E because it is only 1.1 seconds above the LOS D range and the overall westbound approach is project to operate at LOS D.

The intersection of Corrigan Street with North River Street will operate well at LOS C or better for each lane, with one lane in each direction, stop signs on all four approaches and the North River Street connector in place.

Corrigan Street and Portside Drive provide access between Lake Avenue and the new Port development. North River Street is an important connector for circulation of traffic and as an emergency access. The recommendation is to retain and realign the North River Street connection between Corrigan Street and Portside Drive to accommodate 1) new development including the new marina basin and 2) Full Build vehicle queues on Corrigan Street and Portside Drive. This circulation plan provides an alternative access route for emergency vehicles as well as additional capacity and circulation for the overall plan.

Timing adjustments are recommended for the intersection of Lake Avenue with the Lake Ontario State Parkway. The intersection of Lake Avenue with the LOSP is projected to operate the same with or without the North River Street connection. Traffic operations at this intersection can be improved with signal timing adjustments according to Synchro. The signal timing adjustments include:

- Friday 6:30-7:30 p.m. peak hour
  - Take 1 second away from the northbound through phase and give this time to the westbound left turn phase.
  - Take 1 second away from the southbound through phase, take 2 seconds away from the westbound through phase and give 3 seconds of time to the eastbound left turn phase.
- Saturday 3:30-4:30 p.m. peak hour
  - Take 3 seconds away from the northbound through phase and give this time to the eastbound through phase.
  - Take 3 seconds away from the southbound through phase, 2 seconds away from the westbound through phase and give 5 seconds of time to the eastbound left turn phase.

## E. Existing Parking

The purpose of the parking analysis is to document the existing conditions, the estimated future conditions and the expected impacts of the proposed redevelopment. The analysis was completed for peak parking periods during the summer season Friday and Saturday. The study also addresses Port and Beach Special Events.

The parking area occupancies at the Port of Rochester / Charlotte Beach Area were documented Friday July 20 between the hours of 6:30-9:30PM, and Saturday July 21, 2007 from 2:00-5:00PM. The number of parked vehicles was documented in each parking area once every half hour for each three hour study period. The capacity (marked or striped parking spaces) of each parking area was documented. Each parking area was designated with a specific number for data recording purposes.

The results indicate the highest parking demand on Friday nights occurs in areas 4, 7 and 12, where area 4 is a lot located immediately south of Beach Avenue with access to Estes Street, area 7 is designated as the on-street parking on Lake Avenue between Corrigan Street and Portside Drive and area 12 is the unpaved lot immediately east of Lake Avenue north of Portside Drive. Parking Areas 4, 7 and 12 are utilized on Friday nights mainly due to the restaurants along the west side of Lake Avenue.

The greatest demand for parking during Saturday occurs in parking areas 1, 2, 3, 4, and 6 that provide the closest beach front parking. Areas 1, 2 and 3 are lots nearest the beach located east of Lake Avenue; area 4 is a lot located immediately south of Beach Avenue and west of Lake Avenue with access to Estes Street and area 6 is the on-street parking on Lake Avenue north of Corrigan Street.

## F. 2020 Build Parking

The redevelopment plan was reviewed and overlaid onto existing conditions to determine which existing parking areas will be impacted or eliminated by the proposed development parcels.

A net total of 452 existing spaces will be eliminated as a result of Phase I development. This includes an addition of 75 spaces along River Street Extension south of Portside Drive.

A total of 671 existing spaces will be eliminated as a result of the Full development, 452 in Phase I development and an additional 219 spaces from the main beach parking areas (#2 and 3) in Phase II development.

The summary of total parking net reductions by development phase is as follows:

<u>Phase I:</u>	452 spaces
<u>Phase II:</u>	219 spaces
<u>Total - Full Build:</u>	671 spaces

The northeast beach parking area (#1) will be reconstructed and reduced in size from 76 spaces to 50 spaces. It will be referred to as parking area C for "Carousel". Area C will remain public parking. Parking area 13 located between area C and the Terminal building will also be reconstructed. It will be referred to as parking area T for "Terminal" and it is assumed to be



restricted to Terminal parking. Parking area 8 represents parking along North River Street and will be reduced from 30 to 15 spaces when reconstructed in its proposed new alignment.

The Roger Robach Community Center (180 Beach Avenue) has been renovated and is available to rent for events such as local meetings, picnics, parties and weddings. As a conservative number, 150 parking spaces are assumed as the maximum required spaces when the center is reserved during peak summer time periods.

Any number of factors could mean the difference between a parking deficit and a parking shortage: size of the Robach Center event, number of beach goers who choose to take the transit bus in lieu of driving, etc. A 100 space credit is assumed to account for the average summer time multi-use peaking and mixed-use sharing.

The Port area, exclusive of the new development, is expected to experience parking surpluses/deficits as shown in the tables below, based on the following assumptions:

- The new port developments will provide parking for their needs only,
- 34 spaces are provided in the Estes Street parking lot (paved area only),
- 75 spaces will be provided on River Street Extension as part of Phase I, south of Portside Drive,
- A 150 parking space maximum is required for the Robach Community Center when reserved,
- A 100 space credit is assumed to account for overall multi-use peaking / mixed-use sharing,
- The boat launch parking area and the Monroe County maintenance building will be relocated as part of Full Build-out (for Parcels II and III), and therefore are not included under parking needs.

### PARKING IMPACTS - PHASE I

<i><b>Port Area, Exclusive of New Development</b></i>	<i><b>Friday Peak</b></i>	<i><b>Saturday Peak</b></i>
Parking Needs	710	786
Capacity	735	735
<b>Parking surplus/deficit</b>	<b>+25</b>	<b>(51)</b>

### PARKING IMPACTS - FULL DEVELOPMENT

<i><b>Port Area, Exclusive of New Development</b></i>	<i><b>Friday Peak</b></i>	<i><b>Saturday Peak</b></i>
Parking Needs	710	786
Capacity	516	516
<b>Parking deficit</b>	<b>(194)</b>	<b>(270)</b>

It's important to understand that this is an estimate at this early stage of planning because any number of factors could affect parking availability:

1. size of the Robach Center event, if any,
2. potential increase to additional parking along the proposed River Street Extension,
3. number of beach goers who choose to take the transit bus in lieu of driving,
4. number of on-site residents that walk to the restaurants located in the Terminal Building, etc.

#### New Development Parking

The exact number and location of proposed parking spaces for each new development parcel is not known at this stage of planning. The estimate is as follows:

- Parcel 'I-N' = 86 vehicle parking spaces,
- Parcel 'I-S' = 86 vehicle parking spaces,
- Parcel 'II' = 168 vehicle parking spaces,
- Parcel 'III' = 160 vehicle parking spaces,
- Parcel 'IV-W' = 180 vehicle parking spaces,
- Parcel 'IV-E' = 180 vehicle parking spaces,
- The Terminal including Parcel 'T' = 200 vehicle parking spaces,
- Total = 1060 vehicle parking spaces.

The redevelopment plan shows 200 parking spaces for the Terminal Building and Marina (150 spaces in parking area T and 50 in the lot immediately south). The 200 spaces will be restricted to Terminal building needs. The conservative assumption is that all 1,060 spaces are to be utilized by only the new development and the Terminal building with no surplus available for outside needs such as for the beach and Wednesday night concerts.

An estimate of parking needs for the proposed redevelopment plan was prepared based on the following sources: the Institute of Transportation Engineers (ITE) Parking Generation, 3rd Edition, the City of Rochester Zoning Code, Section 120-173 Off-Street Parking and recent meetings with the Terminal business manager.

The estimated new development parking requirements are:

<u>Phase I:</u>	416 spaces
<u>Full Build:</u>	1,095 spaces.

The peak new development demand of 1095 spaces is a reasonable Full Build estimate based on the expected parking with the credit for multi-use peaking and mixed-use sharing. For example new local residents of the Port will also patron Pier 45 and other Terminal businesses, requiring no additional parking. The parking demand for the terminal building of 266 is not likely to occur because all businesses would be operating at peak conditions at the same time.

#### Summary

The overall summary for the entire Port area is shown below; where the new development totals are also shown separate from the remaining Port area.

**PARKING SUMMARY FOR FULL PORT DEVELOPMENT**

<b>NEW DEVELOPMENT</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Generation Estimate	1,095	1,095
Proposed Parking Spaces	1,060	1,060
<b>Parking Deficit</b>	<b>(35)</b>	<b>(35)</b>

<b>Port Area, Exclusive of New Development</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Parking Needs	710	786
Capacity	516	516
<b>Parking Deficit</b>	<b>(194)</b>	<b>(270)</b>

<b>TOTAL PORT AREA</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Parking Needs	1,805	1,881
Capacity	1,576	1,576
<b>Overall Parking Deficit</b>	<b>(229)</b>	<b>(305)</b>

The new development parking deficit is expected to be 35 spaces when they are fully built and fully occupied. Some shortage is expected for very short durations, but this is expected to be a seldom occurrence.

The Port area, exclusive of the new development is expected to experience a parking deficit of 200-270 spaces on a typical summertime Friday evening or Saturday afternoon. This is an estimate at this early stage of planning because any number of factors could mean the difference between a parking deficit and a parking shortage: size of the Robach Center event, number of beach goers who choose to take the transit bus in lieu of driving, etc.

**G. Port and Beach Special Events**

Special events in the port and beach area can be broken into two categories Level 1 and Level 2. Level 1 events draw up to 4,000 people and 1700 vehicles and Level 2 events would draw in excess of 4,000 people. It is anticipated that Level 1 events can be managed using the existing street system patterns as described below. Level 2 events will require close traffic management

with possible street closings and the use of frequent bus transit to move visitors in to and out of the Port and beach area.

## Level 1 Events – Up to 4,000 People or 1,700 Vehicles

Development in the Port area along with the special events that take place often attract many visitors to the Port Area. When parking in the area reaches capacity, traffic congestion occurs and visitors are diverted to remote parking areas. As development in the Port area continues, the need for more remote parking and frequent transit buses operating on established routes with direct service to the port will increase.

In order to facilitate the flow of traffic and give notice to approaching visitors that the Port area may be congested, it is recommended that traffic management plans be developed incorporating the use of additional Intelligent Transportation System (ITS) Tools and Technologies be implemented. Tools such as fixed and portable Dynamic Message Signs (DMS), Highway Advisory Radio (HAR) plus additional CCTV systems will help to manage parking and traffic flow and provide the advance notice to make the trip easier for visitors. When the parking lots in the immediate port area become 85% occupied the messages displayed on the DMS will direct motorists to lot 5 as well as remote lots on Dewey Avenue and perhaps Ling road.

Fixed or portable DMS can also be utilized to improve traffic flow for traffic exiting the Port after summer beach events.

The CCTV systems can be easily installed in the Port Area. The installation of advance DMS signs on Lake Ontario State Parkway, Lake Avenue and Pattonwood Drive will provide the information necessary to guide visitors to the remote parking areas and to manage the Port Area traffic flow.

The Port of Rochester and the surrounding street network can benefit from the installation of additional ITS Tools and Technologies. Currently the Monroe County Department of Transportation operates and maintains a coordinated signal system on Lake Avenue in the Charlotte area. Also, the County operates and maintains closed circuit TV (CCTV) cameras at the intersections of 1) Lake Avenue and the Lake Ontario State Parkway/ Pattonwood Drive and 2) Pattonwood Drive and Thomas Avenue. These cameras are used to monitor traffic flow in the corridor and the O'Rorke lift bridge. The cameras are monitored both at the Regional Traffic Operations Center (RTOC) located on Scottsville Road and at the O'Rorke bridge during times that the bridge is staffed.

Early this year the County implemented a special timing plan for times when the O'Rorke Bridge is up to help prevent gridlock at the Lake/LOSP intersection. A system is in place to detect queuing of eastbound traffic due to the bridge and stop the following movements at the Lake/LOSP intersection: eastbound through and southbound left turn.

A key operational component of this plan will be to coordinate forces from the Police agencies, City Port and Special events staff, County DOT and Parks and NYSDOT to plan for and manage traffic and parking during events. This coordination can be implemented with the issuance of event permits and monitored as events occur with debriefs to improve this operation.

### Off-Site Parking Area Alternatives

The Port redevelopment plan will require the use of remote parking areas with bus service to the immediate port and beach area especially during events. An analysis of possible locations is presented below.

The proposed Port redevelopment plan includes layout of a street pattern and proposed land use development. One aspect of the Plan is limited provision of parking for current beach activities that occur during the summer season. Some provision of parking is identified in the plan in area 5 adjacent to Beach Avenue.

Peak parking demand for Wednesday concert activities was determined to be approximately 1,700 spaces excluding the new Port development, a Level 1 event. During weekend activities the peak demand (excluding the new development which will have its own on-site parking) is approximately 786 spaces. The number of spaces available to meet this demand for the Phase I condition is 735 and for the Full Build condition is 516. The difference in parking capacity is the 219 spaces removed from beach parking areas 2 and 3 in the Full Build condition for development parcels IV-W and IV-E.

In the past arrangements have been made to use the soccer fields located to the west of Estes Street for overflow parking during Wednesday night concerts. If this practice continues it will reduce the Wednesday night deficits by approximately 330 spaces.

The peak demands for parking compared to spaces provided for beach activities in the Port redevelopment plan reveals a short-fall. The approximate deficit of spaces between the plan and expected peak usage is as follows:

#### Phase I

Wednesday Night = 600-700 space deficit\*

Weekend Day = 50 space deficit.

\* = Wednesday Night includes use of Estes Street soccer fields.

#### Full Build

Wednesday Night = 800-900 space deficit\*

Weekend Day = 270 space deficit.

\* = Wednesday Night includes use of Estes Street soccer fields.

Alternative port off-site locations are described next as potential locations to provide spaces to meet the parking demand. The off-site parking locations are identified to be 1) within close proximity of the railroad corridor, which could be used as a direct corridor into the port area if the tracks are abandoned and 2) the former site on Dewey Avenue.

Two locations were identified as potential off-site parking sites. Aspects of each site are described next that include pros and cons. The estimated number of spaces each can provide, distance to the port area, and associated costs are provided. Cost of providing each alternative parking site is estimated based on generic unit costs for the Rochester area and assumed level of construction for each site.

Site A

Site A is the remote off-site parking area utilized in the past, located on Dewey Avenue. Grass areas north and south of the existing driveway access provide parking accommodations. Approximately 350 spaces collectively could be accommodated on both grass-areas adjacent to Dewey Avenue.

The distance between this site and the Port is approximately 3.0 miles. The distance is based on using Dewey Avenue, Lake Ontario State Parkway, and Lake Avenue.

Site B

Site B is adjacent to Ling Road near Greenleaf Road. The site was a former drive-in theater, presently abandoned. A driveway from the site to Ling Road provides access to the highway system. Approximately 1,200 spaces could be provided at this site.

The distance between this site and the Port is approximately 1.8 miles using the corridor of Ling Road, Greenleaf Road, Beach Avenue and Lake Avenue. The distance is greater using Ling Road, Greenleaf Road, Lake Ontario State Parkway, and Lake Avenue. It is approximately 2.5 miles.

**OFF-SITE PARKING LOCATION PROS & CONS SUMMARY**

SITE	PROS	CONS
<b>A</b>	<ol style="list-style-type: none"> <li>1) Good connectivity and access to existing roads.</li> <li>2) Minimal cost to implement: approximately \$20,000.</li> </ol>	<ol style="list-style-type: none"> <li>1) Greatest distance to Port of all sites: approximately 3.0 miles</li> <li>2) Does not provide all Level 1 parking needs for Wednesday nights – 635 more spaces are required for Phase I and 855 more are required for Full Build.</li> </ol>
<b>B</b>	<ol style="list-style-type: none"> <li>1) Good connectivity and access to existing roads</li> <li>2) Provides all Level 1 parking needs.</li> <li>3) Distance between site and Port is less than for Site A: approximately 1.8 miles.</li> <li>4) The location has potential access to the railroad corridor.</li> </ol>	<ol style="list-style-type: none"> <li>1) Cost without asphalt concrete parking surface and security fencing is estimated to be \$600,000</li> <li>2) Cost with asphalt concrete parking surface and without security fencing is estimated to be \$2,000,000.</li> <li>3) Cost with asphalt concrete parking surface and security fencing is estimated to be \$2,160,000.</li> </ol>

### Level 2 Events – More than 4,000 People

Events such as Harborfest will be categorized as Level 2 events and will require special traffic and parking management plans.

All events begin with a Permitting process initiated through the Monroe County Parks Department. Upon receipt of the request the parks department coordinates with the involved agencies through the City of Rochester Special Events office. Coordination involves establishment of traffic and parking needs and traffic and parking management plans. Important to the successful operation of the events is the early identification of the event commander. The commander is then responsible for bringing together the involved agencies and development of the management plans.

During the days that the events are running it is important that the event commander and respective staff be on site to monitor operations and to institute changes to the management plans as necessary.

The use of additional Intelligent Transportation System (ITS) Tools and Technologies should be implemented. Tools such as fixed and portable Dynamic Message Signs (DMS), Highway Advisory Radio (HAR) plus additional CCTV systems will help to manage parking and traffic flow and provide the advance notice to motorists and transit users of traffic restrictions, parking availability and real time transit schedules. The City of Rochester currently has a project underway that will identify the devices which will provide best value for managing events at the port. The Monroe County Department of Transportation operates and maintains a coordinated signal system on Lake Avenue in the Charlotte area. Also, the County operates and maintains closed circuit TV (CCTV) cameras at the intersections of 1) Lake Avenue and the Lake Ontario State Parkway/ Pattonwood Drive and 2) Pattonwood Drive and Thomas Avenue. These cameras are used to monitor traffic flow in the corridor and the O’Rorke lift bridge. Special traffic signal timing patterns can be established to handle event traffic to minimize congestion and maintain traffic, pedestrian and transit flow.

## **II. Recommendations**

### **A. Traffic**

- Corrigan Street and Portside Drive provide access between Lake Avenue and the new Port development. North River Street is an important connector for circulation of traffic and as an emergency access. River Street Extension will connect North River Street to River Street providing a third signalized exit from the area with the signalized access to Lake Avenue at Latta Road. The recommendation is to retain and realign the North River Street connection between Corrigan Street and Portside Drive to accommodate 1) new development including the new marina basin and 2) Full Build vehicle queues on Corrigan Street and Portside Drive.
- North River Street is needed based on results of the traffic analysis and recent field investigations. It was determined that North River Street should be no closer than 250

feet from the east curb line of Lake Avenue along Corrigan Street and along Portside Drive no closer than 150 feet. When traffic is congested on the Corrigan Street exit from the Port area, the North River Street connector can be utilized to access the Portside Drive and Latta Road signals to Lake Avenue.

- Adjust signal timings at the intersection of Lave Avenue with the Lake Ontario State Parkway.

## **B. Parking and Special Events**

- Develop traffic and parking management plans which utilize Intelligent Transportation Systems (ITS) to manage parking and traffic, alerting incoming traffic to parking availability with changeable message (digital) signs.
- Coordinate with RGRTA to increase service to the Port area including to/from remote lots by increasing the frequency of buses during peak summer times: Friday evenings, weekend days, Wednesday night Beach Concerts and other special events.
- Supplement parking needs by continuing to reach seasonal agreements to utilize the off-site parking area on Dewey Avenue (Site A) and investigate the feasibility of utilizing the Ling Road parking area (Site B).



### **III. Purpose and Scope**

The purpose of this report is to present the traffic and parking analysis performed for the Port of Rochester Marina. The analysis will 1) document the existing traffic and parking conditions of the Port of Rochester Marina study area 2) evaluate the estimated future traffic and parking conditions and 3) study the impacts as a result of the proposed redevelopment.

The study area includes Lake Avenue between Beach Avenue and the Lake Ontario State Parkway (LOSP), Corrigan Street, Portside Drive, North River Street (north of Portside Drive), River Street Extension from south of Portside Drive to River Street, River Street from River Street Extension to Latta Road, Latta Road between Lake Avenue and River Street and LOSP at Lake Avenue. The front cover shows the aerial view looking northwest and down toward the port area. The port area is generally considered the area bounded by Lake Avenue (to the west), the Genesee River (to the east), the Ontario Beach Park (to the north) and the railroad line (to the south).

The analysis of traffic and parking impacts is based on 1) data collection including July 2007 intersection counts and parking occupancy data, 2) the City of Rochester Redevelopment Plan for the Port of Rochester / Charlotte Beach Area (Appendix A), 3) meetings with the City of Rochester, Rochester Genesee Regional Transportation Authority (RGRTA), Monroe County Parks Department and Ferry Terminal Managers and 4) a review of the Port of Rochester SEIS Traffic and Parking Analysis – Traffic Study – Traffic Generation and Distribution dated August 17, 2009 by the City of Rochester and Monroe County Department of Transportation. A regional project location map is shown in Figure 1 on the next page. Figure 2 - site location map is shown on the following page.

# Port of Rochester Traffic and Parking Analysis

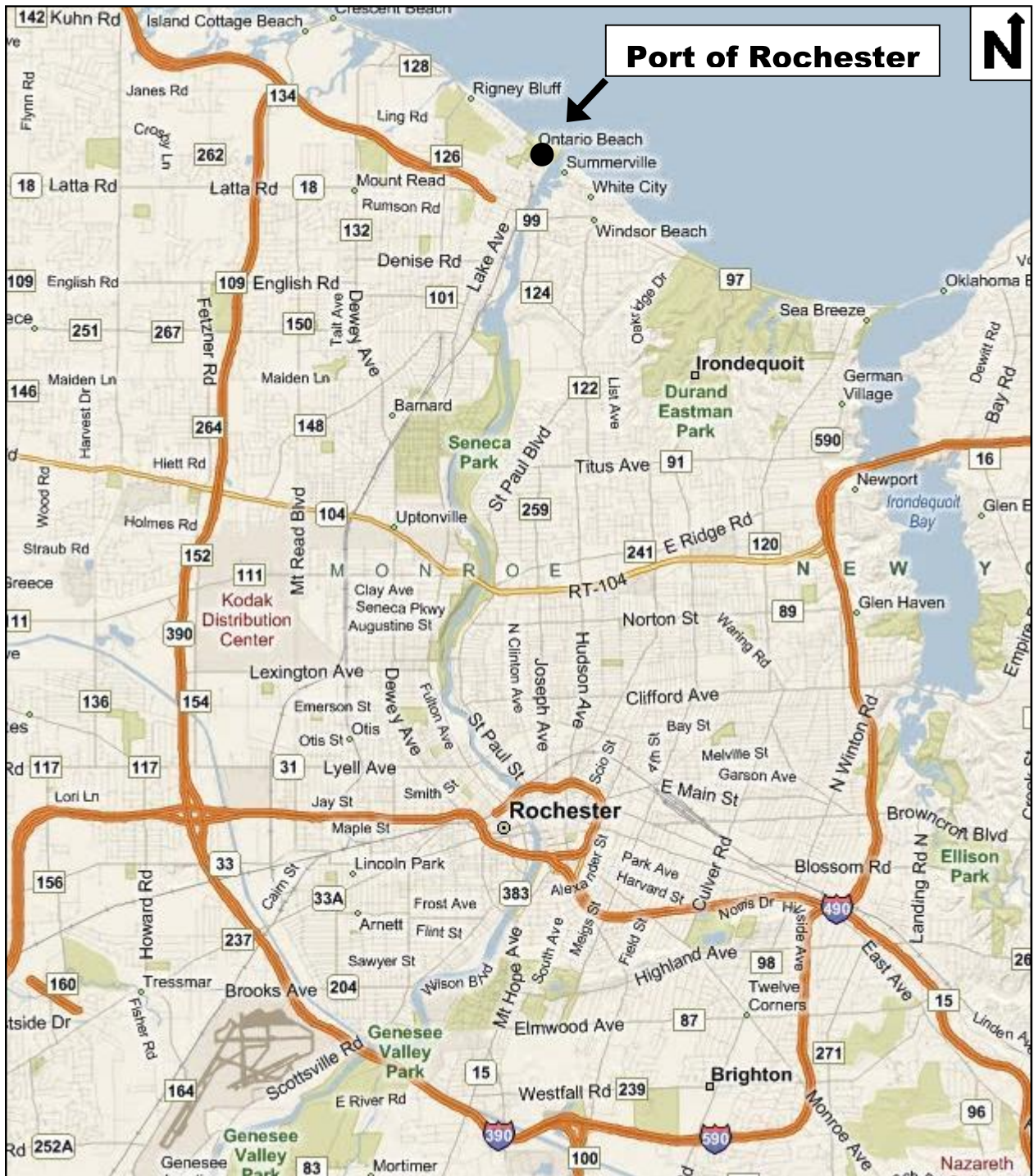


Figure 1 - Regional Location Map



Figure 2 - Site Location Map

**The following systematic procedure was used for the analysis:**

1. Use the 2007 turning movement traffic counts obtained at the following intersections (denoted with a star in Figure 1 - Location Map):
  - Lake Avenue at Corrigan Street
  - Corrigan Street at North River Street
  - Lake Avenue at Portside Drive
  - Portside Drive at North River Street / River Street Extension
  - Lake Avenue at Latta Road
  - Latta Road at River Street
  - Lake Avenue at the Lake Ontario State Parkway (LOSP)
2. Determine the 2010 and 2020 background traffic volumes (Appendix B and C).
3. Determine the trip generation for the Port of Rochester development including any shared-use and/or other trip credits (Table 3 and Appendix D).
4. Determine the distribution of trips on the roadway system for two scenarios: with and without the North River Street connection between Corrigan Street and Portside Drive (Figure 3 and Appendix E).
5. Assign trips to roadway system for the two scenarios: with and without North River Street (Figures 4, 5 and 6 and Appendix E and F).
6. Redistribute 2020 No Build traffic for the scenario without the North River Street connection between Corrigan Street and Portside Drive (Appendix F).
7. Project traffic without (no build condition) and with (build condition) Port of Rochester new development traffic at the subject intersections (Appendix F and G):
8. Use Synchro and SimTraffic Version 7.0 to evaluate the North River Street connector. Evaluate traffic operations at the subject intersections under:
  - Existing conditions (Appendix H)
  - No Build conditions (Appendix I)
  - Build conditions without the North River Street connector (Appendix J)
  - Build conditions with the North River Street connector (Appendix K)

## **IV. Existing Roadway System**

### **Lake Avenue at Corrigan Street**

Lake Avenue provides one travel lane for northbound traffic and one for southbound traffic. A southbound left turn lane on Lake Avenue is also provided. Corrigan Street provides one lane for eastbound and one lane for westbound traffic. An 80 foot long westbound right turn lane is also provided. Street parking is provided from the end of the turn lane to North River Street. This

intersection is controlled by a two phase traffic signal that is part of the coordinated signal system on Lake Avenue.

### **Corrigan Street at North River Street**

Corrigan Street provides two-way traffic flow west of North River Street with one travel lane for eastbound traffic and one for westbound traffic. East of North River Street it is one-way westbound with one shared thru/right lane and one left turn lane. North River Street provides one lane for northbound and one lane for southbound traffic. Street parking is provided on both sides of the street from the end of the right turn lane at Lake Avenue to the Terminal Building Access Road. The intersection of Corrigan Street with North River Street is a four-way stop controlled intersection.

### **Lake Avenue at Portside Drive**

Lake Avenue provides one travel lane for northbound traffic and one for southbound traffic. A 175 foot long southbound left turn lane and an approximately 600 foot long northbound right turn lane are also provided on Lake Avenue at Portside Drive. Portside Drive intersects Lake Avenue from the east. This is a “T” intersection. Portside Drive provides one lane for eastbound and one lane for westbound traffic with some parking provided on the north side of the street. This intersection is controlled by a three phase traffic signal that is part of the coordinated signal system on Lake Avenue.

### **Portside Drive at North River Street / River Street Extension**

Portside Drive provides two-way traffic flow west of North River Street with one travel lane for eastbound traffic and one for westbound traffic. North River Street provides one lane for northbound and one lane for southbound traffic. This intersection is an all-way stop controlled intersection.

### **Lake Avenue at Latta Road**

Lake Avenue provides two travel lanes for northbound traffic and two for southbound traffic. Parking is provided on both sides of Lake Avenue north of Latta Road and on the west side south of Latta Road. Latta Road intersects Lake Avenue from the east and west. This is a four leg intersection. Latta Road provides one lane for eastbound and one lane for westbound traffic. An approximately 300 foot long westbound left turn lane is also provided on Latta Road. This intersection is controlled by a two phase traffic signal that is part of the coordinated signal system on Lake Avenue.

### **Latta Road at River Street**

Latta Road provides two-way traffic flow west of River Street with one travel lane for eastbound traffic and one for westbound traffic. Latta Road intersects River Street from the west. This is a “T” intersection. Parking is provided on both sides of Latta Road. North of Latta Road, River Street provides one lane for northbound and one lane for southbound traffic. South of Latta Road, River Street is one-way northbound. This intersection is an all-way stop controlled intersection.

### **Lake Avenue at Lake Ontario State Parkway**

Each of the four legs of this intersection are five lanes wide, providing two travel lanes in each direction and one left turn lane. An eastbound right turn lane is also provided. Parking is not provided. This intersection is controlled by a multi-phase traffic signal that is part of the coordinated signal system on Lake Avenue and Pattonwood Drive. Left turn arrows are provided on all four legs.

## **V. Existing Traffic Conditions**

### **A. Existing and Background Traffic Volumes**

Manual turning movement counts were conducted in July 2007 at the seven intersections listed below. Figure 2 depicts the location of the intersections.

1. Lake Avenue at Corrigan Street
2. Corrigan Street at North River Street
3. Lake Avenue at Portside Drive
4. Portside Drive at North River Street / River Street Extension
5. Lake Avenue at Latta Road
6. Latta Road at River Street
7. Lake Avenue at the Lake Ontario State Parkway (LOSP)

The July 2007 traffic counts indicate that the overall study area peak hours occurred between 6:30 and 7:30 p.m. on Friday and between 3:30 and 4:30 p.m. on Saturday. The port area (the 4 intersections on Corrigan Street and Portside Drive) peaked between 8:30 and 9:30 p.m. on Friday. Therefore these four intersections were evaluated during this Friday peak hour as well as during the 6:30 to 7:30 p.m. hour. Appendix B contains the 2010 Existing intersection turning movements based on an annual growth rate of 0.5%, compounded. This growth rate was used for projecting traffic because it represents expectations for this area: little development or growth other than the new development within the Port area.

Traffic counts were conducted in July 2010 for the City of Rochester by the Monroe County Department of Transportation to update the July 2007 counts. The 2010 counts were 24-hour machine counts performed at six locations from Friday July 16th to Sunday July 25th. See the 2010 counts figure in Appendix B for the count locations:

1. Beach Avenue, west of Lake Avenue
2. Estes Street, south of Beach Avenue
3. Corrigan Street, east of Lake Avenue
4. North River Street, north of Portside Drive
5. Lake Avenue, south of Lakeland Avenue
6. River Street Extension, north of Latta Road.

The 2010 counts were used to adjust the intersection turn volumes either up or down based on the difference and then the traffic analysis was updated accordingly. Appendix F contains intersection turning movement volume tables that show the turn volume adjustments. The

impact on intersection levels of service was acceptable with reserve capacity available to accommodate new Port traffic.

## **B. Existing Levels of Service**

Level of Service (LOS) analysis is a means of determining the ability of an intersection to accommodate traffic volumes. The analysis is based on intersection street geometrics, traffic controls and traffic maneuvers. The analysis produces an indication of the Level of Service at which an intersection is functioning or is expected to function for future conditions.

The Level of Service procedures are provided in the Highway Capacity Manual (HCM) published by the Transportation Research Board, 2000. Version 7.0 of Synchro was utilized to determine the LOS for the subject intersections. Synchro implements the methods of the HCM for signalized and unsignalized intersection analyses. Analysis of intersection operations using SimTraffic was also performed. SimTraffic offers a microscopic simulation of traffic flow considering interaction between driver and vehicle characteristics, geometry, and traffic control. Analysis using SimTraffic offers a method of assessing vehicle delay at stop sign controlled approaches where a nearby traffic signal affects gaps in traffic.

Level of Service is defined by letter characters that range from A to F, with A representing the best traffic operating conditions that have little or no delay and F characterizing the worst conditions that have significant delay. LOS A through D are usually considered acceptable and LOS E is usually considered representative of conditions where improvements are needed. LOS F operating conditions are typically unacceptable, and improvements are needed in the form of traffic control, geometric changes or a combination of both.

Levels of service for signalized and unsignalized intersections are identified by the average control delay experienced by vehicles in seconds/vehicle. LOS for signalized intersections is determined for each traffic movement and the total intersection. The range of seconds of delay defining level of service is different for signalized and unsignalized intersections, so the LOS results should not be compared to one another. Full definitions of levels of service for signalized and unsignalized intersections are included in Appendix H.

### Existing Traffic Operations

The existing traffic operations during the peak hours at the subject intersections range from LOS A to C for all traffic movements according to Synchro except at the intersection of Lake Avenue with the LOSP. The LOS ranges from A to E for movements at this intersection. Level of service analysis results for the intersections are provided in Table 1 and described below. Detailed Synchro level of service analysis results are contained in Appendix H.

The port area (the 4 intersections on Corrigan Street and Portside Drive) also peaked between 8:30 and 9:30 p.m. on Friday. These four intersections were analyzed during this hour in addition to the two overall study area peak hours.

The three all-way stop controlled intersections operate with movements at LOS A or B during the peak hours according to Synchro. The intersections are: North River Street with Corrigan Street, North River Street with Portside Drive and River Street with Latta Road.

**TABLE 1  
EXISTING SYNCHRO LEVEL OF SERVICE RESULTS**

Intersection	Approach			2010 Existing					
				Fri 6:30-7:30 PM		Fri 8:30-9:30 PM		Sat 3:30-4:30 PM	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
Lake Avenue at Corrigan Street  Signalized	Eastbound	LTR	A	8.7	A	5.3	A	6.6	
	Corrigan St Eastbound	Approach	A	8.7	A	5.3	A	6.6	
	Westbound	LT	C	28.4	C	31.1	C	32.5	
	Westbound	R	A	7.0	A	4.3	A	4.3	
	Corrigan St Westbound	Approach	C	24.5	C	25.5	C	27.4	
	Northbound	LTR	A	8.7	B	14.2	B	14.9	
	Lake Ave Northbound	Approach	A	8.7	B	14.2	B	14.9	
	Southbound	L	A	3.6	A	4.1	A	4.6	
	Southbound	TR	A	3.5	A	4.8	A	5.2	
	Lake Ave Southbound	Approach	A	3.5	A	4.7	A	5.2	
	Overall		A	10.0	B	14.1	B	15.8	
North River Street at Corrigan Street  Unsignalized	Corrigan St Eastbound	LTR	A	9.6	A	9.3	A	9.7	
	Corrigan St Westbound	L TR	A	8.3	A	8.9	A	8.6	
	N River St Northbound	LT	B	10.7	B	10.1	A	9.7	
	N River St Southbound	TR	A	8.2	A	9.3	A	9.0	
Lake Avenue at Portside Drive  Signalized	Westbound	LR	B	20.0	C	22.5	C	22.3	
	Portside Dr Westbound	Approach	B	20.0	C	22.5	C	22.3	
	Northbound	T	A	6.0	A	7.7	A	6.6	
	Northbound	R	A	0.9	A	0.7	A	0.7	
	Lake Ave Northbound	Approach	A	3.5	A	5.0	A	4.5	
	Southbound	L	A	1.5	A	2.0	A	2.4	
	Southbound	T	A	2.6	A	4.1	A	4.1	
	Lake Ave Southbound	Approach	A	2.5	A	4.1	A	4.1	
	Overall		A	3.9	A	5.3	A	5.1	
River Street Ext. at Portside Drive  Unsignalized	Portside Dr Eastbound	LR	A	9.7	A	8.6	A	8.6	
	River St. Ext. Northbound	LT	A	8.2	A	7.8	A	7.8	
	River St. Ext. Southbound	TR	A	7.7	A	7.3	A	7.2	

LR: Shared Left and Right    TR: Shared Through and Right  
LT: Shared Left and Through    LTR: Shared Left, Through, and Right



**TABLE 1  
EXISTING SYNCHRO LEVEL OF SERVICE RESULTS**

Intersection	Approach			2010 Existing			
				Fri 6:30-7:30 PM		Sat 3:30-4:30 PM	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
Lake Avenue at Latta Road  Signalized	Eastbound	LTR	C	24.1	C	23.7	
	Latta Road Eastbound	Approach	C	24.1	C	23.7	
	Westbound	L	C	24.8	C	22.7	
	Westbound	TR	B	16.6	B	18.3	
	Latta Road Westbound	Approach	C	21.5	C	21.1	
	Northbound	LT TR	A	6.6	A	7.0	
	Lake Avenue Northbound	Approach	A	6.6	A	7.0	
	Southbound	LT TR	A	2.4	A	2.7	
	Lake Avenue Southbound	Approach	A	2.4	A	2.7	
	Overall		A	7.2	A	7.0	
River Street at Latta Road  Unsignalized	Latta Road Eastbound	Left	A	7.7	A	7.6	
	River St. Northbound	LT	A	7.3	A	7.4	
	River St. Southbound	Right	A	6.8	A	6.7	
Lake Avenue at Lake Ontario State Parkway  Signalized	Eastbound	L	D	45.3	D	38.1	
	Eastbound	T T	D	47.7	E	58.3	
	Eastbound	R	A	8.6	B	11.0	
	LOS Parkway Eastbound	Approach	D	39.0	D	44.9	
	Westbound	L	C	31.1	D	37.3	
	Westbound	T TR	D	47.9	D	42.3	
	LOS Parkway Westbound	Approach	D	44.1	D	41.0	
	Northbound	L	B	15.7	B	10.1	
	Northbound	T TR	C	29.0	B	16.9	
	Lake Avenue Northbound	Approach	C	26.1	B	15.0	
	Southbound	L	C	26.3	B	17.0	
	Southbound	T TR	C	29.0	C	21.7	
	Lake Avenue Southbound	Approach	C	27.9	B	19.8	
	Overall		D	35.4	C	30.4	

LR: Shared Left and Right    TR: Shared Through and Right  
LT: Shared Left and Through    LTR: Shared Left, Through, and Right

The Lake Avenue approaches operate at LOS A or B at three intersections during the peak hours. The intersections are: Lake Avenue with Corrigan Street, Lake Avenue with Portside Drive and Lake Avenue with Latta Road.

The eastbound Corrigan Street approach to Lake Avenue operates at LOS A and the westbound approach operates at LOS C during the peak hours. Portside Drive operates at LOS C or better during the peak hours and the Latta Road approaches operate at LOS C.

The Portside Drive and Latta Road intersections on Lake Avenue operate overall at LOS A during the peak hours. The Corrigan Street intersection operates at LOS B overall.

The intersection of Lake Avenue with the LOSP operates at LOS D or better during the peak hours according to Synchro. The Lake Avenue approach lanes operate at LOS B or C during the peak hours and the LOSP through and left turn lanes operate at LOS C, D or E.

## **VI. Trip Generation**

The number of new trips on the roadway system generated by new development at the Port is projected to be 552, 218 and 562 during the Friday 6:30-7:30 p.m. peak, the Friday 8:30-9:30 p.m. peak and the Saturday 3:30-4:30 p.m. respectively. A summary of trip generation projections for the new development at the Port is shown in Table 2.

The trip generation calculations use the conservative estimate of 430 residential units total from the concept plan in Appendix A. The type of residential units planned for Parcels I-N, I-S and II are apartments and Parcels III, IV-W and IV-E will contain condominiums. The ITE Trip Generation, 8<sup>th</sup> edition, equation trip rates were used for estimating residential trips. The ITE equations were used because they are slightly more conservative than the average ITE rates. The total commercial space on the site is estimated to be 44,000 square feet and is split between areas as shown in Table 2 with 8,000 square feet of restaurants and 36,000 square feet of specialty retail catering to boaters and beach goers. The ITE Trip Generation, 8<sup>th</sup> edition, average trip rates were used for estimating restaurant and retail trips. A vehicle occupancy rate of 2.5 persons per vehicle (based on a local rate from previous parking survey data) was used to estimate the trips for the reception/banquet halls including the Waterside Room.

The multi-use nature of the development and the presence of existing on site uses required an analysis of trip credits due to trip sharing between uses. Shared trips represent a reduction to Port of Rochester vehicle traffic on the surrounding roadway system. Appendix D shows the internal capture diagrams (a.k.a. shared trips) based on Chapter 7 of the latest edition of the ITE Trip Generation Handbook, March 2001. Other important components of port area traffic include transit, beach goers, boaters and pedestrians. In order to account for these additional sources of shared trips, a 10% credit was applied to remaining trips as shown in the Trip Generation table in Table 2.

**TABLE 2  
PORT OF ROCHESTER  
TRIP GENERATION ESTIMATE**

DEVELOPMENT ACTIVITY LU CODE		TRIP GENERATION		BEFORE CREDITS ARE APPLIED		AFTER CREDITS ARE APPLIED		8:30-9:30									
		TYPE	SIZE	Friday PM Peak Hour RATE TRIP ENDS	Saturday Afternoon Peak Hour RATE TRIP ENDS	% Enter Friday	% Enter Saturday	Friday Peak Hour ENTER EXIT	Saturday Peak Hour ENTER EXIT	Friday Peak Hour ENTER EXIT	Friday Peak Hour ENTER EXIT						
<b>Parcels I-N and I-S</b>																	
APARTMENTS	220	86 Units	equation	65	equation	54		42	23	27	27	36	18	22	22	7	4
COMMERCIAL																	
High Turnover (Sit Down) Restaurant	932	4,000 Square Feet	0.01115	45	0.01407	56		26	19	30	26	22	16	25	21	3	17
Specialty Retail	814	16,000 Square Feet	0.00271	43	0.00271	43		19	24	19	24	15	19	14	17	5	6
<b>Parcels IV-W and IV-E</b>																	
CONDOMINIUMS	230	180 Units	equation	97	equation	95		65	32	51	44	55	25	41	36	11	5
COMMERCIAL																	
Specialty Retail	814	2,000 Square Feet	0.00271	5	0.00271	5		2	3	2	3	2	2	2	2	1	1
<b>Parcel II</b>																	
APARTMENTS	220	84 Units	equation	64	equation	54		42	22	27	27	36	17	22	22	7	3
COMMERCIAL																	
High Turnover (Sit Down) Restaurant	932	4,000 Square Feet	0.01115	45	0.01407	56		26	19	30	26	22	16	25	21	3	17
Specialty Retail	814	18,000 Square Feet	0.00271	49	0.00271	49		21	28	21	28	17	22	16	20	5	7
<b>Parcel III</b>																	
CONDOMINIUMS	230	80 Units	equation	50	equation	66		34	16	36	30	29	13	29	25	6	3
<b>TERMINAL BUILDING</b>																	
Pier 45 Restaurant		8,500 Square Feet (approx)	0.01407	120	0.01407	120		80	40	71	49						
Waterside Room		200 Patrons	0.400	80	0.400	80		54	26	47	33	158	75	135	94	20	100
Future catering service (arrival hall)		200 Patrons	0.400	80	0.400	80		54	26	47	33						
<b>SUNY Brockport</b>																	
MARINA		Link Bldg.		10		20		5	5	10	10	4	4	8	7	0	0
		118 Slips		0		0		0	0	0	0	0	0	0	0	0	0
<b>US CUSTOMS (assume no additional trips)</b>																	
		12 Employees (approx)		0		0		0	0	0	0	0	0	0	0	0	0
<b>BEACH (drop off beach gear when lots 2 and 3 are full)</b>																	
				0		18		0	0	9	9	0	0	9	9	0	0
<b>TOTAL TRIP ENDS</b>		(no credits applied)		<b>752</b>		<b>797</b>		<b>470</b>	<b>283</b>	<b>427</b>	<b>369</b>	<b>396</b>	<b>227</b>	<b>348</b>	<b>296</b>	<b>68</b>	<b>163</b>
Residential				276		269		183	93	141	128	156	73	114	105	31	15
Restaurant/Reception				369		392		240	130	225	167	202	107	185	136	26	134
Retail/Recreational				108		118		47	60	52	65	38	47	40	46	11	14
Beach				0		18		0	0	9	9	0	0	9	9	0	0
<b>TOTAL TRIPS</b>		(w/internal capture credit)		<b>691</b>	<b>8% credit</b>	<b>714</b>		<b>439</b>	<b>252</b>	<b>386</b>	<b>328</b>	<b>328</b>	<b>227</b>	<b>348</b>	<b>296</b>		
Residential				254		244		173	81	127	117						
Restaurant/Reception				344		357		225	119	207	150						
Retail/Recreational				93		95		41	52	43	52						
Beach				0		18		0	0	9	9						
<b>TOTAL TRIPS</b>		(w/transit, beach goers, boater and pedestrian credits)		<b>623</b>	<b>10% credit</b>	<b>644</b>		<b>396</b>	<b>227</b>	<b>348</b>	<b>296</b>						
Residential				229		219		156	73	114	105						
Restaurant/Reception				310		321		203	107	186	135						
Retail/Recreational				84		86		37	47	39	47						
Beach				0		18		0	0	9	9						

## VII. Trip Distribution

This phase of the traffic analysis involved distribution of the projected peak hour traffic generated by the development to the surrounding roadway system. The projected traffic volumes calculated during the trip generation phase were distributed onto the roadway system based on existing traffic patterns and population statistics in the area of draw.

As shown on the concept plan in Appendix A, Development Parcels I-N and I-S are bounded by Lake Avenue, North River Street, Corrigan Street and Portside Drive. Development Parcels IV-W and IV-E are located north of Corrigan Street between Lake Avenue and the Terminal Building. Development Parcel II is located south of Portside Drive and Development Parcel III is south of Development Parcel II, nearer to the Genesee River.

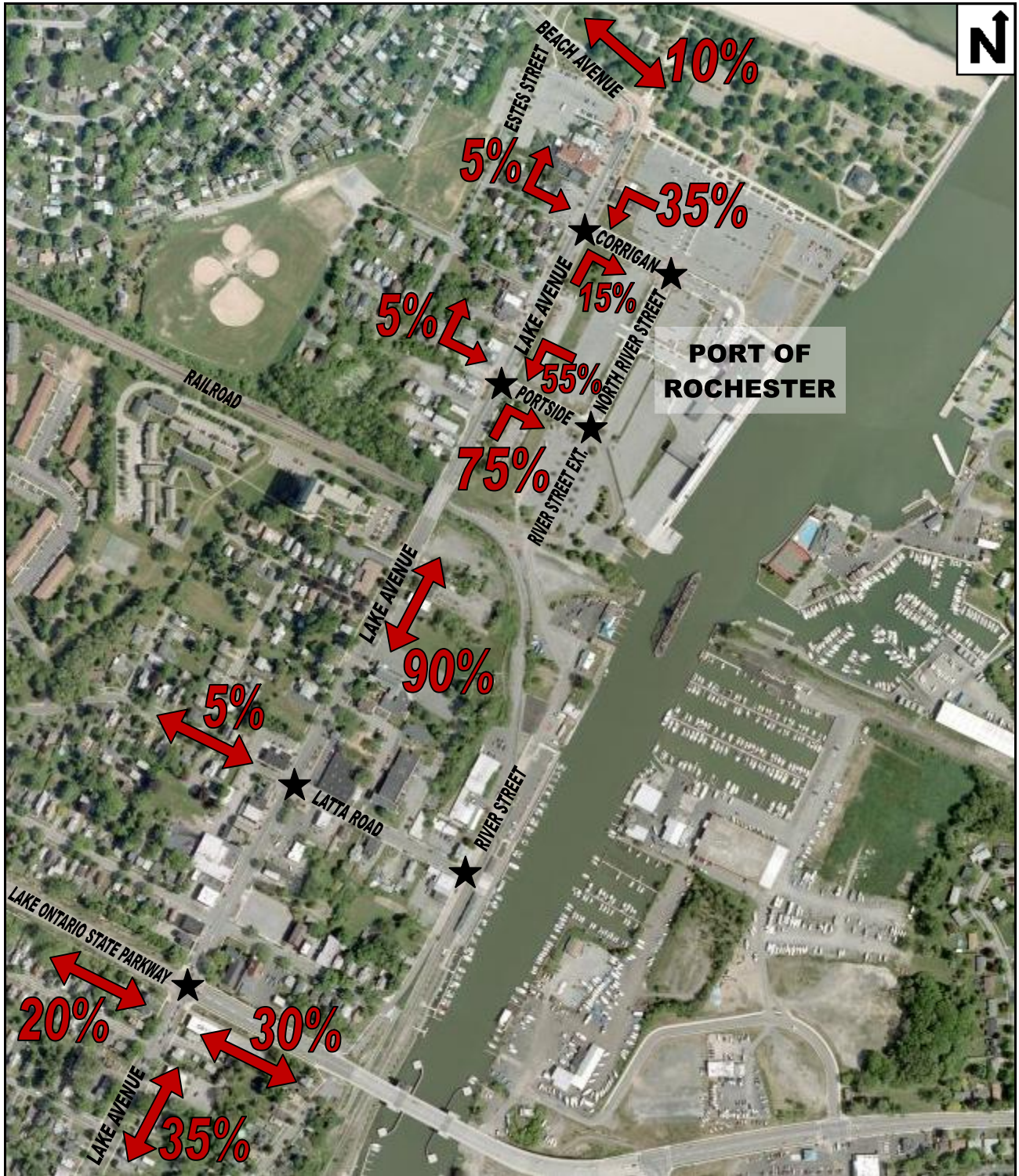
The percent distribution of new Port trips on the roadway system is shown in Figure 3 on the next page. The complete assignment of trips generated by new port development with and without the North River Street connection is shown in Appendix E and F. For convenience the assignment of trips in the vicinity of the port area for the scenario with North River Street is shown in Figures 4, 5 and 6.

The percentage of new traffic traveling on Lake Avenue south of the port is 90%. The other 10% is expected to mainly use Lake Avenue and Beach Avenue with very minor volume on Corrigan Street to the west. The trips shown to use Corrigan Street are expected beach goers traveling to overflow parking lots on Estes Street.

In order to show a conservative analysis for the port area, additional traffic is not shown to use River Street to the south. Any volume of traffic that may use this route would only help to improve flow on Lake Avenue. River Street offers alternate capacity for use in unique instances when traffic may surge for a special event. No traffic assigned to River Street also keeps the queuing results for Corrigan Street and Portside Drive slightly conservative, providing a cushion of storage area for vehicles between Lake Avenue and North River Street.

Latta Road west of Lake Avenue is expected to carry 5% of the new traffic, 20% on the Lake Ontario State Parkway west of Lake Avenue, 30% on the Lake Ontario State Parkway east of Lake Avenue and the remaining 35% on Lake Avenue south of the Lake Ontario State Parkway.

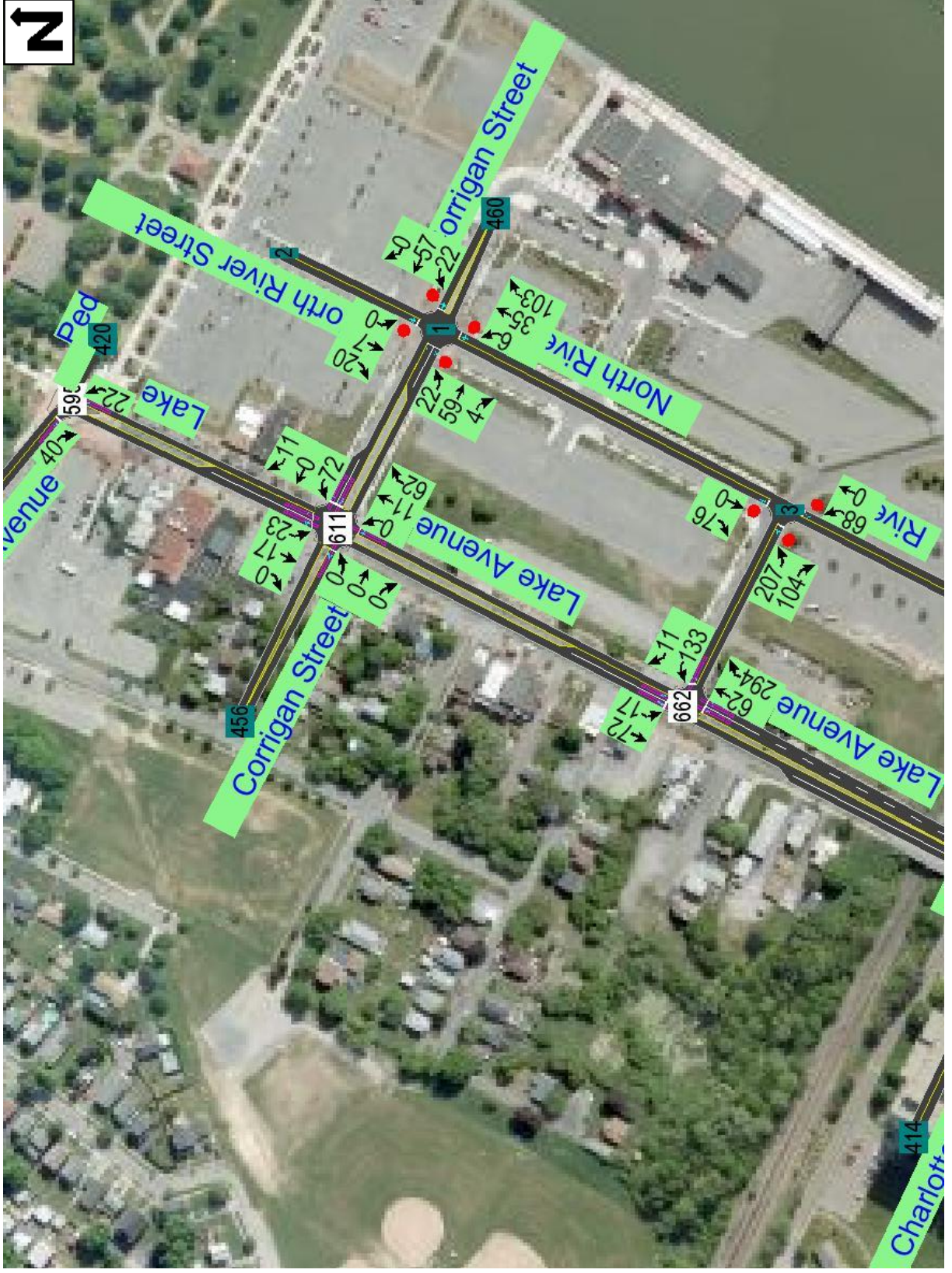
Figure 3 – Trip Distribution



**Figure 4 – Trip Assignment Friday 6:30 – 7:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive



**Figure 5 – Trip Assignment Friday 8:30 – 9:30 PM**

Peak Hour Intersection Turning Movement Volumes

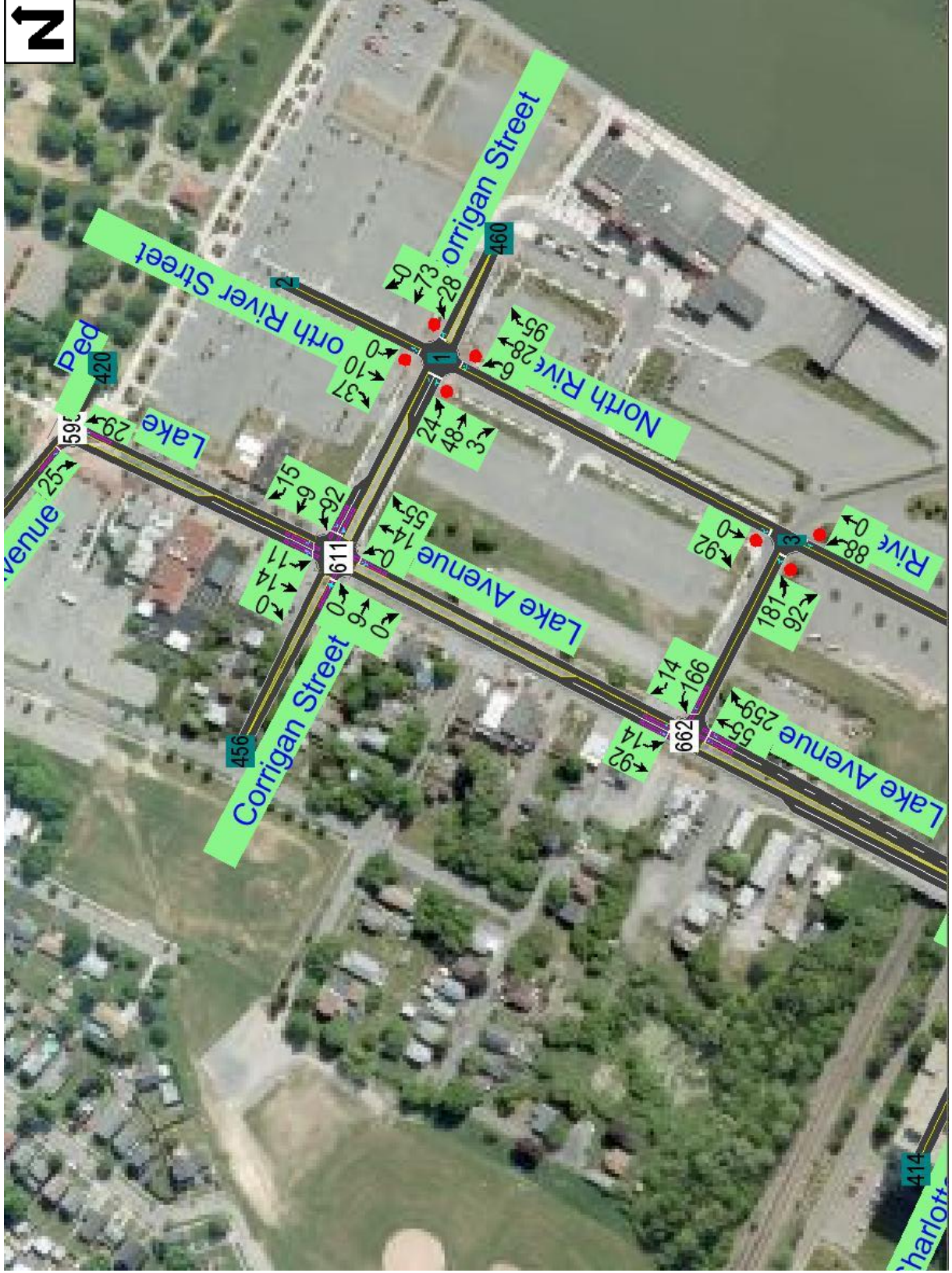
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 6 – Trip Assignment Saturday 3:30 – 4:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive





## **VIII. Future Traffic Evaluation**

### **A. 2020 No-Build Traffic**

The July 2007 traffic counts indicate that the overall study area peak hours occurred between 6:30 and 7:30 p.m. on Friday and between 3:30 and 4:30 p.m. on Saturday. The port area (the 4 intersections on Corrigan Street and Portside Driver) peaked between 8:30 and 9:30 p.m. on Friday. Therefore these four intersections were evaluated during this Friday peak hour as well as during the 6:30 to 7:30 p.m. hour. Appendix B contains the 2010 Existing intersection turning movements based on an annual growth rate of 0.5%, compounded. This growth rate was used for projecting traffic because it represents expectations for this area: little development or growth other than new development in the Port area.

Figures 7, 8, 9 and Appendix C show the 2020 No Build intersection turning movements based on the same annual growth rate, 0.5% compounded annually. No Build volumes are those projected to exist without new development at the Port.

**Figure 7 – 2020 No Build Friday 6:30 – 7:30 PM**

Peak Hour Intersection Turning Movement Volumes

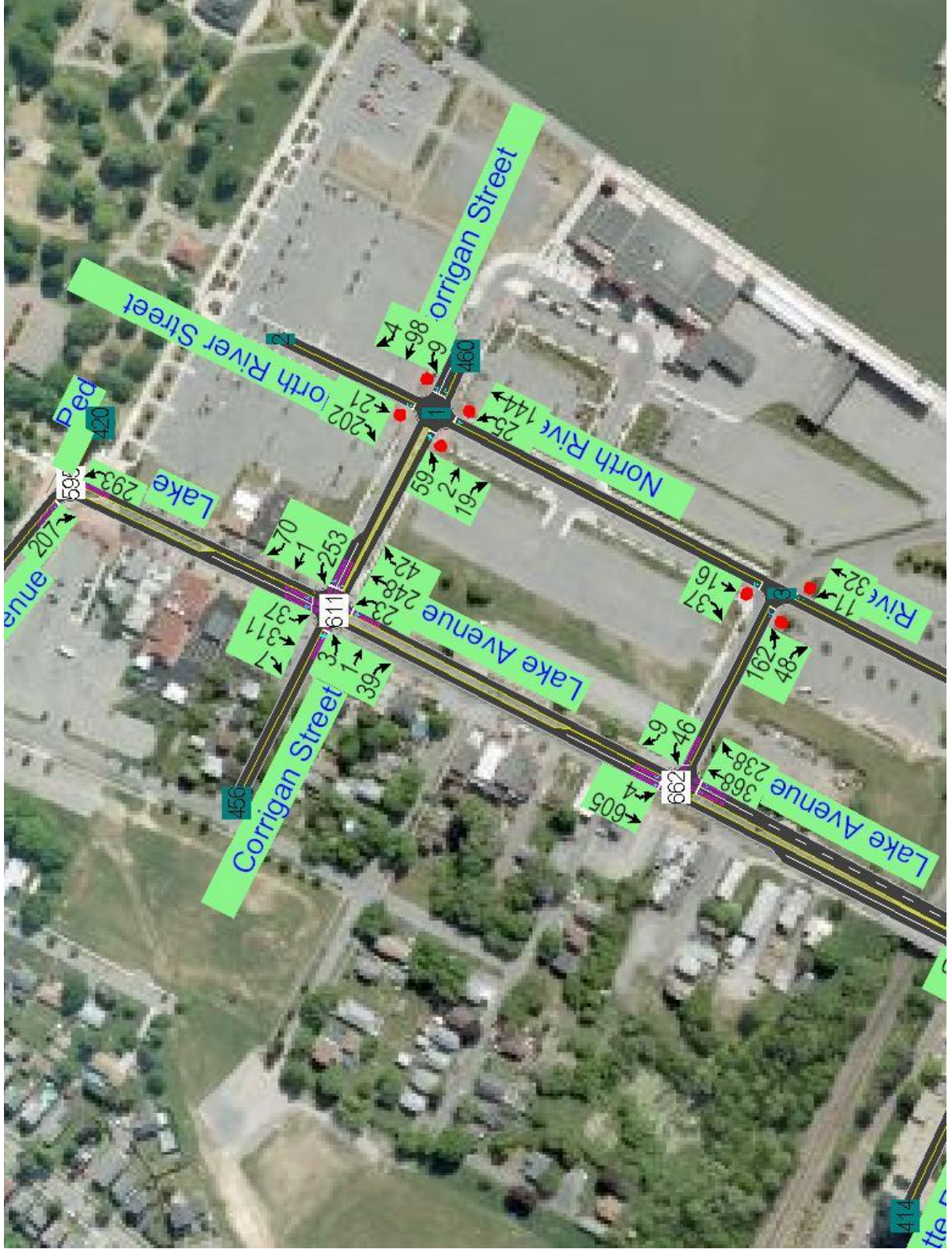
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 8 – 2020 No Build Friday 8:30 – 9:30 PM**

Peak Hour Intersection Turning Movement Volumes

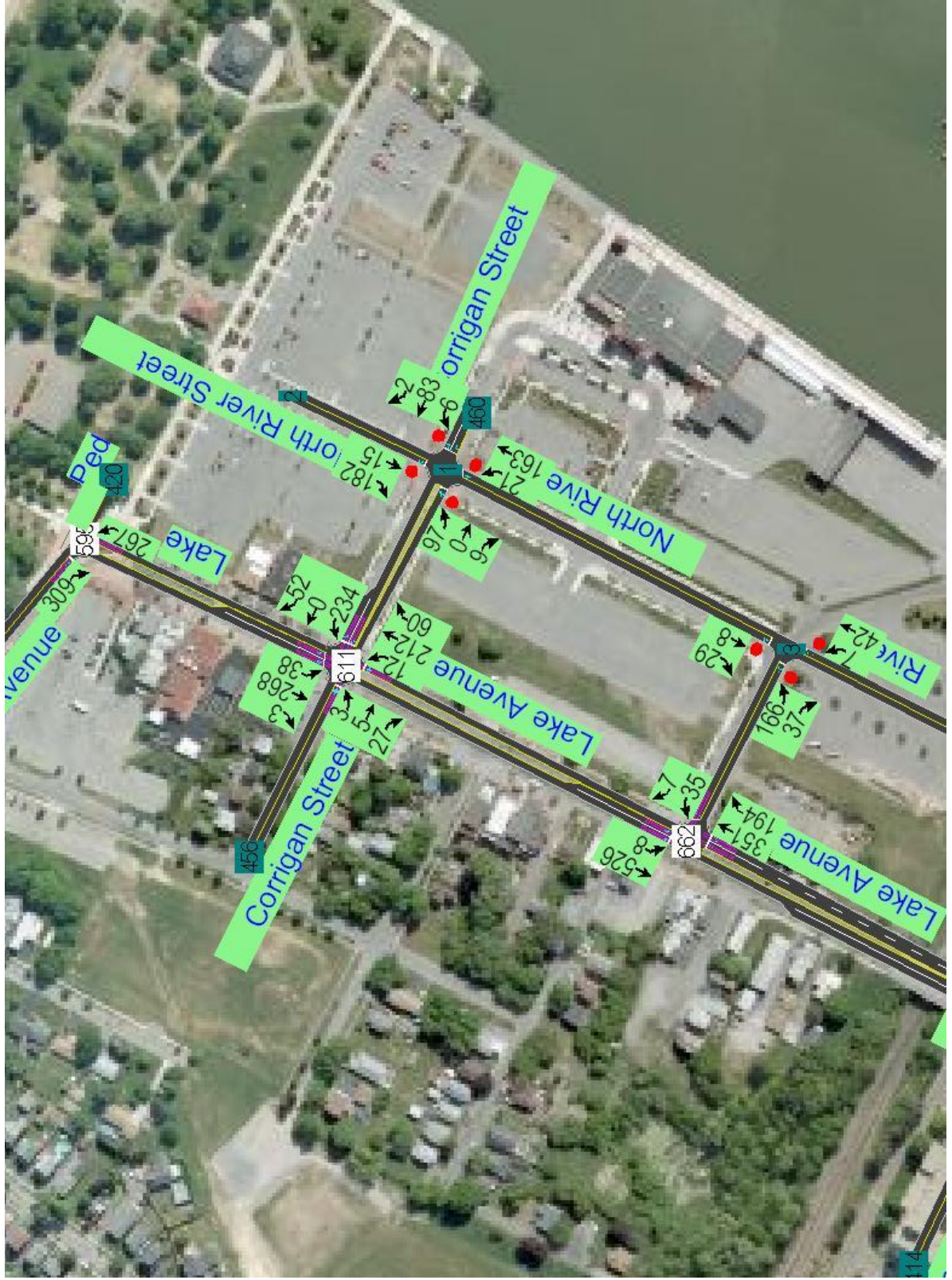
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 9 – 2020 No Build Saturday 3:30 – 4:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive



## B. 2020 No-Build Levels of Service

The 2020 no build traffic operations during the peak hours at the subject intersections are projected to continue to range from LOS A to C for all traffic movements according to Synchro except at the intersection of Lake Avenue with the LOSP. The LOS is projected to continue to range from A to E for movements at this intersection. Level of service analysis results for the intersections are provided in Table 3 and described below. Detailed Synchro level of service analysis results are contained in Appendix I.

**TABLE 3  
2020 NO BUILD SYNCHRO LEVEL OF SERVICE RESULTS**

Intersection	Approach			2020 No Build					
				Fri 6:30-7:30 PM		Fri 8:30-9:30 PM		Sat 3:30-4:30 PM	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
Lake Avenue at Corrigan Street  Signalized	Eastbound	LTR	A	8.3	A	5.2	A	6.4	
	Corrigan St Eastbound	Approach	A	8.3	A	5.2	A	6.4	
	Westbound	LT	C	28.9	C	32.0	C	32.9	
	Westbound	R	A	6.9	A	4.2	A	4.2	
	Corrigan St Westbound	Approach	C	25.0	C	26.0	C	27.7	
	Northbound	LTR	A	9.9	B	14.7	B	16.4	
	Lake Ave Northbound	Approach	A	9.9	B	14.7	B	16.4	
	Southbound	L	A	3.8	A	7.1	A	4.7	
	Southbound	TR	A	4.0	A	8.4	A	5.5	
	Lake Ave Southbound	Approach	A	4.0	A	8.3	A	5.4	
	Overall		B	10.7	B	15.6	B	16.4	
North River Street at Corrigan Street  Unsignalized	Corrigan St Eastbound	LTR	A	9.8	A	9.5	A	9.9	
	Corrigan St Westbound	L TR	A	8.5	A	9.2	A	8.7	
	N River St Northbound	LT	B	11.1	B	10.5	A	10.0	
	N River St Southbound	TR	A	8.4	A	9.6	A	9.2	
Lake Avenue at Portside Drive  Signalized	Westbound	LR	C	20.1	C	22.5	C	22.4	
	Portside Dr Westbound	Approach	C	20.1	C	22.5	C	22.4	
	Northbound	T	A	6.8	A	8.4	A	9.1	
	Northbound	R	A	0.9	A	0.8	A	0.6	
	Lake Ave Northbound	Approach	A	4.0	A	5.4	A	6.1	
	Southbound	L	A	1.6	A	2.2	A	2.5	
	Southbound	T	A	2.8	A	5.3	A	4.5	
	Lake Ave Southbound	Approach	A	2.8	A	5.3	A	4.4	
	Overall		A	4.3	A	6.0	A	6.0	
River Street Ext. at Portside Drive  Unsignalized	Portside Dr Eastbound	LR	A	9.9	A	8.8	A	8.7	
	River St. Ext. Northbound	LT	A	8.3	A	7.9	A	7.9	
	River St. Ext. Southbound	TR	A	7.7	A	7.4	A	7.2	

LR: Shared Left and Right    TR: Shared Through and Right  
LT: Shared Left and Through    LTR: Shared Left, Through, and Right

**TABLE 3  
2020 NO BUILD SYNCHRO LEVEL OF SERVICE RESULTS**

Intersection	Approach			2020 No Build			
				Fri 6:30-7:30 PM		Sat 3:30-4:30 PM	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
Lake Avenue at Latta Road  Signalized	Eastbound	LTR	C	24.4	C	24.1	
	Latta Road Eastbound	Approach	C	24.4	C	24.1	
	Westbound	L	C	24.9	C	22.6	
	Westbound	TR	B	16.3	B	18.2	
	Latta Road Westbound	Approach	C	21.3	C	21.0	
	Northbound	LT TR	A	6.4	A	7.3	
	Lake Avenue Northbound	Approach	A	6.4	A	7.3	
	Southbound	LT TR	A	2.6	A	3.1	
	Lake Avenue Southbound	Approach	A	2.6	A	3.1	
	Overall		A	7.2	A	7.4	
River Street at Latta Road  Unsignalized	Latta Road Eastbound	Left	A	7.7	A	7.6	
	River St. Northbound	LT	A	7.3	A	7.4	
	River St. Southbound	Right	A	6.8	A	6.7	
Lake Avenue at Lake Ontario State Parkway  Signalized	Eastbound	L	D	51.6	D	38.0	
	Eastbound	T T	D	47.9	E	57.6	
	Eastbound	R	A	8.6	B	10.5	
	LOS Parkway Eastbound	Approach	D	40.4	D	44.5	
	Westbound	L	C	31.3	D	36.9	
	Westbound	T TR	D	49.4	D	42.2	
	LOS Parkway Westbound	Approach	D	45.3	D	40.8	
	Northbound	L	B	16.4	B	10.9	
	Northbound	T TR	C	31.1	B	18.3	
	Lake Avenue Northbound	Approach	C	27.9	B	16.3	
	Southbound	L	C	29.0	B	18.8	
	Southbound	T TR	C	30.4	C	23.7	
	Lake Avenue Southbound	Approach	C	29.8	C	21.7	
	Overall		D	37.0	C	31.0	

LR: Shared Left and Right    TR: Shared Through and Right  
LT: Shared Left and Through    LTR: Shared Left, Through, and Right

The port area (the 4 intersections on Corrigan Street and Portside Drive) also peaked between 8:30 and 9:30 p.m. on Friday. These four intersections were analyzed during this hour in addition to the two overall study area peak hours.

Projected 2020 no build LOS is very similar to 2010 existing LOS at the study intersections. The three all-way stop controlled intersections are projected to continue to operate with movements at LOS A or B during the peak hours according to Synchro. The intersections are: North River Street with Corrigan Street, North River Street with Portside Drive and River Street with Latta Road.

The Lake Avenue approaches are projected to continue to operate at LOS A or B during the peak hours at three intersections. The intersections are: Lake Avenue with Corrigan Street, Lake Avenue with Portside Drive and Lake Avenue with Latta Road.

The eastbound Corrigan Street approach to Lake Avenue is projected to continue to operate at LOS A and the westbound approach at LOS C or better during the peak hours. Portside Drive is projected to continue to operate at LOS C or better during the peak hours and the Latta Road approaches operate at LOS C.

The Portside Drive and Latta Road intersections on Lake Avenue are projected to continue to operate overall at LOS A during the peak hours. The Corrigan Street intersection is projected to continue to operate at LOS B or better overall.

The intersection of Lake Avenue with the LOSP is projected to continue to operate at LOS D or better during the peak hours according to Synchro. The Lake Avenue approach lanes are projected to continue to operate at LOS B or C during the peak hours and the LOSP through and left turn lanes continue at LOS C, D or E.

### **C. 2020 Full Build**

The total projected build traffic volumes are the sum of 2020 background traffic and the projected development traffic. Two roadway system alternatives were analyzed for the Build condition to evaluate the need for the North River Street connection between Corrigan Street and Portside Drive. Alternative A eliminates the North River Street connection. Alternative B retains the North River Street connection. Analysis of alternative A includes changes to background traffic patterns due to elimination of North River Street, shown in Appendix F. Alternative A shows an increase to traffic on Lake Avenue and Corrigan Street.

Vehicle trips for the peak hours are shown in Appendix E and F including 1) 2020 background traffic, 2) traffic diversion projections for the scenario without North River Street and 3) all new Port trips. The sum of background traffic and new Port trips represents traffic after Full Build out of the new developments, the 2020 build condition.

#### Alternative A - Without North River Street Connection

The 2020 build traffic operations during the peak hours at the subject intersections are projected to operate at LOS D or better for all traffic movements according to Synchro except at four intersections: Corrigan Street with North River Street and Lake Avenue at 1) Corrigan Street, 2) Portside Drive and 3) the LOSP. The LOS is projected to range from A to E for movements at the Corrigan/North River intersection and from A to F for movements at the three Lake Avenue intersections. Level of service analysis results for the intersections are provided in Table 4 and described below. Detailed Synchro results are contained in Appendix J without North River Street.

Projected 2020 build LOS is very similar to 2020 no build LOS at some study intersections. The all-way stop controlled intersections of North River Street with Portside Drive and River Street with Latta Road are projected to continue to operate at LOS A during the peak hours according to Synchro. However, the all-way stop intersection of Corrigan Street with North River Street is

projected to degrade to LOS E on the eastbound approach, without the North River Street connection between Corrigan Street and Portside Drive.

The Lake Avenue approaches are projected to continue to operate at LOS A or B during the peak hours at Corrigan Street (with addition of a northbound right turn lane) and at Latta Road. However, at the Portside Drive intersection, the Lake Avenue approaches are projected to degrade without the North River Street connection between Corrigan Street and Portside Drive. The northbound through movement is projected to degrade to LOS F. This can be improved to mid level LOS E with intersection timing changes.

The eastbound Corrigan Street approach to Lake Avenue is projected to operate at LOS A during the peak hours and the westbound approach at LOS F during the Saturday peak hour and D or better during the Friday peak hours. Timing changes at this intersection can improve operations on the westbound approach from LOS F or better to LOS D or better. Portside Drive at Lake Avenue is projected to continue to operate at LOS C or better during the peak hours and the Latta Road approaches operate at LOS C or better.

The Latta Road intersection with Lake Avenue is projected to continue to operate overall at LOS A during the peak hours. The Corrigan Street intersection is projected degrade to LOS D or better and the Portside Drive intersection is projected to degrade to LOS E or better overall. With timing adjustments at the Lake/Portside intersection the overall operation can be improved from LOS E or better to LOS C or better. The northbound through movement would still remain at LOS E or better without North River Street.

The intersection of Lake Avenue with the LOSP is projected to operate at LOS D during the Friday peak hour and LOS C during the Saturday peak according to Synchro. The Lake Avenue approach lanes are projected to operate at LOS B thru E during the peak hours and the LOSP approach lanes at LOS A thru F without signal timing adjustments. The eastbound LOSP approach improves to LOS D with signal timing adjustments and the eastbound left turn is an improved LOS F. The eastbound left turn could be improved by changing the signal timing, but other lanes would degrade to be worse than LOS D.

#### Alternative B- With North River Street Connection

The 2020 build traffic operations during the peak hours at the subject intersections are projected to operate at LOS D or better for all traffic movements according to Synchro except at two intersections on Lake Avenue: at Corrigan Street and at the LOSP. The LOS is projected to range from A to E for movements at the Corrigan Street intersection and from A to F at the LOSP intersection. Operations at the Lake/Corrigan intersection are expected to be acceptable with one movement at E because it is only 1.1 seconds above the LOS D range and the overall westbound approach is project to operate at LOS D. Level of service analysis results for the intersections are provided in Table 4 and described below. Detailed Synchro results are contained in Appendix K with North River Street.





Projected 2020 build LOS with North River Street is very similar to 2020 no build LOS at the intersection of River Street with Latta Road. The all-way stop controlled intersection of North River Street with Portside Drive is projected to degrade on the Portside Drive approach from LOS A to LOS D. Better than acceptable operations are still provided at the intersection. The intersection of Corrigan Street with North River Street is projected to degrade slightly from no build conditions with the North River Street connection, but the degradation is less severe than the alternative that eliminates North River Street. The intersection of Corrigan Street with North River Street will operate well at LOS C or better for each lane, with one lane in each direction, stop signs on all four approaches and the North River Street connector in place.

A northbound right turn lane on Lake Avenue is not needed for the alternative that retains the North River Street connection. The Lake Avenue approaches are projected to operate at LOS A or B during the peak hours at Corrigan Street (with the exception of the northbound approach during the Saturday peak hour that is projected to operate at a low level C close to B). The Lake Avenue approaches are projected to continue to operate at LOS A or B at Latta Road and at the Portside Drive intersection, with the North River Street connection between Corrigan Street and Portside Drive.

The eastbound Corrigan Street approach to Lake Avenue is projected to operate at LOS A during the peak hours and the westbound approach at LOS D during the Saturday peak hour and C or better during the Friday peak hours. This is an improvement for the westbound approach compared to the alternative without North River Street. Portside Drive at Lake Avenue is projected to operate at LOS C during the peak hours and the Latta Road approaches to Lake Avenue operate at LOS C or better.

The Latta Road intersection with Lake Avenue is projected to continue to operate overall at LOS A during the peak hours. The Lake/Corrigan intersection is projected to degrade to LOS C or better and the Lake/Portside intersection is projected to degrade to LOS B or better overall. This is an improvement for the Corrigan Street and Portside Drive intersection compared to the alternative without North River Street.

The intersection of Lake Avenue with the LOSP is projected to operate the same with or without the North River Street connection. Traffic operations at this intersection can be improved with signal timing adjustments according to Synchro as shown in Table 4. The signal timing adjustments include:

- Friday 6:30-7:30 p.m. peak hour
  - Take 1 second away from the northbound through phase and give this time to the westbound left turn phase.
  - Take 1 second away from the southbound through phase, take 2 seconds away from the westbound through phase and give 3 seconds of time to the eastbound left turn phase.
- Saturday 3:30-4:30 p.m. peak hour
  - Take 3 seconds away from the northbound through phase and give this time to the eastbound through phase.
  - Take 3 seconds away from the southbound through phase, 2 seconds away from the westbound through phase and give 5 seconds of time to the eastbound left turn phase.

## D. 2020 Build Vehicle Queues and Traffic Simulation

An analysis of projected 2020 Build vehicle queues on Corrigan Street and on Portside Drive was performed for alternatives A and B using Synchro and SimTraffic. The analysis was performed to review the interaction of traffic on Corrigan Street between Lake Avenue and North River Street and to help determine the need for, and alignment of North River Street. Table 5 shows the queue results without North River Street (Alternative A) and Table 6 shows the queue results with North River Street (Alternative B). Detailed analysis results are shown in Appendix J (without North River Street and Appendix K (with North River Street).

**TABLE 5  
Vehicle Queue Analysis Results – Alternative A  
Without North River Street**

<b>Corrigan Street at Lake Avenue</b>	<b>50th Percentile Queue (feet)</b>	<b>95th Percentile Queue (feet)</b>	<b>Maximum Queue (feet)</b>
<b>Traffic Model</b>	Westbound	Westbound	Westbound
8:30 PM Synchro	162	315	-
8:30 PM SimTraffic	179	295	305
Sat Synchro	272	316	-
Sat SimTraffic	220	320	310

<b>Portside Drive at Lake Avenue</b>	<b>50th Percentile Queue (feet)</b>	<b>95th Percentile Queue (feet)</b>	<b>Maximum Queue (feet)</b>
<b>Traffic Model</b>	Westbound	Westbound	Westbound
8:30 PM Synchro	23	60	-
8:30 PM SimTraffic	27	60	72
Sat Synchro	79	102	-
Sat SimTraffic	71	127	183

The analysis shows that area of Corrigan Street between Lake Avenue and North River Street can operate well during the peak hours with a spacing of 250 feet with the North River Street connection in place. Westbound Corrigan Street traffic is projected to back up at the Lake Avenue traffic signal and reach North River Street only once during one peak hour as shown in Table 6. Westbound Portside Drive traffic is projected to back up from Lake Avenue a maximum of approximately 150 feet.

**TABLE 6**  
**Vehicle Queue Analysis Results – Alternative B**  
**With North River Street**

<b>Corrigan Street</b> at Lake Avenue	<b>50th Percentile Queue</b> <b>(feet)</b>	<b>95th Percentile Queue</b> <b>(feet)</b>	<b>Maximum Queue</b> <b>(feet)</b>
<b>Traffic Model</b>	Westbound	Westbound	Westbound
8:30 PM Synchro	123	231	-
8:30 PM SimTraffic	143	228	247
Sat Synchro	173	241	-
Sat SimTraffic	139	216	251

<b>Portside Drive</b> at Lake Avenue	<b>50th Percentile Queue</b> <b>(feet)</b>	<b>95th Percentile Queue</b> <b>(feet)</b>	<b>Maximum Queue</b> <b>(feet)</b>
<b>Traffic Model</b>	Westbound	Westbound	Westbound
8:30 PM Synchro	51	92	-
8:30 PM SimTraffic	78	127	148
Sat Synchro	78	128	-
Sat SimTraffic	92	140	147

## **IX. Existing Parking Conditions**

The purpose of the parking study is to review established parking occupancy data from July 2007 and determine the extent of demand on the existing parking facilities based on the Phase I and Full Build City of Rochester Redevelopment Plan for the Port of Rochester / Charlotte Beach Area (Alternative B). The analysis was completed for peak parking periods during the summer season Friday and Saturday and also addresses Port and Beach Special Events.

The parking analysis is broken down into three separate components to determine feasibility and impacts of the proposed redevelopment plan.

The first component involves analyzing the existing parking supply and demands within the port area. Secondly, the proposed redevelopment plan is overlaid onto existing conditions to determine the extent of impact to the existing parking areas. Each impacted parking area is reviewed to determine the peak parking demand (occupied spaces) that will be displaced by the proposed building development parcels. Lastly, the redevelopment plan is reviewed to determine the number of parking spaces being provided and calculations are performed to determine the required number of spaces based on the uses being proposed.




Documentation and analysis of these three items provide a comprehensive review of the automobile parking requirements for the Port of Rochester and the proposed redevelopment plan. It should be noted that this analysis does not analyze boat slip supply and demand.

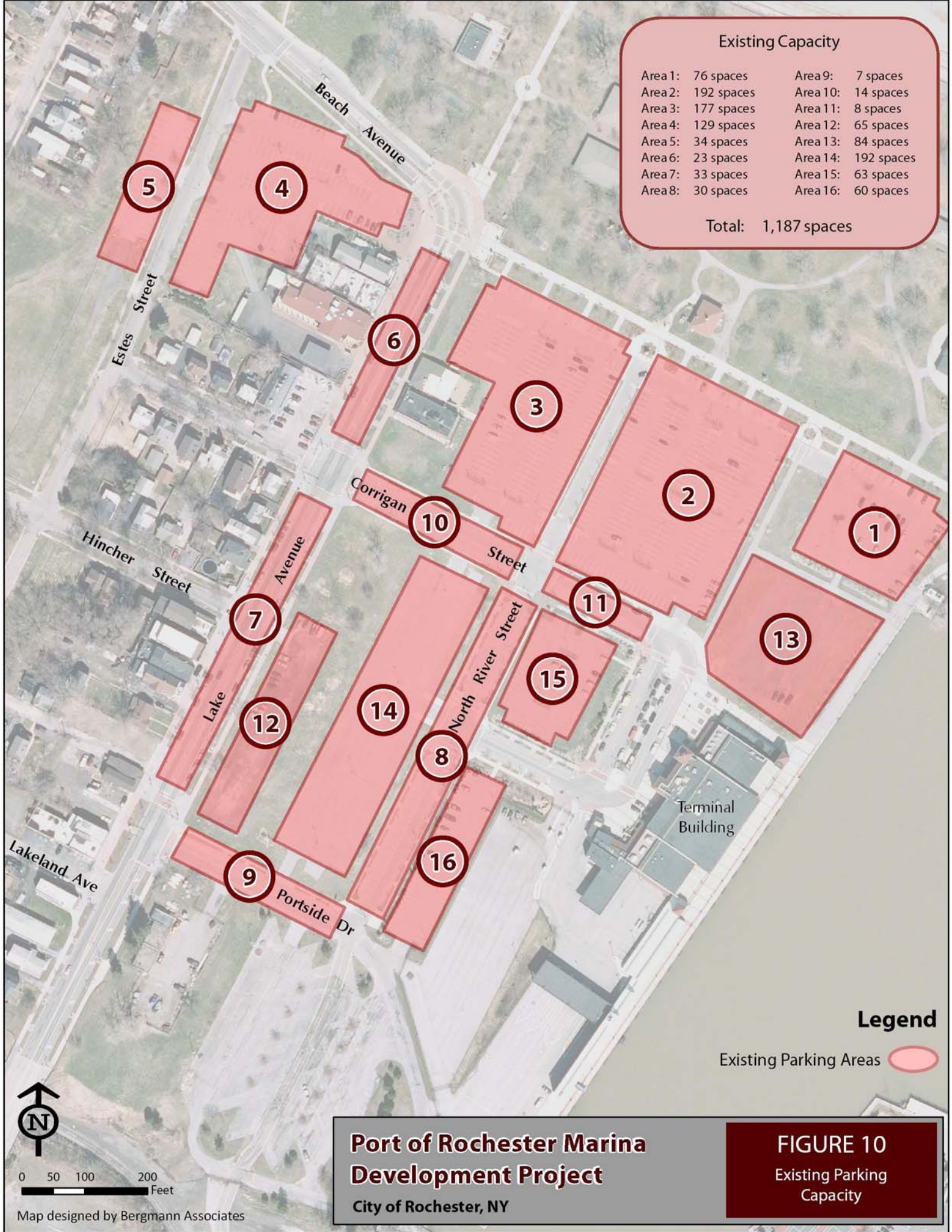
Furthermore, it is our understanding that the boat launch parking area and the Monroe County maintenance building will be relocated as part of this proposal, and therefore not included as existing demands in this parking study.

The parking lot occupancies at the Port of Rochester / Charlotte Beach Area were documented Friday July 20 between the hours of 6:30-9:30PM, and Saturday July 21, 2007 from 2:00-5:00PM. The actual number of parked vehicles were documented at each numbered parking lot once every half hour for each three hour study period for each of the parking areas. Prior to the start of the parking lot occupancy study, the actual capacity (marked or striped parking spaces) of each numbered parking lot was documented. Each parking lot was designated with a specific number for data recording purposes and is shown on Figure 10 on the next page. Table 7, below, provides a summary of documented parking demands and calculated occupancy percentages.

**TABLE 7  
EXISTING PARKING OCCUPANCY SUMMARY**


Lot #	Lot Capacity	Friday Night Average		Saturday Average		Friday Night Maximum		Saturday Maximum	
		Vehicles Parked	% Occupancy	Vehicles Parked	% Occupancy	Vehicles Parked	% Occupancy	Vehicles Parked	% Occupancy
1	76	52	68%	64	84%	66	87%	74	97%
2	192	95	49%	191	99%	115	60%	211	110%
3	177	66	37%	153	86%	81	46%	175	99%
4	129	112	87%	127	98%	129	100%	129	100%
5	34	24	7%	39	11%	37	10%	43	12%
6	23	15	65%	15	65%	17	74%	20	87%
7	33	29	88%	18	55%	33	100%	19	58%
8	30	0	0%	1	3%	1	3%	2	7%
9	7	0	0%	0	0%	0	0%	0	0%
10	14	5	36%	0	0%	6	43%	0	0%
11	8	3	38%	2	25%	6	75%	3	38%
12	65	63	97%	4	6%	88	135%	10	15%
13	84	14	17%	10	12%	16	19%	13	15%
14	192	14	7%	12	6%	26	14%	16	8%
15	63	12	19%	6	10%	21	33%	9	14%
16	60	15	25%	10	17%	18	30%	12	20%
<b>All Parking Facilities</b>	1187	519	34%	652	43%	660	41%	736	47%

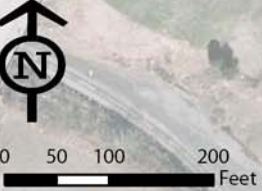
Table Key:  Less than 85% occupancy  
 Greater than 85%, Less than 100% occupancy  
 Greater than 100% occupancy



Existing Capacity	
Area 1:	76 spaces
Area 2:	192 spaces
Area 3:	177 spaces
Area 4:	129 spaces
Area 5:	34 spaces
Area 6:	23 spaces
Area 7:	33 spaces
Area 8:	30 spaces
Area 9:	7 spaces
Area 10:	14 spaces
Area 11:	8 spaces
Area 12:	65 spaces
Area 13:	84 spaces
Area 14:	192 spaces
Area 15:	63 spaces
Area 16:	60 spaces
<b>Total: 1,187 spaces</b>	

**Legend**

Existing Parking Areas 



Map designed by Bergmann Associates

**Port of Rochester Marina Development Project**  
 City of Rochester, NY

**FIGURE 10**  
 Existing Parking Capacity

In some instances vehicles were not parked in an actual striped parking space. Parking lots numbered 5, 12, and 13 are not completely striped with designated parking spaces. Therefore, the actual number of parking spaces was estimated based on the size of the lot, access location, and actual observed number of parked vehicles. The total number of parking spaces is 1,187 with the Estes Street parking lot contributing 34 parking spaces (paved area only).

The hour by hour parking lot occupancy rates were calculated, for each of the two days, based on the observed demand and documented lot capacity. The parking lot occupancy counts were further defined by the percentage occupied based on the following four criteria:

- Friday Night Average
- Saturday Average
- Friday Night Maximum
- Saturday Maximum

The percent each lot was occupied was defined based on three separate categories. The entire lot is shown in green if the occupancy is less than 85%, yellow indicates occupancy between 85% and 99% occupied, and red indicates occupancy equal to or greater than 100%.

The results indicate the highest parking demand on Friday nights is Lots #4, 7 and 12. This is mainly due to the restaurants along the west side of Lake Avenue. The greatest demand for parking during Saturday is Lots #1, 2, 3, 4, and 6 that provide the closest beach front parking.

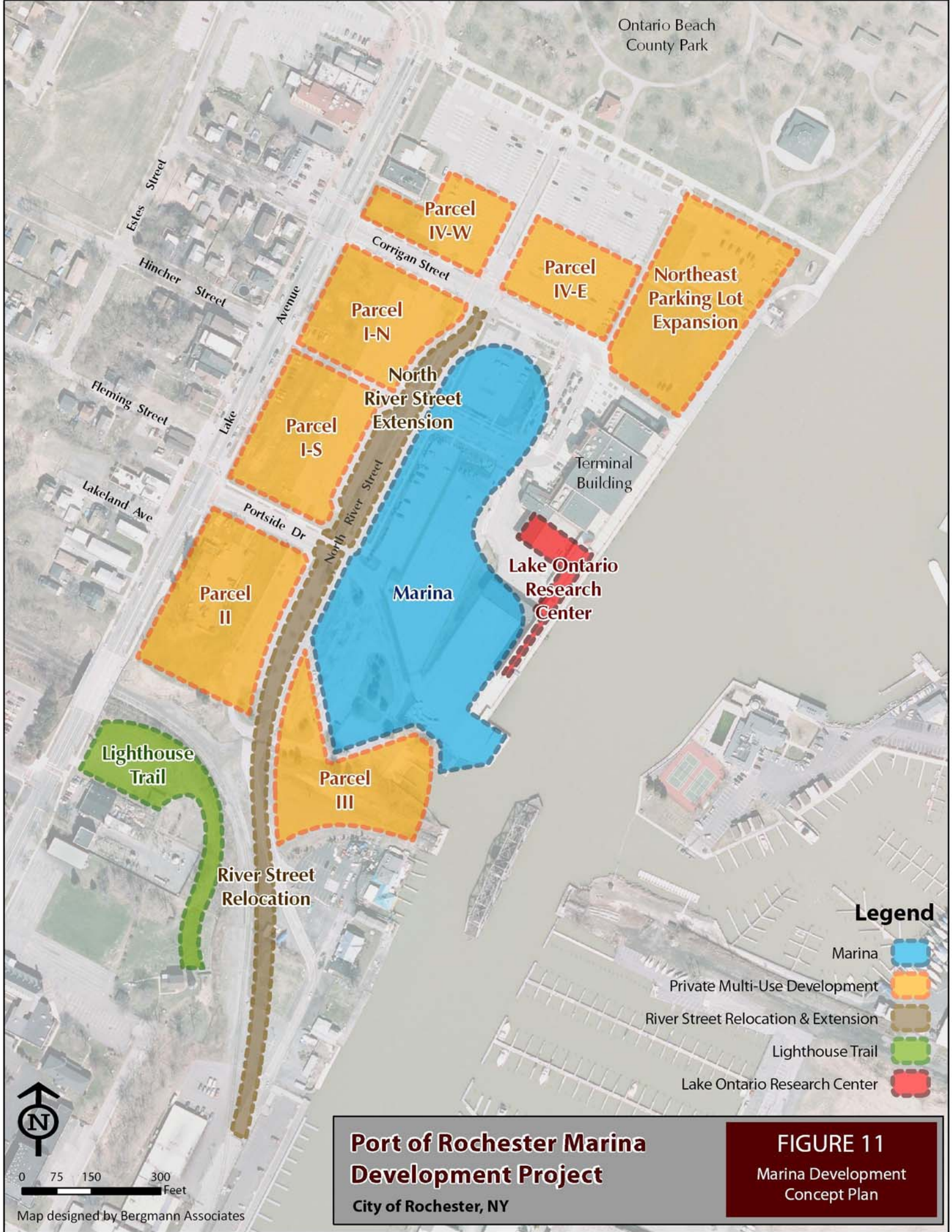
## **X. Proposed Parking Conditions**

### **A. Impacts to Existing Parking Facilities**

The redevelopment plan was reviewed and overlaid onto existing conditions to determine which existing parking areas will be impacted or eliminated by the proposed building development parcels and is shown in Figure 11 on the next page.

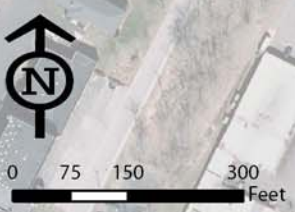
Based on the review of the proposed plan versus existing parking areas the following was determined:

- Development Parcel "I-S" will eliminate parking area #12 and part of #14,
- Development Parcel "I-N" will eliminate the remainder of parking area #14,
- Development Parcel "II" will eliminate County building and part of Boat Launch parking,
- Development Parcel "III" will eliminate the remainder of Boat Launch parking,
- Development Parcel "IV-W" will eliminate part of parking area #3,
- Development Parcel "IV-E" will eliminate part of parking area #2,
- Development Parcel "T" (Terminal) will eliminate parking area #13,
- The Marina will eliminate parking area #15, #16 and part of #8,
- Parking Area #1 will be reconstructed and renamed area C (Carousel),
- Corrigan Street improvements will eliminate parking areas #10 and #11
- Parking Areas #4, #5, #6, #7 and #9 will remain unchanged,



**Legend**

- Marina ■
- Private Multi-Use Development ■
- River Street Relocation & Extension ■
- Lighthouse Trail ■
- Lake Ontario Research Center ■



Map designed by Bergmann Associates

**Port of Rochester Marina Development Project**  
 City of Rochester, NY

**FIGURE 11**  
 Marina Development Concept Plan



A total of 452 existing spaces will be eliminated as a result of Phase I development, eliminating the following parking areas: 10 through 16 and portions of 1 and 8. Parking areas 10 through 16 account for 486 lost spaces. Areas 1 and 8 account for 41 lost spaces. Also as part of Phase I an estimated 75 spaces will be gained along River Street Extension south of Portside Drive.

A total of 671 existing spaces will be eliminated as a result of the Full development, 452 in Phase I development and an additional 219 spaces will be lost from areas 2 and 3 in Phase II development.

The summary of total parking net reductions by development phase is as follows:

<u>Phase I:</u>	452 spaces
<u>Phase II:</u>	219 spaces
<u>Total - Full Build:</u>	671 spaces

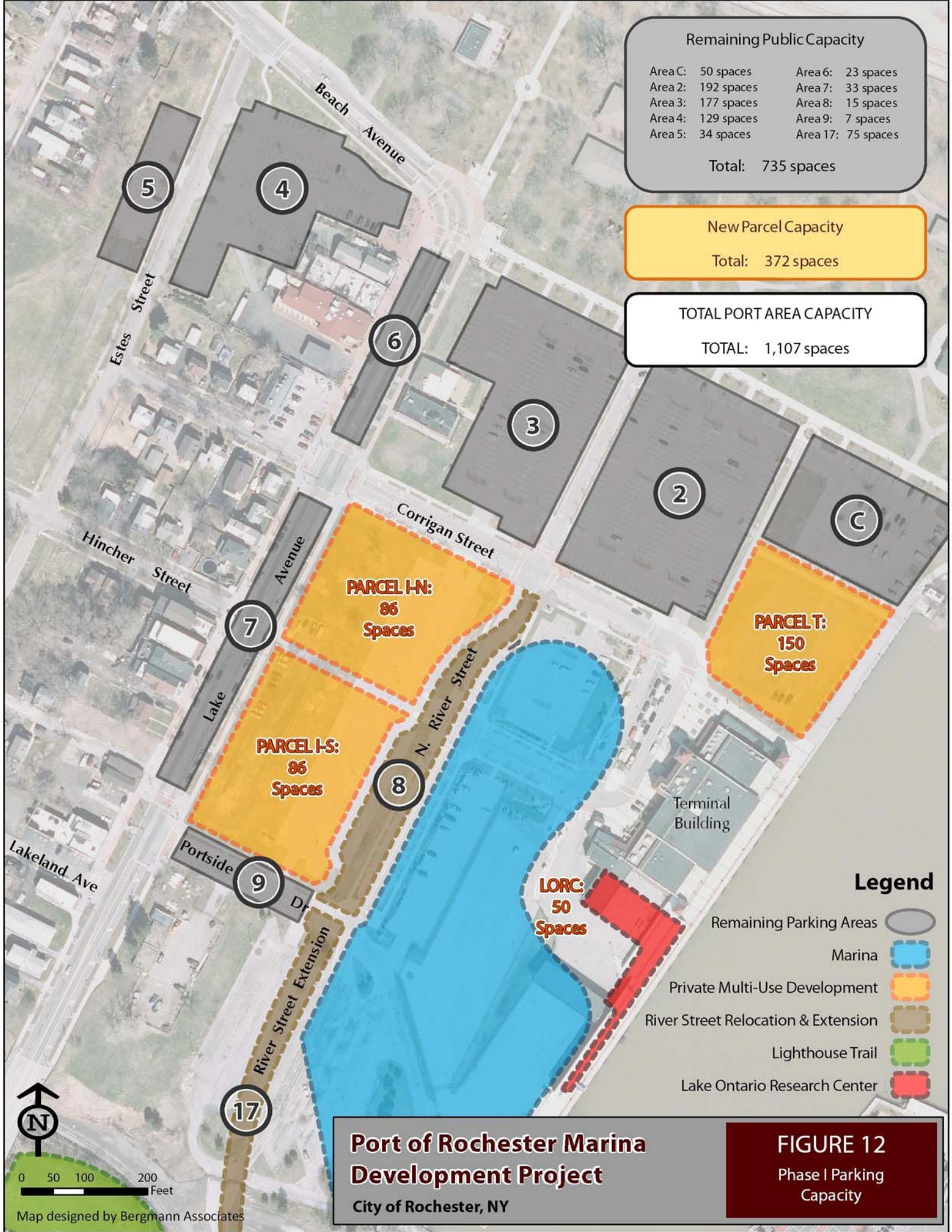
The remaining public parking and the new development parking is shown in Figures 12 and 13: Phase I Parking Capacity and Full Build Parking Capacity. Parking area 1 will be reconstructed and reduced in size from 76 spaces to 50 spaces, now referred to as parking area C. Area C will remain public parking. Parking area 13 will be reconstructed and is assumed to be restricted to Terminal Building parking, now referred to as Parcel T. Parking area 8 represents parking along North River Street and will be reduced from 30 to 15 spaces when reconstructed in its proposed new alignment.

The Roger Robach Community Center (180 Beach Avenue) has been renovated and is available to rent for events such as local meetings, picnics, parties and weddings. As a conservative number, 150 parking spaces are assumed as the maximum required spaces when the center is reserved during peak summer time periods.

Any number of factors could mean the difference between a parking deficit and a parking shortage: size of the Robach Center event, number of beach goers who choose to take the transit bus in lieu of driving, etc. A 100 space credit is assumed to account for average summer time multi-use peaking and mixed-use sharing.

The Port area, exclusive of the new development, is expected to experience parking surpluses/deficits as shown in the Table 8 below, based on the following assumptions:

- The new port developments will provide parking for their needs only,
- 34 spaces are provided in the Estes Street parking lot (paved area only),
- 75 spaces will be provided on River Street Extension as part of Phase I, south of Portside Drive,
- A 150 parking space maximum is required for the Robach Community Center when reserved,
- A 100 space credit is assumed to account for overall multi-use peaking / mixed-use sharing,
- The boat launch parking area and the Monroe County maintenance building will be relocated as part of Full Build-out (for Parcels II and III), and therefore are not included under parking needs.



**Remaining Public Capacity**

Area C: 50 spaces	Area 6: 23 spaces
Area 2: 192 spaces	Area 7: 33 spaces
Area 3: 177 spaces	Area 8: 15 spaces
Area 4: 129 spaces	Area 9: 7 spaces
Area 5: 34 spaces	Area 17: 75 spaces
<b>Total: 735 spaces</b>	

**New Parcel Capacity**

**Total: 372 spaces**

**TOTAL PORT AREA CAPACITY**

**TOTAL: 1,107 spaces**







**PARCEL I-N:**  
86  
Spaces

**PARCEL I-S:**  
86  
Spaces

**PARCEL T:**  
150  
Spaces

**LORC:**  
50  
Spaces

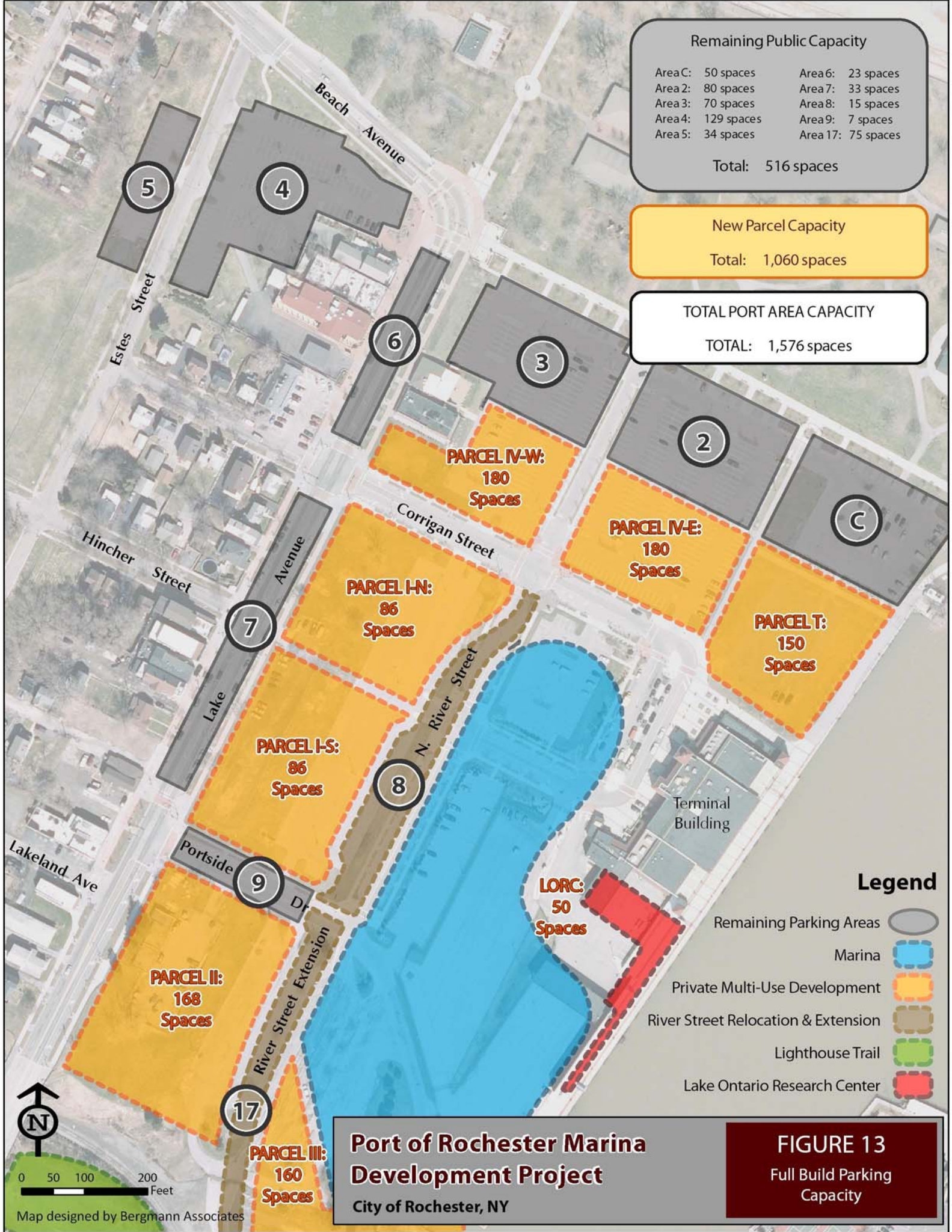
**Legend**

- Remaining Parking Areas 
- Marina 
- Private Multi-Use Development 
- River Street Relocation & Extension 
- Lighthouse Trail 
- Lake Ontario Research Center 

**Port of Rochester Marina  
Development Project**  
City of Rochester, NY

**FIGURE 12**  
Phase I Parking  
Capacity





Remaining Public Capacity	
Area C: 50 spaces	Area 6: 23 spaces
Area 2: 80 spaces	Area 7: 33 spaces
Area 3: 70 spaces	Area 8: 15 spaces
Area 4: 129 spaces	Area 9: 7 spaces
Area 5: 34 spaces	Area 17: 75 spaces
<b>Total: 516 spaces</b>	

**New Parcel Capacity**  
**Total: 1,060 spaces**

**TOTAL PORT AREA CAPACITY**  
**TOTAL: 1,576 spaces**

**PARCEL IV-W:**  
**180 Spaces**

**PARCEL IV-E:**  
**180 Spaces**

**PARCEL T:**  
**150 Spaces**

**PARCEL I-N:**  
**86 Spaces**

**PARCEL I-S:**  
**86 Spaces**

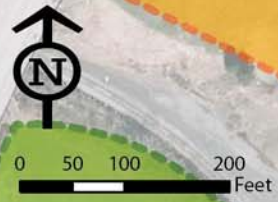
**LORC:**  
**50 Spaces**

**PARCEL II:**  
**168 Spaces**

**PARCEL III:**  
**160 Spaces**

**Legend**

- Remaining Parking Areas
- Marina
- Private Multi-Use Development
- River Street Relocation & Extension
- Lighthouse Trail
- Lake Ontario Research Center



**Port of Rochester Marina Development Project**  
 City of Rochester, NY

**FIGURE 13**  
 Full Build Parking Capacity

Map designed by Bergmann Associates

**TABLE 8  
 PARKING IMPACTS**

**PHASE I**

<i>Port Area, Exclusive of New Development</i>	<i>Friday Peak</i>	<i>Saturday Peak</i>
Parking Needs	710	786
Capacity	735	735
<b>Parking Surplus/Deficit</b>	<b>+25</b>	<b>(51)</b>

**FULL DEVELOPMENT**

<i>Port Area, Exclusive of New Development</i>	<i>Friday Peak</i>	<i>Saturday Peak</i>
Parking Needs	710	786
Capacity	516	516
<b>Parking Surplus/Deficit</b>	<b>(194)</b>	<b>(270)</b>

It is important to understand that this is an estimate at this early stage of planning because any number of factors could affect parking availability:

1. size of the Robach Center event, if any,
2. potential increase to additional parking along proposed River Street Extension,
3. number of beach goers who choose to take the transit bus in lieu of driving,
4. number of on-site residents that walk to the restaurants located in the Terminal Building, etc.

Phase I is expected to experience a surplus of 25 spaces during the Friday peak hour and a deficit of 51 spaces during the Saturday peak hour. Full build conditions are expected to experience a deficit during both peak time periods. Transit bus ridership is expected to increase as a result of the deficit.

## B. Future Parking Spaces Provided

The exact number and location of proposed parking spaces for each development parcel is not shown on the redevelopment plan at this early stage of design. Information provided in a July 13, 2009 email from Passero Associates indicates the number of parking spaces provided per development parcel is as follows:

- Parcel 'I-N' = 86 vehicle parking spaces,
- Parcel 'I-S' = 86 vehicle parking spaces,
- Parcel 'II' = 168 vehicle parking spaces,
- Parcel 'III' = 160 vehicle parking spaces,
- Parcel 'IV-W' = 180 vehicle parking spaces,
- Parcel 'IV-E' = 180 vehicle parking spaces,
- The Terminal including Parcel 'T' = 200 vehicle parking spaces,
- Total = 1060 vehicle parking spaces.

This is shown graphically in Figures 12 and 13 (Phase I Parking Capacity and Full Build Parking Capacity). The redevelopment plan shows 200 parking spaces for the Terminal Building and Marina (150 spaces in Parcel T and 50 in the southern lot). The 200 spaces will be restricted to Terminal building needs. The total number of parking spaces being provided by the redevelopment plan is 1,060 (860 for the development parcels + 200 for the Terminal building). The conservative assumption is that all 1,060 spaces are to be utilized by only the new development and the Terminal building with no surplus available for outside needs such as for the beach and Wednesday night concerts.

## C. New Parking Needs

An estimate of parking needs for the proposed redevelopment plan was prepared based on the following sources: the Institute of Transportation Engineers (ITE) Parking Generation 3rd Edition, the City of Rochester Zoning Code Section 120-173 Off-Street Parking and recent meetings with the Terminal business manager. The parking needs for the proposed redevelopment plan are shown in Table 9, New Parking Generation Estimate.

The estimated new development parking requirements are:

<u>Phase I:</u>	416 spaces.
<u>Full Build:</u>	1,095 spaces.

**Table 9  
New Parking Generation Estimate**

DEVELOPMENT ACTIVITY	SIZE	RATE	PARKING SPACES	AREA TOTAL
<b>Development Parcels I-N and I-S</b>				
APARTMENTS	86 Units	1.4 per Unit	121	
COMMERCIAL High Turnover (Sit Down) Restaurant Specialty Retail	4,000 Square Feet (SF) 16,000 Square Feet	13.3 per 1 KSF 2.0 per 1 KSF	53 32	206
<b>Terminal Building</b>				
Pier 45 Restaurant	8,500 SF (approx)		113	
Waterside Room/Dock/Ship Service	150 Patrons		70	
Potential Future Uses – 1 <sup>st</sup> Floor	5 – 7,200 Square Feet		20	
Potential Future Uses – 2 <sup>nd</sup> Floor	5 – 6,000 Square Feet		18	
US Customs City	12 Employees (approx)		25	
SUNY Brockport Link Building			20	
<b>Sub-Total</b>			<b>*266</b>	<b>*200</b>
<b>Marina</b>				
	New Slips		10	10
<b>Development Parcel II</b>				
APARTMENTS	84 Units	1.4 per Unit	118	
COMMERCIAL High Turnover (Sit Down) Restaurant Specialty Retail	4,000 Square Feet 18,000 Square Feet	13.3 per 1 KSF 2.0 per 1 KSF	53 36	207
<b>Development Parcel III</b>				
CONDOMINIUMS	80 Units	1.8 per Unit	144	144
<b>Development Parcels IV-W and IV-E</b>				
CONDOMINIUMS	180 Units	1.8 per Unit	324	
COMMERCIAL Specialty Retail	2,000 Square Feet	2.0 per 1 KSF	4	328
<b>TOTAL</b>				<b>1095</b>

\* Not all 266 spaces are likely to be required for the Terminal because this would be a “perfect storm” with all banquet halls, restaurants and other businesses operating at peak conditions at the same time. Therefore a reasonable estimate of 200 is used.

A reduction of spaces from 266 to 200 was applied for the Terminal – a credit of 66 spaces. The mixed-use nature of the Port area is expected to reduce the total number of required spaces. For example new local residents of the Port will also patron Pier 45 and other Terminal businesses, requiring no additional parking. The parking demand for the terminal building of 266 is not likely to occur because all businesses would be operating at peak conditions at the same time. The peak new development demand of 1095 spaces is a reasonable Full Build estimate

based on parking rates shown in Table 9 with the credit for multi-use peaking and mixed-use sharing.

#### D. Parking Evaluation

The final step in the evaluation was to combine the existing and new development parking calculations. The overall summary for the entire Port area is shown in Table 10 below, where the new development totals are also shown separate from the remaining Port area.

**TABLE 10  
PARKING SUMMARY FOR FULL PORT DEVELOPMENT**

<b>NEW DEVELOPMENT</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Generation Estimate	1,095	1,095
Proposed Parking Spaces	1,060	1,060
<b>Parking Deficit</b>	<b>(35)</b>	<b>(35)</b>

<b>Port Area, Exclusive of New Development</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Parking Needs	710	786
Capacity	516	516
<b>Parking Deficit</b>	<b>(194)</b>	<b>(270)</b>

<b>TOTAL PORT AREA</b>	<b>Friday Peak</b>	<b>Saturday Peak</b>
Parking Needs	1,805	1,881
Capacity	1,576	1,576
<b>Overall Parking Deficit</b>	<b>(229)</b>	<b>(305)</b>

The new development parking deficit is expected to be 35 spaces when they are fully built and fully occupied. Some shortage is expected for very short durations, but this is expected to be a seldom occurrence.

The Port area, exclusive of the new development is expected to experience a parking deficit of 200-270 spaces on a typical summertime Friday evening or Saturday afternoon. This is an estimate at this early stage of planning because any number of factors could mean the

difference between a parking deficit and a parking shortage: size of the Robach Center event, number of beach goers who choose to take the transit bus in lieu of driving, etc.

## **XI. Port and Beach Special Events**

Special events in the port and beach area can be broken into two categories Level 1 and Level 2. Level 1 events draw up to 4,000 people and 1700 vehicles and Level 2 events would draw in excess of 4,000 people. It is anticipated that Level 1 events can be managed using the existing street system patterns as described below. Level 2 events will require close traffic management with possible street closings and the use of frequent bus transit to move visitors in to and out of the Port and beach area.

### **A. Level 1 Events – Up to 4,000 People or 1,700 Vehicles**

Development in the Port area along with the special events that take place often attract many visitors to the Port Area. When parking in the area reaches capacity, traffic congestion occurs and visitors are diverted to remote parking areas. As development in the Port area continues, the need for more remote parking and frequent transit buses operating on established routes with direct service to the port will increase.

In order to facilitate the flow of traffic and give notice to approaching visitors that the Port area may be congested, it is recommended that traffic management plans be developed incorporating the use of additional Intelligent Transportation System (ITS) Tools and Technologies be implemented. Tools such as fixed and portable Dynamic Message Signs (DMS), Highway Advisory Radio (HAR) plus additional CCTV systems will help to manage parking and traffic flow and provide the advance notice to make the trip easier for visitors. When the parking lots in the immediate port area become 85% occupied the messages displayed on the DMS will direct motorists to lot 5 as well as remote lots on Dewey Avenue and perhaps Ling road.

Fixed or portable DMS can also be utilized to improve traffic flow for traffic exiting the Port after summer beach events.

The CCTV systems can be easily installed in the Port Area. The installation of advance DMS signs on Lake Ontario State Parkway, Lake Avenue and Pattonwood Drive will provide the information necessary to guide visitors to the remote parking areas and to manage the Port Area traffic flow.

The Port of Rochester and the surrounding street network can benefit from the installation of additional ITS Tools and Technologies. Currently the Monroe County Department of Transportation operates and maintains a coordinated signal system on Lake Avenue in the Charlotte area. Also, the County operates and maintains closed circuit TV (CCTV) cameras at the intersections of 1) Lake Avenue and the Lake Ontario State Parkway/ Pattonwood Drive and 2) Pattonwood Drive and Thomas Avenue. These cameras are used to monitor traffic flow in the corridor and the O'Rorke lift bridge. The cameras are monitored both at the Regional Traffic Operations Center (RTOC) located on Scottsville Road and at the O'Rorke bridge during times that the bridge is staffed.



Early this year the County implemented a special timing plan for times when the O'Rorke Bridge is up to help prevent gridlock at the Lake/LOSP intersection. A system is in place to detect queuing of eastbound traffic due to the bridge and stop the following movements at the Lake/LOSP intersection: eastbound through and southbound left turn.

A key operational component of this plan will be to coordinate forces from the Police agencies, City Port and Special events staff, County DOT and Parks and NYSDOT to plan for and manage traffic and parking during events. This coordination can be implemented with the issuance of event permits and monitored as events occur with debriefs to improve this operation.

## **B. Off-Site Parking Area Alternatives**

The Port redevelopment plan will require the use of remote parking areas with bus service to the immediate port and beach area especially during events. An analysis of possible locations is presented below.

The proposed Port redevelopment plan includes layout of a street pattern and proposed land use development. One aspect of the Plan is limited provision of parking for current beach activities that occur during the summer season. Some provision of parking is identified in the plan in area 5 adjacent to Beach Avenue as shown on Figure 10.

Peak parking demand for Wednesday concert activities was determined to be approximately 1,700 spaces excluding the new Port development, a Level 1 event. During weekend activities the peak demand (excluding the new development which will have its own on-site parking) is approximately 786 spaces. The number of spaces available to meet this demand for the Phase I condition is 735 and for the Full Build condition is 516. The difference in parking capacity is the 219 spaces removed from beach parking areas 2 and 3 in the Full Build condition for development parcels IV-W and IV-E.

In the past arrangements have been made to use the soccer fields located to the west of Estes Street for overflow parking during Wednesday night concerts. If this practice continues it will reduce the Wednesday night deficits by approximately 330 spaces.

The peak demands for parking compared to spaces provided for beach activities in the Port redevelopment plan reveals a short-fall. The approximate deficit of spaces between the plan and expected peak usage is as follows:

### Phase I

Wednesday Night = 600-700 space deficit\*

Weekend Day = 50 space deficit.

\* = Wednesday Night includes use of Estes Street soccer fields.

### Full Build

Wednesday Night = 800-900 space deficit\*

Weekend Day = 270 space deficit.

\* = Wednesday Night includes use of Estes Street soccer fields.

Alternative port off-site locations are described next as potential locations to provide spaces to meet the parking demand. The off-site parking locations are identified to be 1) within close proximity of the railroad corridor, which could be used as a direct corridor into the port area if the tracks are abandoned and 2) the former site on Dewey Avenue.

Two locations were identified as potential off-site parking sites. Aspects of each site are described next that include pros and cons. The estimated number of spaces each can provide, distance to the port area, and associated costs are provided. Cost of providing each alternative parking site is estimated based on generic unit costs for the Rochester area and assumed level of construction for each site. Items considered in estimating cost included:

- Clearing and grubbing
- Unclassified excavation
- Stone base course
- Asphalt concrete surface
- Fencing

### **C. Site A – Dewey Avenue**

Site A shown in Figure 14, is the remote off-site parking area utilized in the past, located on Dewey Avenue. Grass areas north and south of the existing driveway access provide parking accommodations. Approximately 350 spaces collectively could be accommodated on both grass-areas adjacent to Dewey Avenue.

The distance between this site and the Port is approximately 3.0 miles. The distance is based on using Dewey Avenue, Lake Ontario State Parkway, and Lake Avenue.

#### **PROS**

Direct access to and from both lots for this site is provided at Dewey Avenue. An interchange exists with this street and the Lake Ontario State Parkway. Access to and from the site by users of the lot is readily available by the Parkway and Dewey Avenue and other roadways connecting to each of them.

Access between this site and the Port is readily available using Dewey Avenue, Lake Ontario State Parkway and Lake Avenue. This is the route utilized by recent shuttle service from the site to the Port. However, the return route from the Port to the site used by the bus service is by Beach Avenue and Dewey Avenue.

Cost to implement this site is estimated to be minimal if the grass surface is utilized for parking. Parking could be accommodated at this site with the least investment of all sites considered. A nominal cost for some remedial base course is estimated to be approximately \$20,000.



**Port of Rochester  
Traffic And Parking Analysis  
City of Rochester, NY**

**SITE A**

**OFF-SITE  
PARKING**

FIGURE NO.

**14**

SCALE

**No Scale**

DATE

**11 / 10**



## **CONS**

Estimated parking spaces for this site are 350. This would meet the deficit for weekend days and represents approximately half the Wednesday night deficit for Phase I and approximately one third the Wednesday deficit for Full Build. Approximately 615 more spaces are required to meet the Wednesday night parking needs for Phase I. To meet the Full Build needs 835 more spaces are required.

The distance between Dewey Avenue Site A and the Port is the greatest of the two parking sites. It is approximately 3.0 miles. If the average travel speed between the parking site and the Port is approximately 30 mph, the time to travel between the two locations is approximately 6 minutes.

### **D. Site B – Ling Road**

Site B, shown in Figure 15, is adjacent to Ling Road near Greenleaf Road. The site was a former drive-in theater, presently abandoned. A driveway from the site to Ling Road provides access to the highway system. Approximately 1,200 spaces could be provided at this site.

The distance between this site and the Port is approximately 1.8 miles using the corridor of Ling Road, Greenleaf Road, Beach Avenue and Lake Avenue. The distance is greater using Ling Road, Greenleaf Road, Lake Ontario State Parkway, and Lake Avenue. It is approximately 2.5 miles.

## **PROS**

Access to this parking site is available using Ling Road. Distance between the site and Lake Ontario State Parkway using Greenleaf Road and Ling Road is approximately 0.9 miles. Access to the parking site is readily available by the existing road system.

Access between this site and the Port is readily available using Ling Road, Greenleaf Road and either Beach Avenue or Lake Ontario State Parkway. Either route provides direct access to Lake Avenue and the Port of Rochester.

Estimated maximum parking spaces for this site are 1,200. This site is sufficient to meet the peak demand for Wednesday night and weekend days under both Phase I and Full Build conditions.

Distance between the Ling Road site and Port is slightly less than for Site A, being approximately 2.5 miles using Lake Ontario State Parkway and 1.8 miles using Beach Avenue. This compares to 3.0 miles for Dewey Avenue Site A.



**Port of Rochester  
Traffic And Parking Analysis  
City of Rochester, NY**

**SITE B**

**OFF-SITE  
PARKING**

FIGURE NO.

**15**

SCALE

**No Scale**

DATE

**11 / 10**

**Bergmann**  
associates

**CONS**

Cost to implement this site is estimated to be \$600,000. It includes grading the site and assumes some additional base material to provide a firm parking surface. No asphalt surface is included in the cost. An asphalt surface is estimated to add an additional \$1,400,000 to the overall cost for a total of \$2,000,000.

Security of the site may be an additional cost element. Visibility of the parking area is limited from adjacent roads due to the trees and vegetation adjacent to it. Fencing may be an option to enhance security of the site. It is estimated to cost \$160,000, bringing the total cost to \$2,160,000.

**E. Summary**

A summary of the PROS and CONS of each site is contained in the Table 8.

**Table 8  
 OFF-SITE PARKING LOCATION PROS & CONS SUMMARY**

<b>SITE</b>	<b>PROS</b>	<b>CONS</b>
<b>A</b>	1) Good connectivity and access to existing roads. 2) Minimal cost to implement: approximately \$20,000.	1) Greatest distance to Port of all sites: approximately 3.0 miles 2) Does not provide all Level 1 parking needs for Wednesday nights – 635 more spaces are required for Phase I and 855 more are required for Full Build.
<b>B</b>	1) Good connectivity and access to existing roads 2) Provides all Level 1 parking needs. 3) Distance between site and Port is less than for Site A: approximately 1.8 miles. 4) The location has potential access to the railroad corridor.	1) Cost without asphalt concrete parking surface and security fencing is estimated to be \$600,000 2) Cost with asphalt concrete parking surface and without security fencing is estimated to be \$2,000,000. 3) Cost with asphalt concrete parking surface and security fencing is estimated to be \$2,160,000.

## **F. Level 2 Events – More than 4,000 People**

Events such as Harborfest will be categorized as Level 2 events and will require special traffic and parking management plans.

All events begin with a Permitting process initiated through the Monroe County Parks Department. Upon receipt of the request the parks department coordinates with the involved agencies through the City of Rochester Special Events office. Coordination involves establishment of traffic and parking needs and traffic and parking management plans. Important to the successful operation of the events is the early identification of the event commander. The commander is then responsible for bringing together the involved agencies and development of the management plans.

During the days that the events are running it is important that the event commander and respective staff be on site to monitor operations and to institute changes to the management plans as necessary.

The use of additional Intelligent Transportation System (ITS) Tools and Technologies should be implemented. Tools such as fixed and portable Dynamic Message Signs (DMS), Highway Advisory Radio (HAR) plus additional CCTV systems will help to manage parking and traffic flow and provide the advance notice to motorists and transit users of traffic restrictions, parking availability and real time transit schedules. The City of Rochester currently has a project underway that will identify the devices which will provide best value for managing events at the port. The Monroe County Department of Transportation operates and maintains a coordinated signal system on Lake Avenue in the Charlotte area. Also, the County operates and maintains closed circuit TV (CCTV) cameras at the intersections of 1) Lake Avenue and the Lake Ontario State Parkway/ Pattonwood Drive and 2) Pattonwood Drive and Thomas Avenue. These cameras are used to monitor traffic flow in the corridor and the O'Rorke lift bridge. Special traffic signal timing patterns can be established to handle event traffic to minimize congestion and maintain traffic, pedestrian and transit flow.

**PORT OF ROCHESTER  
TRAFFIC AND PARKING ANALYSIS  
APPENDICES**



**CITY OF ROCHESTER**  
Port of Rochester Marina Redevelopment / December 2010





# Appendix A

## Site Concept Plan

# Port of Rochester Marina Development Project Map

## PHASE I



Lakeland Avenue

Fleming Street

Hincher Street

Corrigan Street

Lake Avenue

Portside Street

Private Multi-Use Development Parcel I-S

Private Multi-Use Development Parcel I-N

River Street Extension

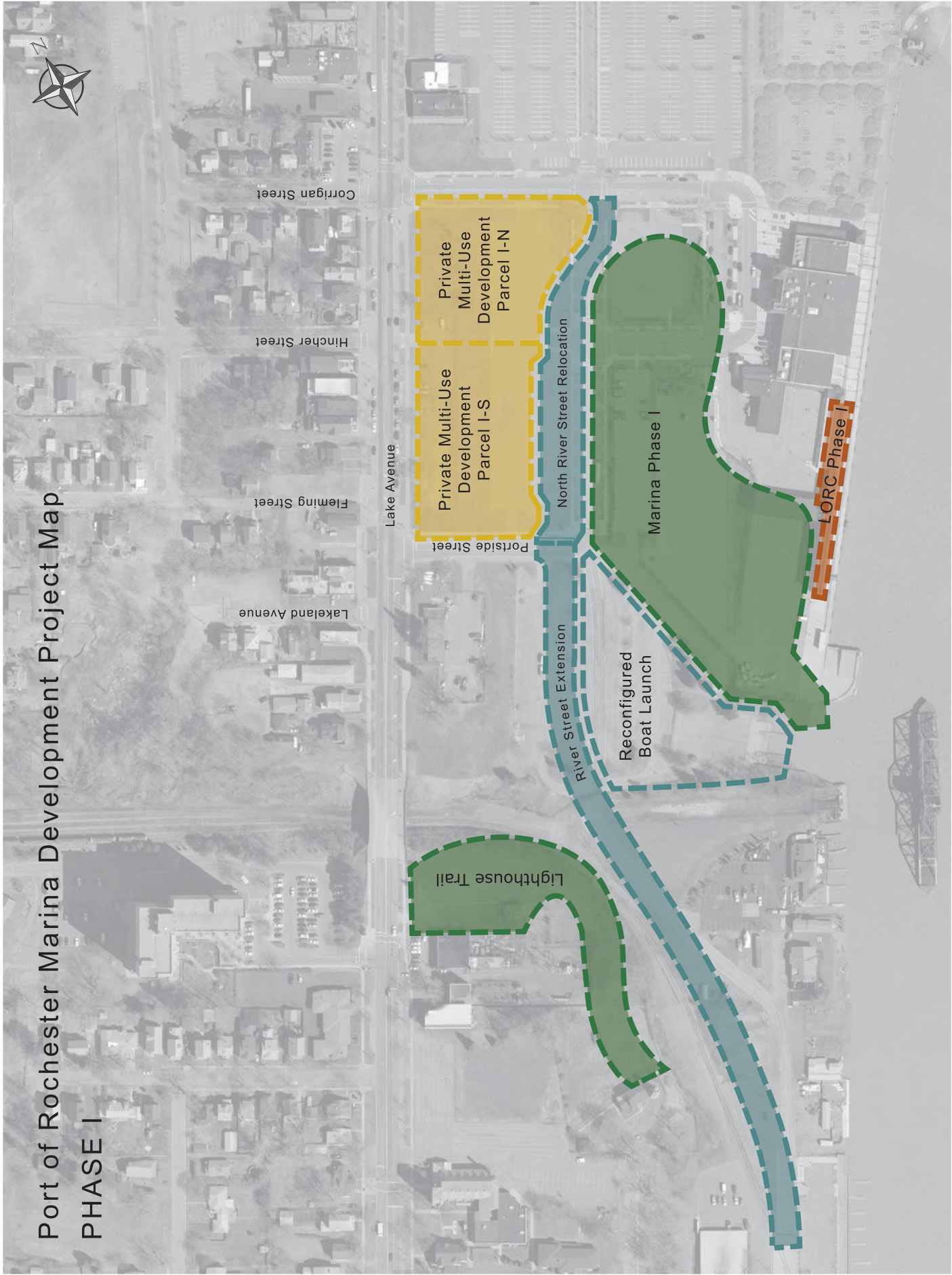
North River Street Relocation

Lighthouse Trail

Reconfigured Boat Launch

Marina Phase I

LORC Phase I



# Port of Rochester Marina Development Project Map

## INTERIM STEPS



Lakeland Avenue

Fleming Street

Hincher Street

Corrigan Street

Lake Avenue

Portside Street

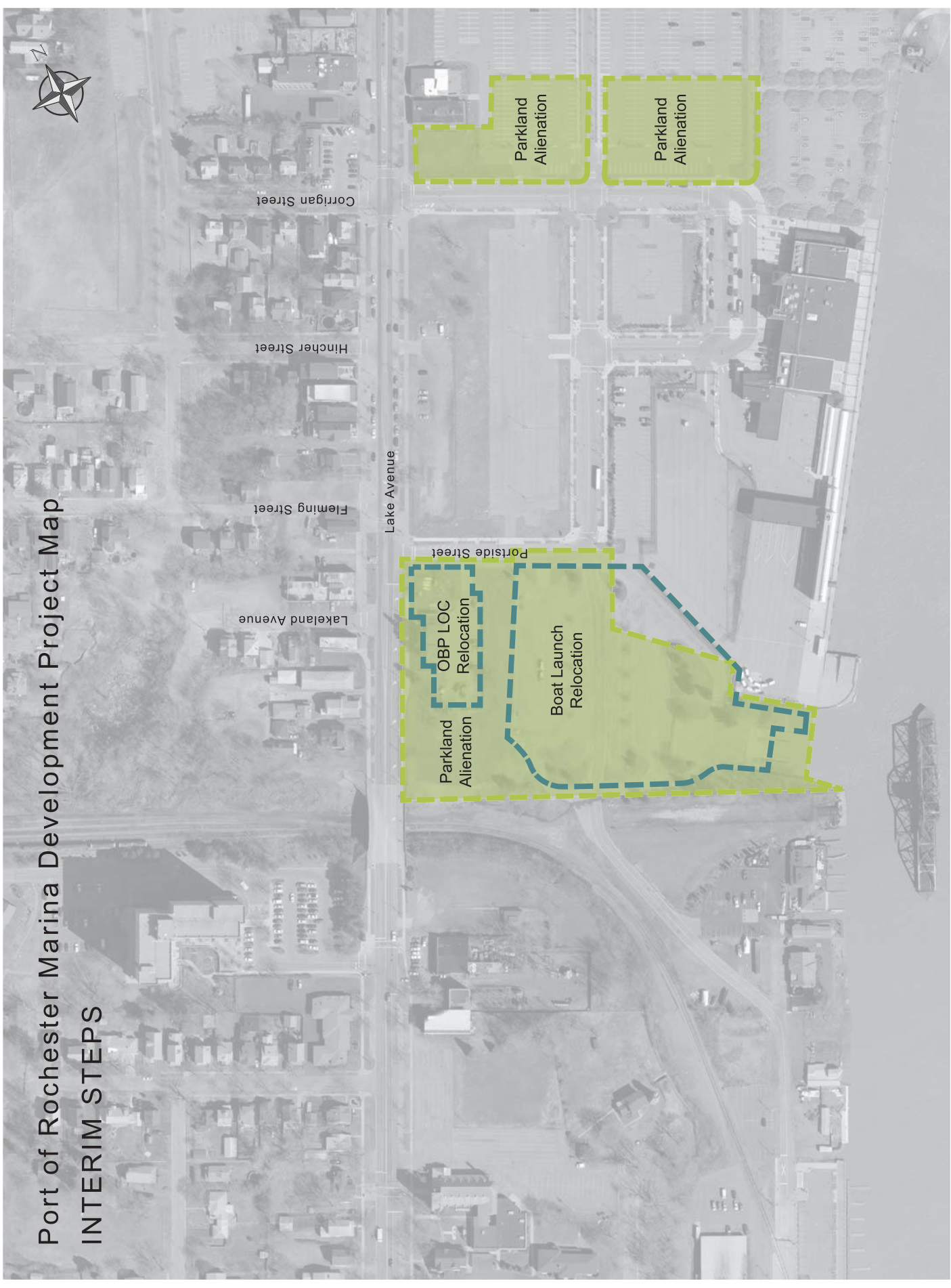
Parkland Alienation

OBP LOC Relocation

Boat Launch Relocation

Parkland Alienation

Parkland Alienation



# Port of Rochester Marina Development Project Map

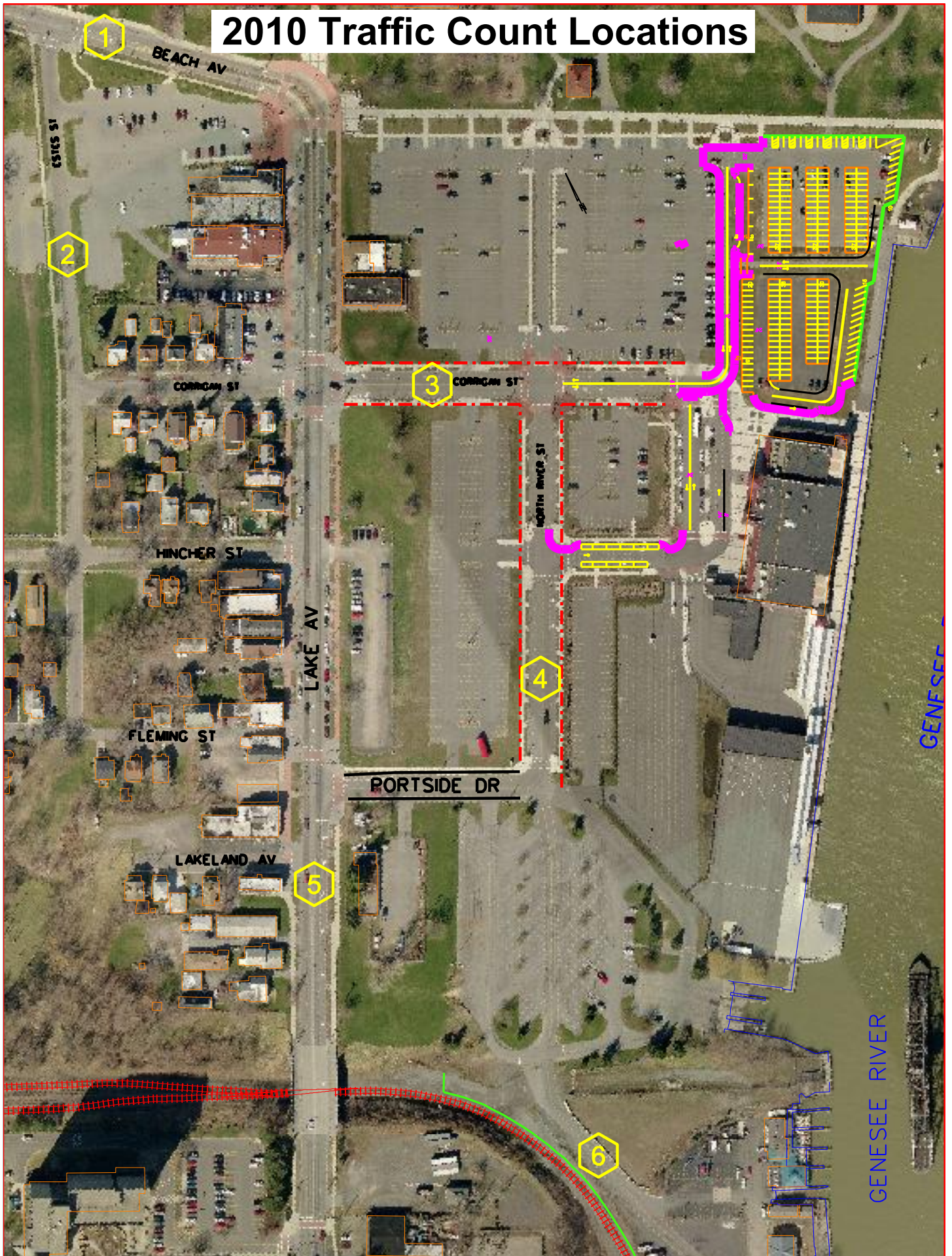
## FULL BUILD-OUT



## **Appendix B**

# **2010 Machine Count Locations and 2010 Intersection Turning Movement Diagrams**

# 2010 Traffic Count Locations



2010 Existing Friday 6:30 – 7:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 With North River Street Connection between Corrigan Street and Portside Drive



2010 Existing Friday 8:30 – 9:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 With North River Street Connection between Corrigan Street and Portside Drive





2010 Existing Saturday 3:30 – 4:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 With North River Street Connection between Corrigan Street and Portside Drive



## Appendix C

### 2020 No Build Intersection Turning Movement Diagrams

**Figure 7 – 2020 No Build Friday 6:30 – 7:30 PM**

Peak Hour Intersection Turning Movement Volumes

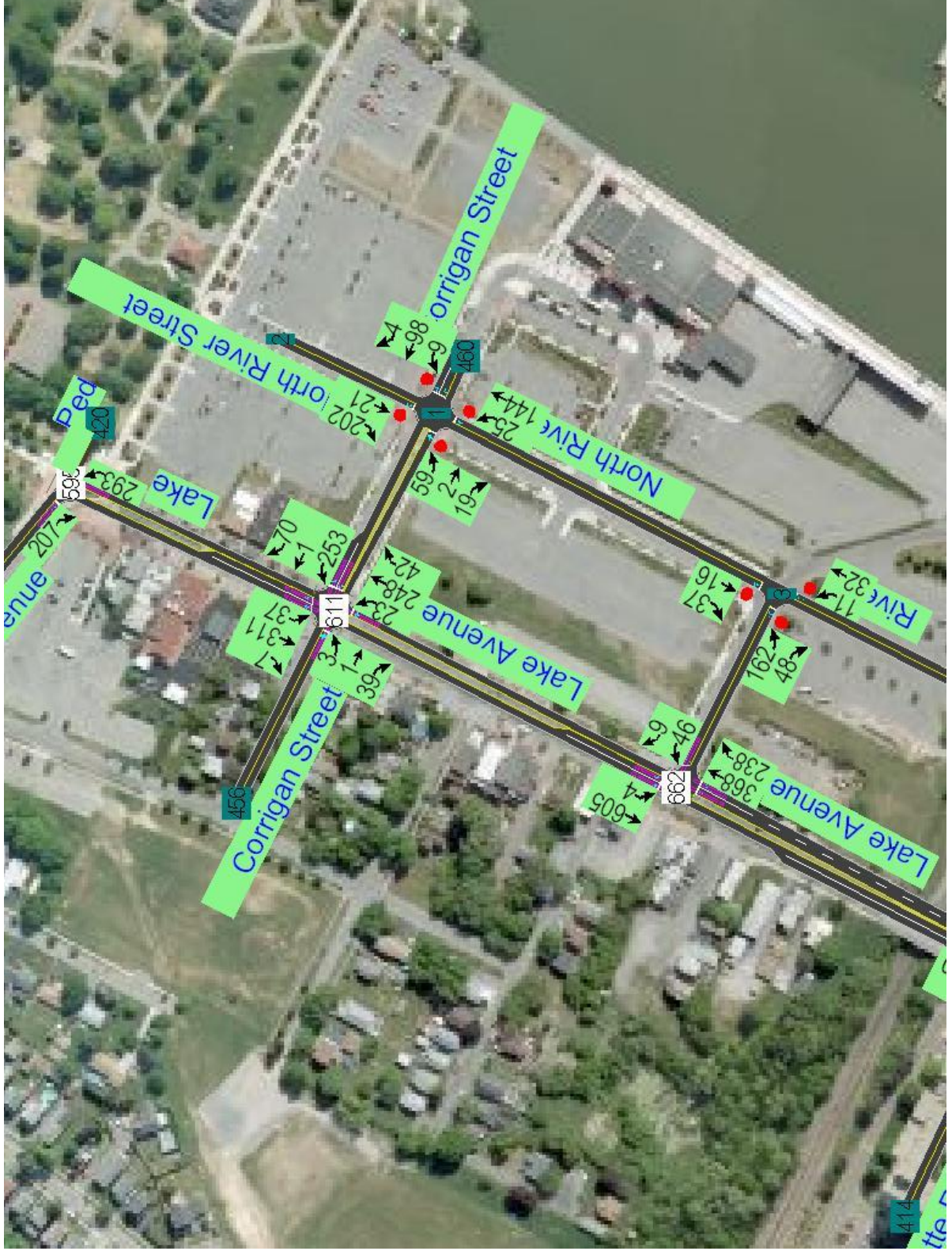
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 8 – 2020 No Build Friday 8:30 – 9:30 PM**

Peak Hour Intersection Turning Movement Volumes

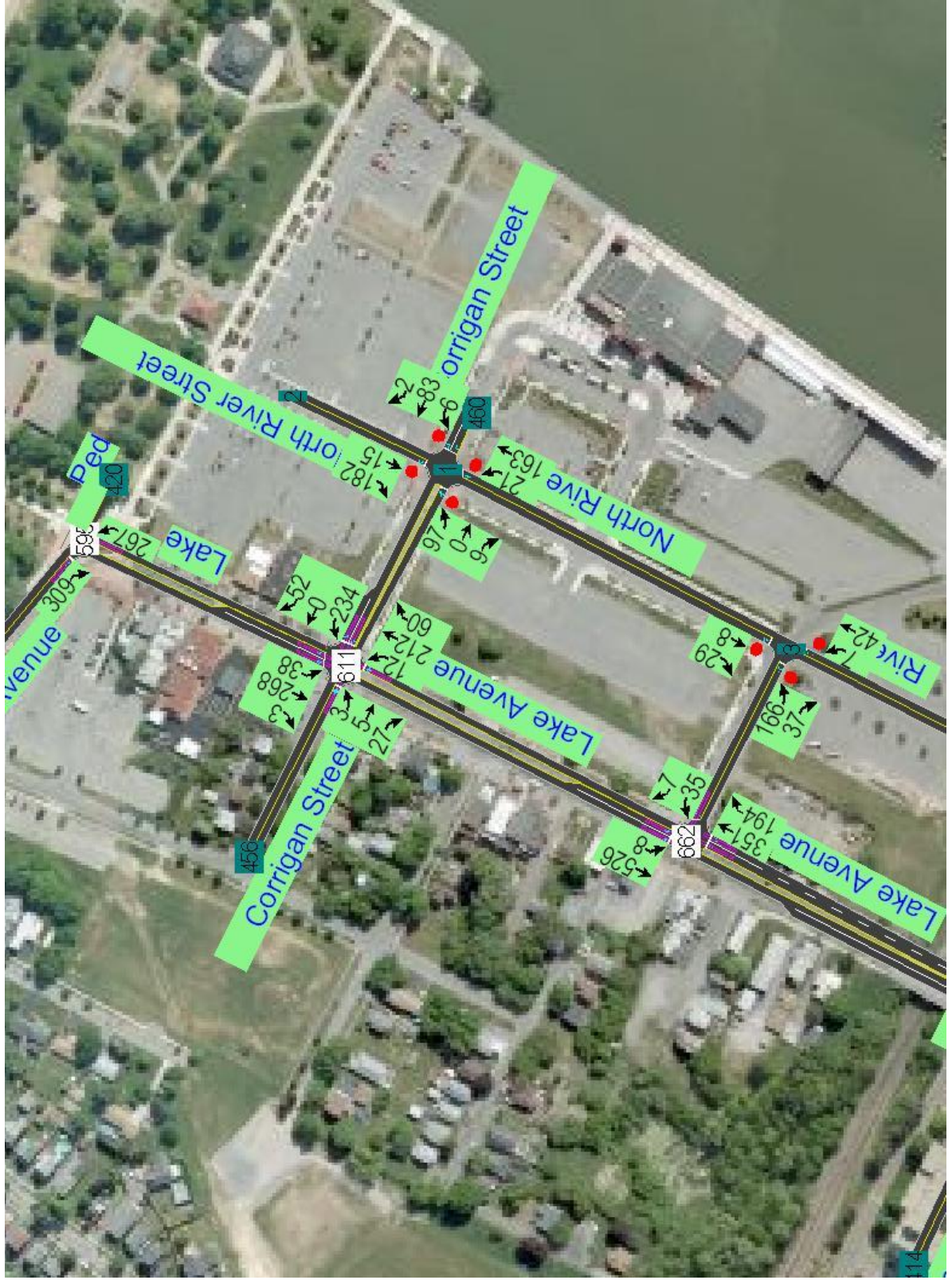
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 9 – 2020 No Build Saturday 3:30 – 4:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive



## Appendix D

### Trip Generation

**TABLE 2  
PORT OF ROCHESTER  
TRIP GENERATION ESTIMATE**

DEVELOPMENT ACTIVITY		TRIP GENERATION		BEFORE CREDITS ARE APPLIED		AFTER CREDITS ARE APPLIED		8:30-9:30			
		LU CODE	SIZE	Friday PM Peak Hour RATE	Saturday Afternoon Peak Hour RATE	Friday Peak Hour ENTER	Friday Peak Hour EXIT	Saturday Peak Hour ENTER	Saturday Peak Hour EXIT	Friday Peak Hour ENTER	Friday Peak Hour EXIT
<b>Parcels I-N and I-S</b>											
APARTMENTS	220	86 Units	equation	65	equation	54					
COMMERCIAL											
High Turnover (Sit Down) Restaurant	932	4,000 Square Feet	0.01115	45	0.01407	56					
Specialty Retail	814	16,000 Square Feet	0.00271	43	0.00271	43					
<b>Parcels IV-W and IV-E</b>											
CONDOMINIUMS	230	180 Units	equation	97	equation	95					
COMMERCIAL											
Specialty Retail	814	2,000 Square Feet	0.00271	5	0.00271	5					
<b>Parcel II</b>											
APARTMENTS	220	84 Units	equation	64	equation	54					
COMMERCIAL											
High Turnover (Sit Down) Restaurant	932	4,000 Square Feet	0.01115	45	0.01407	56					
Specialty Retail	814	18,000 Square Feet	0.00271	49	0.00271	49					
<b>Parcel III</b>											
CONDOMINIUMS	230	80 Units	equation	50	equation	66					
<b>TERMINAL BUILDING</b>											
Pier 45 Restaurant		8,500 Square Feet (approx)	0.01407	120	0.01407	120					
Waterside Room		200 Patrons	0.400	80	0.400	80					
Future catering service (arrival hall)		200 Patrons	0.400	80	0.400	80					
<b>SUNY Brockport</b>											
MARINA		Link Bldg.		10		20					
		118 Slips		0		0					
<b>US CUSTOMS (assume no additional trips)</b>											
		12 Employees (approx)		0		0					
<b>BEACH (drop off beach gear when lots 2 and 3 are full)</b>											
				0		18					
<b>TOTAL TRIP ENDS</b>		(no credits applied)		<b>752</b>		<b>797</b>					
Residential				276		269					
Restaurant/Reception				369		392					
Retail/Recreational				108		118					
Beach				0		18					
<b>TOTAL TRIPS</b>		(w/internal capture credit)		<b>691</b>	8% credit	<b>714</b>	10% credit				
Residential				254		244					
Restaurant/Reception				344		357					
Retail/Recreational				93		95					
Beach				0		18					
<b>TOTAL TRIPS</b>		(w/transit, beach goers, boater and pedestrian credits)		<b>623</b>	10% credit	<b>644</b>	10% credit				
Residential				229		219					
Restaurant/Reception				310		321					
Retail/Recreational				84		86					
Beach				0		18					

ENTER	EXIT	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT
470	283	427	369	396	227	348	296	68	163
183	93	141	128	156	73	114	105	31	15
240	130	225	167	202	107	185	136	26	134
47	60	52	65	38	47	40	46	11	14
0	0	9	9	0	0	9	9	0	0

ENTER	EXIT	ENTER	EXIT
439	252	386	328
173	81	127	117
225	119	207	150
0	0	9	9

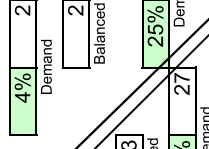
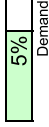
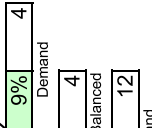
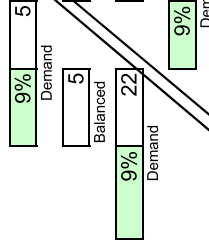
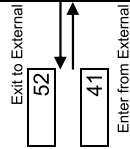
ENTER	EXIT	ENTER	EXIT
396	227	348	296
156	73	114	105
203	107	186	135
37	47	39	47
0	0	9	9

Name of Development: Port of Rochester  
 Date: 7-Oct-09  
 Time Period: Friday PM peak hour



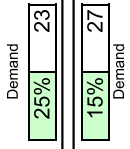
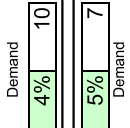
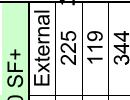
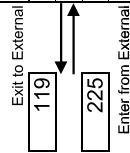
Land Use A: Retail/Recreational  
 ITE LU Code 814/rec Size 36,000 SF+

	Total	Internal	External
enter	47	6	41
exit	60	8	52
total	107	14	93
%	100%	13%	87%



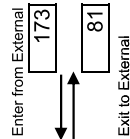
Land Use B: Restaurant/Reception  
 ITE LU Code 932/rec Size 16,000 SF+

	Total	Internal	External
enter	240	15	225
exit	130	11	119
total	370	26	344
%	100%	7%	93%



Land Use C: Residential  
 ITE LU Code 220/230 Size 430 units

	Total	Internal	External
enter	183	10	173
exit	93	12	81
total	276	22	254
%	100%	8%	92%



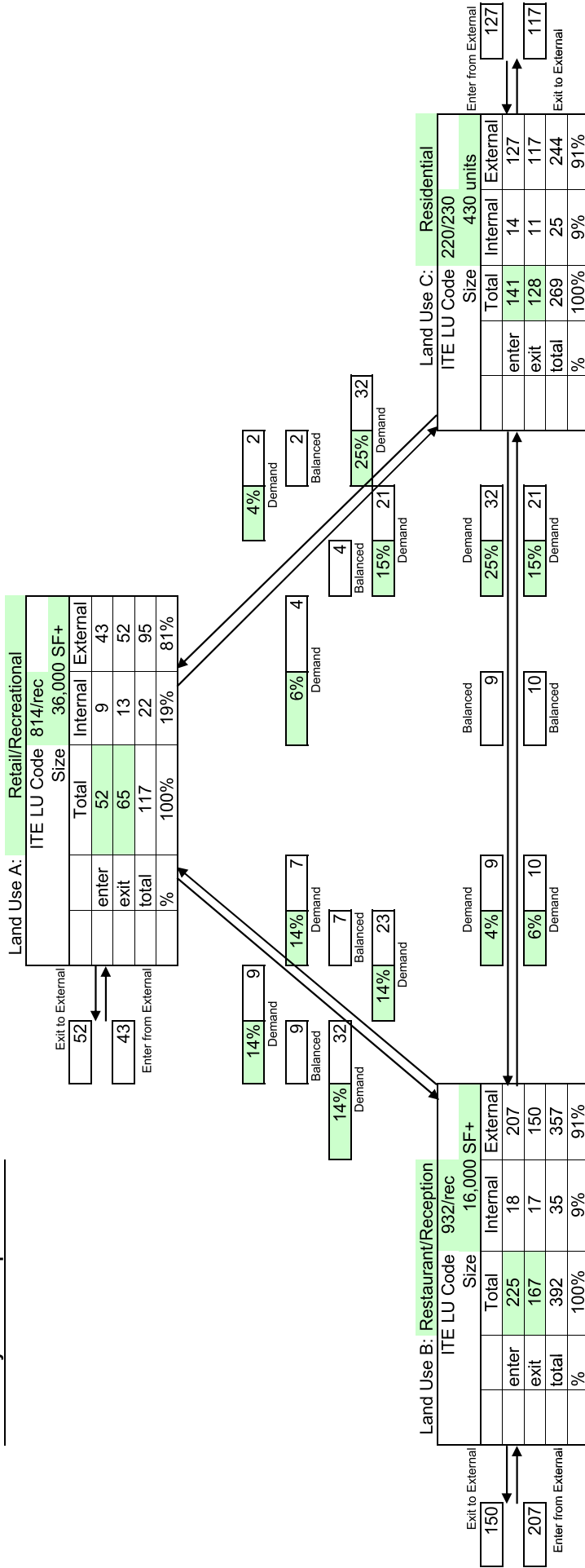
	Land Use A	Land Use B	Land Use C	Total
Enter	41	225	173	439
Exit	52	119	81	252
Total	93	344	254	691
	107	370	276	753

Single-Use Trip Gen Est. **Internal Capture 8.2%**

Legend:  = input fields



Name of Development: Port of Rochester  
 Date: 7-Oct-09  
 Time Period: Saturday afternoon peak hour



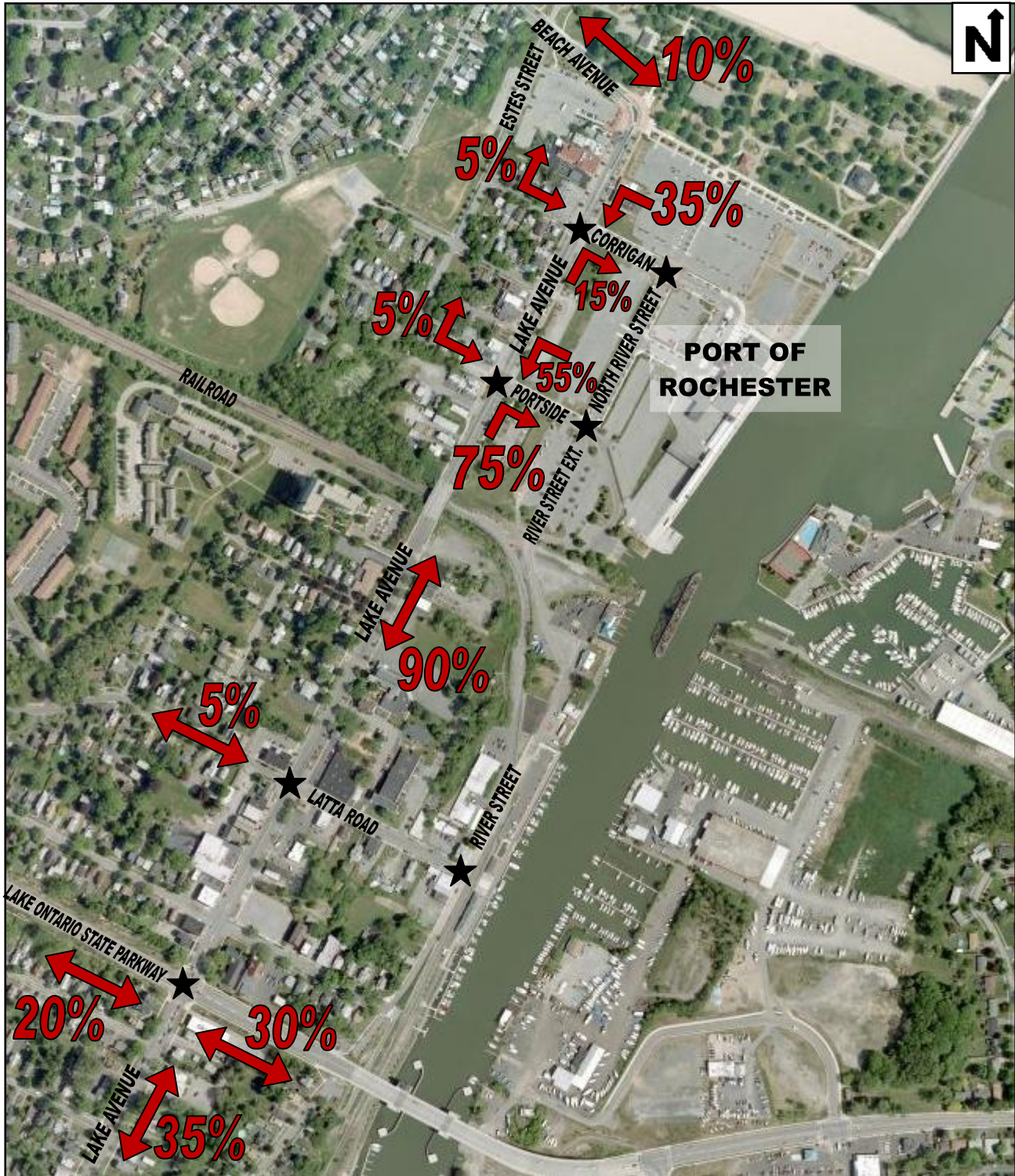
	Land Use A	Land Use B	Land Use C	Total
Enter	43	207	127	377
Exit	52	150	117	319
Total	95	357	244	696
Single-Use Trip Gen Est.	117	392	269	778
Internal Capture				10.5%

Legend:   = input fields

## Appendix E

### Trip Distribution and Assignment

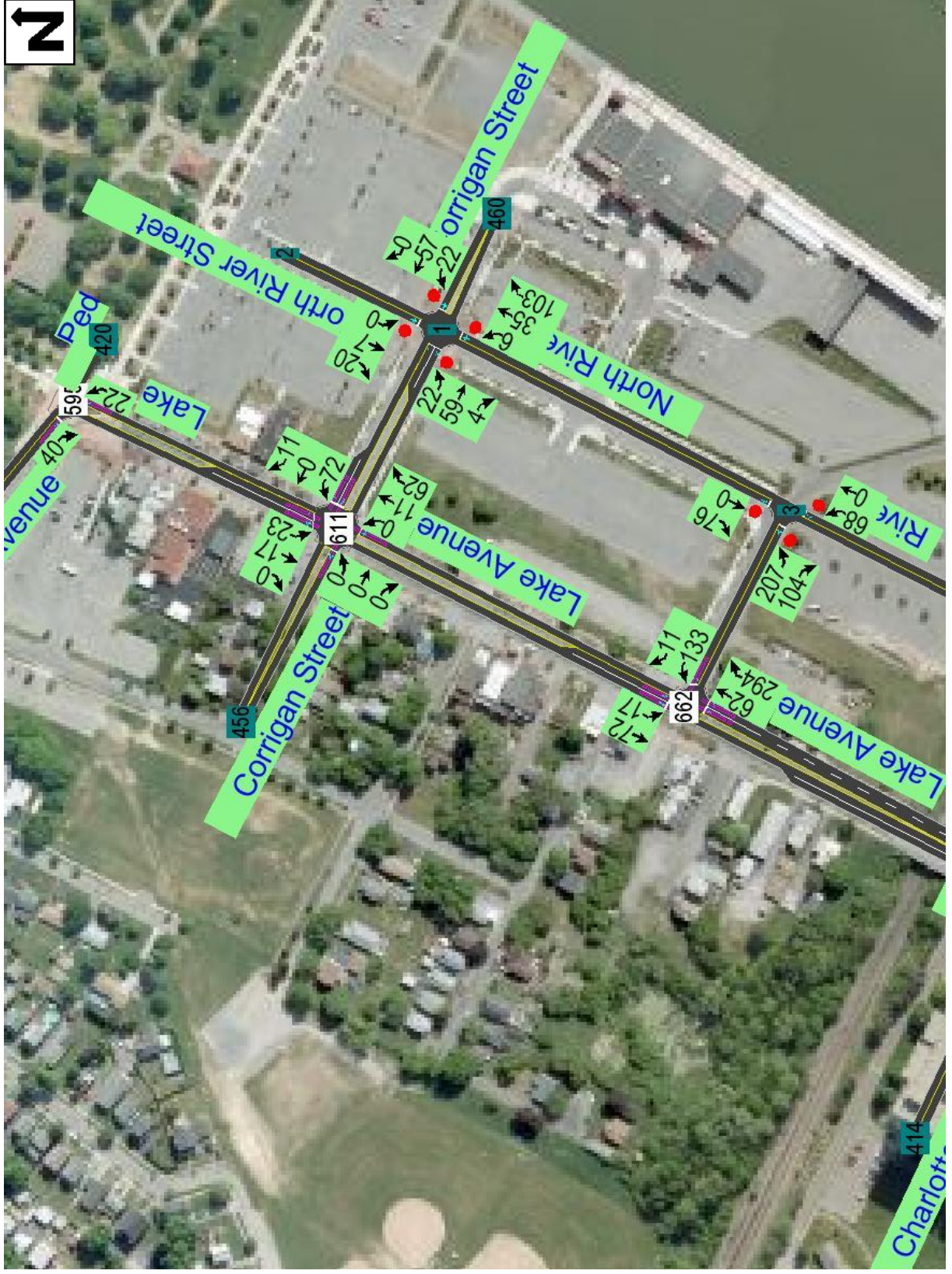
Figure 3 – Trip Distribution



**Figure 4 – Trip Assignment Friday 6:30 – 7:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive



**Figure 5 – Trip Assignment Friday 8:30 – 9:30 PM**

Peak Hour Intersection Turning Movement Volumes

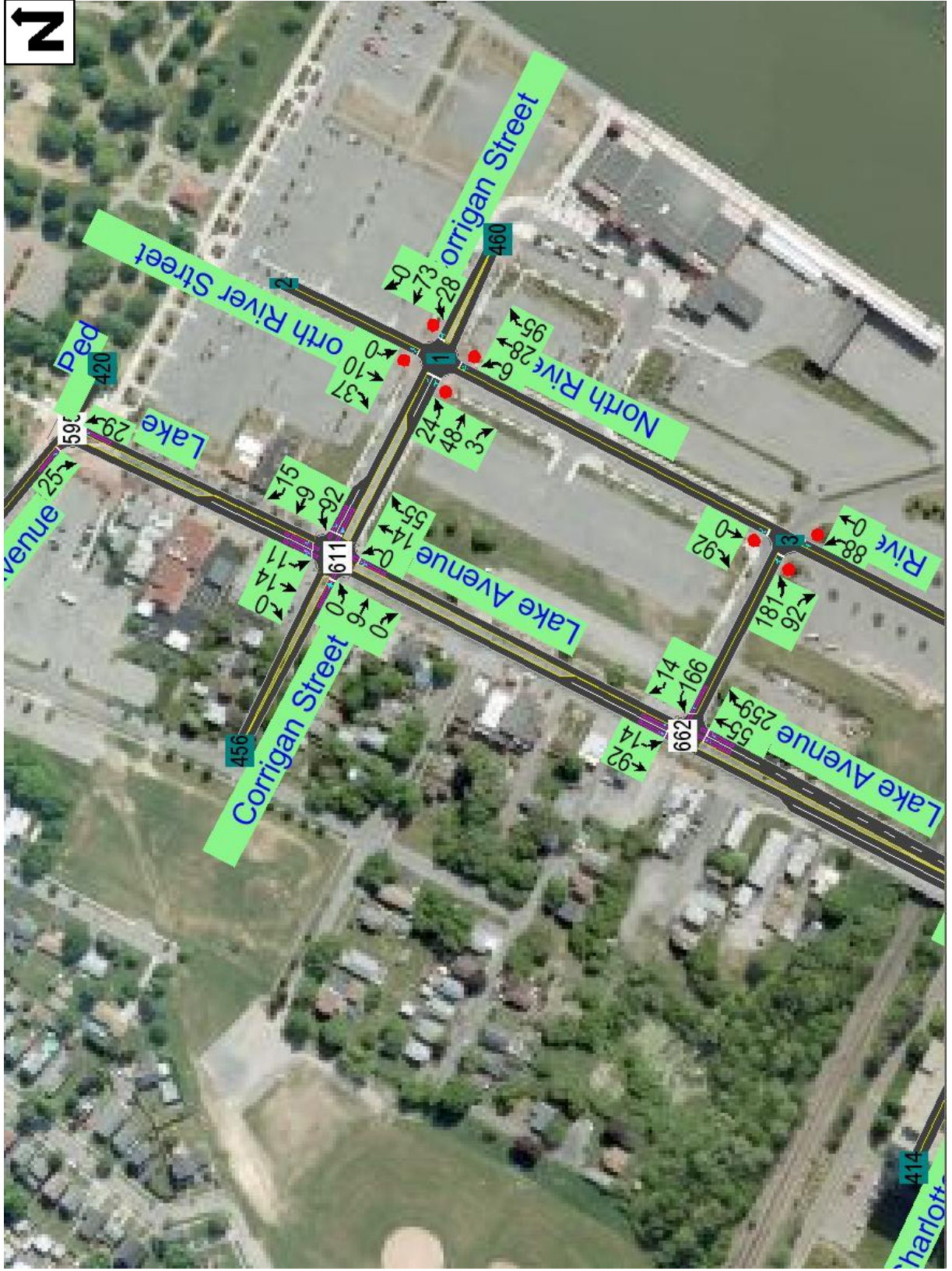
With North River Street Connection between Corrigan Street and Portside Drive



**Figure 6 – Trip Assignment Saturday 3:30 – 4:30 PM**

Peak Hour Intersection Turning Movement Volumes

With North River Street Connection between Corrigan Street and Portside Drive



## Appendix F

### Intersection Turning Movement Tables

PORT OF ROCHESTER - Without North River Street

**Friday PM Peak Hour**

0.5 % growth compounded annually

**study area  
peak hour**

Lake Ave @ Corrigan Street	year 2007 6:30-7:30	Adjustments Based on 2010 Counts	year 2010 6:30-7:30	year 2020 6:30-7:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 6:30-7:30	2020 Build without N River St
EB Left	2		2	2	0	2	0	2
EB Thru	6		6	6	0	6	0	6
EB Right	30		30	32	0	32	0	32
WB Left	86	43	129	136	36	172	103	275
WB Thru	2		2	2	0	2	0	2
WB Right	58	-29	29	30	0	30	11	41
NB Left	26	5	31	33	0	33	0	33
NB Thru	230		230	242	0	242	11	253
NB Right	39	30	69	73	280	353	207	560
SB Left	46	5	51	54	-17	37	23	60
SB Thru	154	85	239	251	17	268	17	285
SB Right	5		5	5	0	5	0	5
<b>Total Intersection</b>	<b>684</b>	<b>139</b>	<b>823</b>	<b>866</b>	<b>316</b>		<b>372</b>	<b>1554</b>

North River Street @ Corrigan Street	year 2007 6:30-7:30	Adjustments Based on 2010 Counts	year 2010 6:30-7:30	year 2020 6:30-7:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 6:30-7:30	2020 Build without N River St
EB Left	67	29	96	101	280	381	57	438
EB Thru	0		0	0	0	0	162	162
EB Right	30		30	32	-32	0	11	11
WB Left	11		11	12	-12	0	0	0
WB Thru	39	12	51	54	12	66	79	145
WB Right	3		3	3	0	3	0	3
NB Left	5	12	17	18	-18	0	8	8
NB Thru	110	110	220	231	-231	0	0	0
NB Right	0		0	0	0	0	0	0
SB Left	0		0	0	0	0	0	0
SB Thru	9		9	9	-9	0	0	0
SB Right	80	12	92	97	26	123	27	150
<b>Total Intersection</b>	<b>354</b>	<b>175</b>	<b>529</b>	<b>557</b>	<b>16</b>		<b>344</b>	<b>917</b>

Lake Ave @ Portside Drive	year 2007 6:30-7:30	Adjustments Based on 2010 Counts	year 2010 6:30-7:30	year 2020 6:30-7:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 6:30-7:30	2020 Build without N River St
EB Left	0		0	0	0	0	0	0
EB Thru	0		0	0	0	0	0	0
EB Right	0		0	0	0	0	0	0
WB Left	21	10	31	33	-23	10	102	112
WB Thru	0		0	0	0	0	0	0
WB Right	14		14	15	30	45	11	56
NB Left	0		0	0	0	0	0	0
NB Thru	325	23	348	366	250	616	207	823
NB Right	142	175	317	333	-250	83	149	232
SB Left	11	2	13	14	30	44	17	61
SB Thru	317	172	489	514	23	537	103	640
SB Right	0		0	0	0	0	0	0
<b>Total Intersection</b>	<b>830</b>	<b>382</b>	<b>1212</b>	<b>1275</b>	<b>60</b>		<b>589</b>	<b>1924</b>

River Street Ext. @ Portside Drive	year 2007 Estimated	Adjustments Based on 2010 Counts	year 2010 Estimated	year 2020 Estimated	Diversion without N River St	2020 No Build w/diversion	New Port Trips 6:30-7:30	2020 Build without N River St
EB Left	98	140	238	250	-250	0	62	62
EB Thru	0		0	0	0	0	0	0
EB Right	42	-9	33	35	30	65	104	169
WB Left	0		0	0	0	0	0	0
WB Thru	0		0	0	0	0	0	0
WB Right	0		0	0	0	0	0	0
NB Left	14	11	25	26	30	56	68	124
NB Thru	16	13	29	30	-30	0	0	0
NB Right	0		0	0	0	0	0	0
SB Left	0		0	0	0	0	0	0
SB Thru	29	-8	21	22	-22	0	0	0
SB Right	22		22	23	-23	0	45	45
<b>Total Intersection</b>	<b>221</b>	<b>147</b>	<b>368</b>	<b>386</b>	<b>-265</b>		<b>279</b>	<b>400</b>



PORT OF ROCHESTER - Without North River Street

**Friday Night Peak Hour**

0.5 % growth compounded annually

**port area  
peak hour**

Lake Ave @ Corrigan Street		year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 8:30-9:30	2020 Build without N River St
EB	Left	3		3	3	0	3	0	3
	Thru	1		1	1	0	1	0	1
	Right	37		37	39	0	39	0	39
WB	Left	190	51	241	253	44	297	96	393
	Thru	1	0	1	1	0	1	0	1
	Right	53	14	67	70	0	70	11	81
NB	Left	22		22	23	0	23	0	23
	Thru	200	36	236	248	0	248	6	254
	Right	36	4	40	42	194	236	30	266
SB	Left	33	2	35	37	-9	28	3	31
	Thru	200	96	296	311	9	320	3	323
	Right	5	2	7	7	0	7	0	7
Total Intersection		781	205	986	1035	238		149	1422

North River Street @ Corrigan Street		year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 8:30-9:30	2020 Build without N River St
EB	Left	56		56	59	194	253	12	265
	Thru	2		2	2	0	2	20	22
	Right	18		18	19	-19	0	1	1
WB	Left	9		9	9	-9	0	0	0
	Thru	66	27	93	98	9	107	100	207
	Right	4		4	4	0	4	0	4
NB	Left	17	7	24	25	-25	0	1	1
	Thru	78	59	137	144	-144	0	0	0
	Right	0		0	0	0	0	0	0
SB	Left	0		0	0	0	0	0	0
	Thru	23	-3	20	21	-21	0	0	0
	Right	136	56	192	202	35	237	6	243
Total Intersection		409	146	555	583	20		140	743

Lake Ave @ Portside Drive		year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 8:30-9:30	2020 Build without N River St
EB	Left	0		0	0	0	0	0	0
	Thru	0		0	0	0	0	0	0
	Right	0		0	0	0	0	0	0
WB	Left	34	10	44	46	-37	9	50	59
	Thru	0		0	0	0	0	0	0
	Right	9		9	9	32	41	6	47
NB	Left	0		0	0	0	0	0	0
	Thru	284	66	350	368	162	530	30	560
	Right	105	121	226	238	-162	76	32	108
SB	Left	4		4	4	16	20	3	23
	Thru	443	133	576	605	37	642	96	738
	Right	0		0	0	0	0	0	0
Total Intersection		879	330	1209	1270	48		217	1535

River Street Ext. @ Portside Drive		year 2007 Estimated	Adjustments Based on 2010 Counts	year 2010 Estimated	year 2020 Estimated	Diversion without N River St	2020 No Build w/diversion	New Port Trips 8:30-9:30	2020 Build without N River St
EB	Left	89	65	154	162	-162	0	14	14
	Thru	0		0	0	0	0	0	0
	Right	20	26	46	48	16	64	21	85
WB	Left	0		0	0	0	0	0	0
	Thru	0		0	0	0	0	0	0
	Right	0		0	0	0	0	0	0
NB	Left	10		10	11	32	43	30	73
	Thru	10	20	30	32	-32	0	0	0
	Right	0		0	0	0	0	0	0
SB	Left	0		0	0	0	0	0	0
	Thru	15		15	16	-16	0	0	0
	Right	35		35	37	-37	0	26	26
Total Intersection		179	111	290	306	-199		91	198

PORT OF ROCHESTER - Without North River Street

**Saturday Afternoon Peak Hour**

0.5 % growth compounded annually

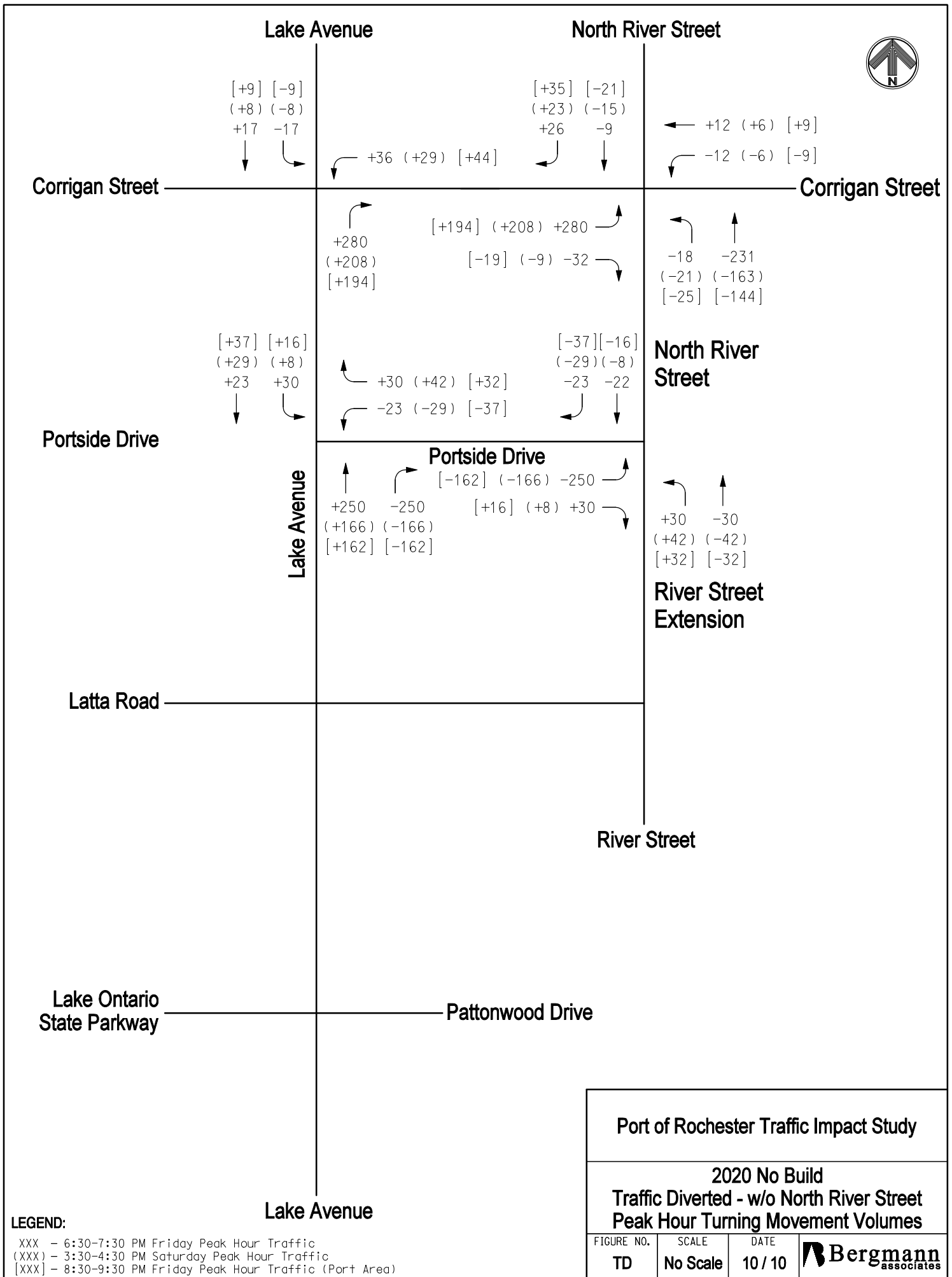
**study area  
peak hour**

Lake Ave @ Corrigan Street	year 2007 3:30-4:30	Adjustments Based on 2010 Counts	year 2010 3:30-4:30	year 2020 3:30-4:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 3:30-4:30	2020 Build without N River St
EB Left	3		3	3	0	3	0	3
EB Thru	4	1	5	5	0	5	9	14
EB Right	26		26	27	0	27	0	27
WB Left	204	19	223	234	29	263	132	395
WB Thru	0	0	0	0	0	0	9	9
WB Right	45	4	49	52	0	52	15	67
NB Left	11		11	12	0	12	0	12
NB Thru	179	23	202	212	0	212	14	226
NB Right	44	13	57	60	208	268	183	451
SB Left	28	8	36	38	-8	30	11	41
SB Thru	190	65	255	268	8	276	14	290
SB Right	3		3	3	0	3	0	3
<b>Total Intersection</b>	<b>737</b>	<b>133</b>	<b>870</b>	<b>914</b>	<b>237</b>		<b>387</b>	<b>1538</b>

North River Street @ Corrigan Street	year 2007 3:30-4:30	Adjustments Based on 2010 Counts	year 2010 3:30-4:30	year 2020 3:30-4:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 3:30-4:30	2020 Build without N River St
EB Left	112	-20	92	97	208	305	52	357
EB Thru	0		0	0	0	0	143	143
EB Right	14	-5	9	9	-9	0	8	8
WB Left	6		6	6	-6	0	0	0
WB Thru	51	28	79	83	6	89	101	190
WB Right	2		2	2	0	2	0	2
NB Left	13	7	20	21	-21	0	8	8
NB Thru	131	24	155	163	-163	0	0	0
NB Right	0		0	0	0	0	0	0
SB Left	0		0	0	0	0	0	0
SB Thru	17	-3	14	15	-15	0	0	0
SB Right	112	61	173	182	23	205	47	252
<b>Total Intersection</b>	<b>458</b>	<b>92</b>	<b>550</b>	<b>578</b>	<b>23</b>		<b>359</b>	<b>960</b>

Lake Ave @ Portside Drive	year 2007 3:30-4:30	Adjustments Based on 2010 Counts	year 2010 3:30-4:30	year 2020 3:30-4:30	Diversion without N River St	2020 No Build w/diversion	New Port Trips 3:30-4:30	2020 Build without N River St
EB Left	0		0	0	0	0	0	0
EB Thru	0		0	0	0	0	0	0
EB Right	0		0	0	0	0	0	0
WB Left	28	5	33	35	-29	6	126	132
WB Thru	0		0	0	0	0	0	0
WB Right	7		7	7	42	49	14	63
NB Left	0		0	0	0	0	0	0
NB Thru	259	75	334	351	166	517	183	700
NB Right	97	88	185	194	-166	28	131	159
SB Left	8		8	8	8	16	14	30
SB Thru	420	80	500	526	29	555	132	687
SB Right	0		0	0	0	0	0	0
<b>Total Intersection</b>	<b>819</b>	<b>248</b>	<b>1067</b>	<b>1121</b>	<b>50</b>		<b>600</b>	<b>1771</b>

River Street Ext. @ Portside Drive	year 2007 Estimated	Adjustments Based on 2010 Counts	year 2010 Estimated	year 2020 Estimated	Diversion without N River St	2020 No Build w/diversion	New Port Trips 3:30-4:30	2020 Build without N River St
EB Left	98	60	158	166	-166	0	53	53
EB Thru	0		0	0	0	0	0	0
EB Right	8	27	35	37	8	45	92	137
WB Left	0		0	0	0	0	0	0
WB Thru	0		0	0	0	0	0	0
WB Right	0		0	0	0	0	0	0
NB Left	7		7	7	42	49	88	137
NB Thru	46	-6	40	42	-42	0	0	0
NB Right	0		0	0	0	0	0	0
SB Left	0		0	0	0	0	0	0
SB Thru	8		8	8	-8	0	0	0
SB Right	28		28	29	-29	0	52	52
<b>Total Intersection</b>	<b>195</b>	<b>81</b>	<b>276</b>	<b>289</b>	<b>-195</b>		<b>285</b>	<b>379</b>



<b>Port of Rochester Traffic Impact Study</b>			
<b>2020 No Build Traffic Diverted - w/o North River Street Peak Hour Turning Movement Volumes</b>			
FIGURE NO.	SCALE	DATE	
<b>TD</b>	<b>No Scale</b>	<b>10 / 10</b>	



PORT OF ROCHESTER - With North River Street

**Friday PM Peak Hour**

0.5 % growth compounded annually

**study area**

**peak hour**

Corrigan Trips

Approx 70% exit

30% enter

Using N. River

River Street @ Latta Road	year 2007 6:30-7:30	Adjustments Based on 2010 Counts	year 2010 6:30-7:30	year 2020 6:30-7:30	New Port Trips 6:30-7:30	2020 Build with N River St
EB Left	52		52	55	0	55
EB Thru	0		0	0	0	0
EB Right	0		0	0	0	0
WB Left	0		0	0	0	0
WB Thru	0		0	0	0	0
WB Right	0		0	0	0	0
NB Left	6		6	6	0	6
NB Thru	6		6	6	0	6
NB Right	0		0	0	0	0
SB Left	0		0	0	0	0
SB Thru	0		0	0	0	0
SB Right	44	10	54	57	0	57
<b>Total Intersection</b>	<b>108</b>	<b>10</b>	<b>118</b>	<b>124</b>	<b>0</b>	<b>124</b>

Lake Ave @ Lake Ontario State Pkwy	year 2007 6:30-7:30	Adjustments Based on 2010 Counts	year 2010 6:30-7:30	year 2020 6:30-7:30	New Port Trips 6:30-7:30	2020 Build with N River St
EB Left	123	10	133	140	68	208
EB Thru	347	5	352	370	0	370
EB Right	128	2	130	137	0	137
WB Left	171	3	174	183	0	183
WB Thru	363	5	368	387	0	387
WB Right	209	15	224	235	101	336
NB Left	143	2	145	152	0	152
NB Thru	337	25	362	381	169	550
NB Right	155	2	157	165	0	165
SB Left	215	18	233	245	59	304
SB Thru	255	24	279	293	97	390
SB Right	71	8	79	83	39	122
<b>Total Intersection</b>	<b>2517</b>	<b>119</b>	<b>2636</b>	<b>2771</b>	<b>533</b>	<b>3304</b>

**Saturday Afternoon Peak Hour**

0.5 % growth compounded annually

**study area**

**peak hour**

Corrigan Trips

Approx 70% exit

30% enter

Using N. River

River Street @ Latta Road	year 2007 3:30-4:30	Adjustments Based on 2010 Counts	year 2010 3:30-4:30	year 2020 3:30-4:30	New Port Trips 3:30-4:30	2020 Build with N River St
EB Left	34	6	40	42	0	42
EB Thru	0		0	0	0	0
EB Right	0		0	0	0	0
WB Left	0		0	0	0	0
WB Thru	0		0	0	0	0
WB Right	0		0	0	0	0
NB Left	9		9	9	0	9
NB Thru	7		7	7	0	7
NB Right	0		0	0	0	0
SB Left	0		0	0	0	0
SB Thru	0		0	0	0	0
SB Right	32	11	43	45	0	45
<b>Total Intersection</b>	<b>82</b>	<b>17</b>	<b>99</b>	<b>103</b>	<b>0</b>	<b>103</b>

Lake Ave @ Lake Ontario State Pkwy	year 2007 3:30-4:30	Adjustments Based on 2010 Counts	year 2010 3:30-4:30	year 2020 3:30-4:30	New Port Trips 3:30-4:30	2020 Build with N River St
EB Left	140	-16	124	130	60	190
EB Thru	321	5	326	343	0	343
EB Right	101	2	103	108	0	108
WB Left	176	3	179	188	0	188
WB Thru	295	4	299	314	0	314
WB Right	204	-22	182	191	89	280
NB Left	144	2	146	153	0	153
NB Thru	277	-31	246	259	149	408
NB Right	149	2	151	159	0	159
SB Left	247	-12	235	247	74	321
SB Thru	274	-13	261	274	122	396
SB Right	82	-4	78	82	49	131
<b>Total Intersection</b>	<b>2410</b>	<b>-80</b>	<b>2330</b>	<b>2448</b>	<b>543</b>	<b>2991</b>

PORT OF ROCHESTER - With North River Street

**Friday Night Peak Hour**

0.5 % growth compounded annually

**port area  
peak hour**

Corrigan Trips

Approx 70% exit

30% enter

Using N. River

Lake Ave @ Corrigan Street	year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	New Port Trips 8:30-9:30	2020 Build with N River St
EB Left	3		3	3	0	3
EB Thru	1		1	1	0	1
EB Right	37		37	39	0	39
WB Left	190	51	241	253	67	320
WB Thru	1	0	1	1	0	1
WB Right	53	14	67	70	11	81
NB Left	22		22	23	0	23
NB Thru	200	36	236	248	6	254
NB Right	36	4	40	42	9	51
SB Left	33	2	35	37	3	40
SB Thru	200	96	296	311	3	314
SB Right	5	2	7	7	0	7
<b>Total Intersection</b>	<b>781</b>	<b>205</b>	<b>986</b>	<b>1035</b>	<b>99</b>	<b>1134</b>

North River Street @ Corrigan Street	year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	New Port Trips 8:30-9:30	2020 Build with N River St
EB Left	56		56	59	5	64
EB Thru	2		2	2	6	8
EB Right	18		18	19	1	20
WB Left	9		9	9	27	36
WB Thru	66	27	93	98	73	171
WB Right	4		4	4	0	4
NB Left	17	7	24	25	1	26
NB Thru	78	59	137	144	7	151
NB Right	0		0	0	14	14
SB Left	0		0	0	0	0
SB Thru	23	-3	20	21	2	23
SB Right	136	56	192	202	4	206
<b>Total Intersection</b>	<b>409</b>	<b>146</b>	<b>555</b>	<b>583</b>	<b>140</b>	<b>723</b>

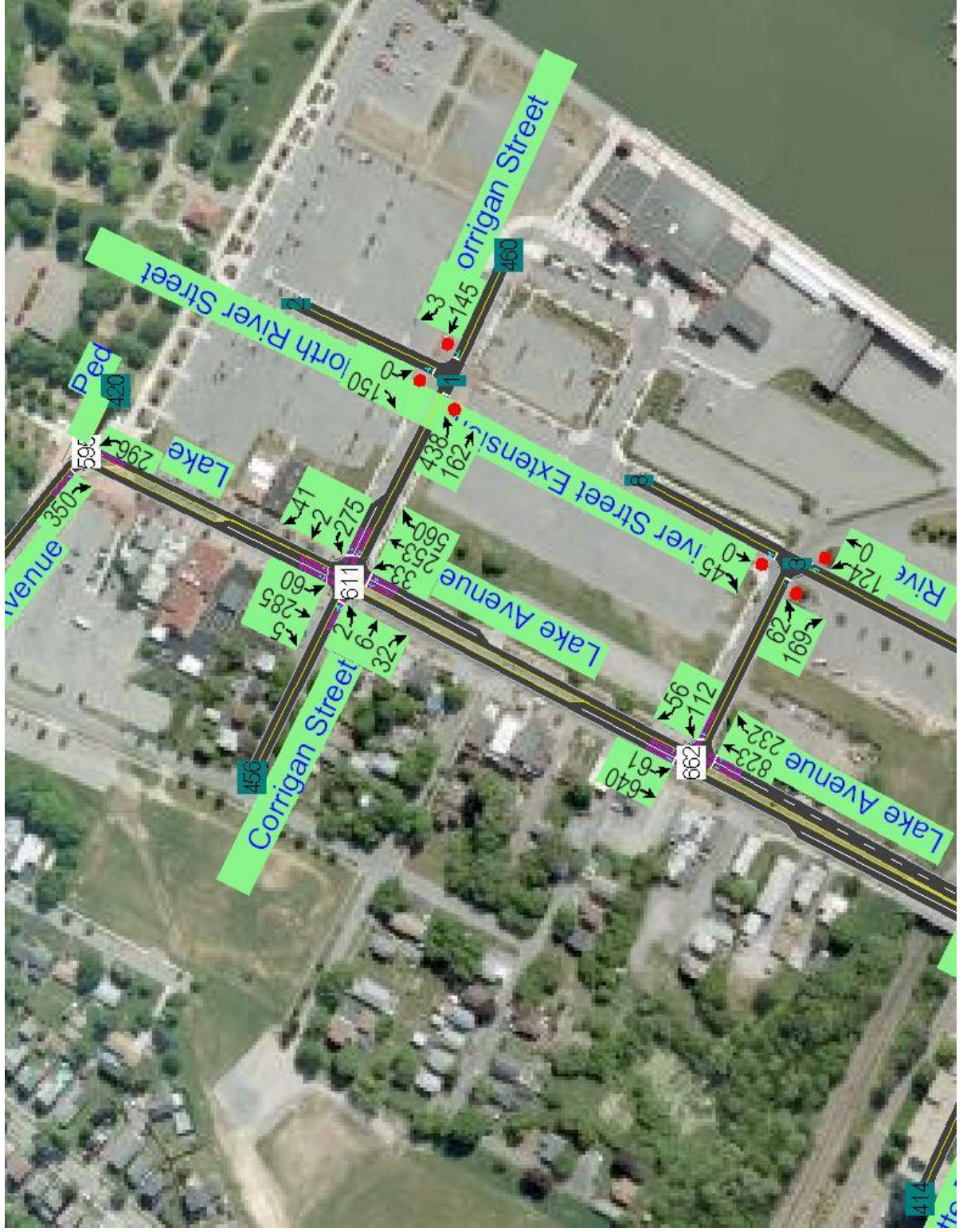
Lake Ave @ Portside Drive	year 2007 8:30-9:30	Adjustments Based on 2010 Counts	year 2010 8:30-9:30	year 2020 8:30-9:30	New Port Trips 8:30-9:30	2020 Build with N River St
EB Left	0		0	0	0	0
EB Thru	0		0	0	0	0
EB Right	0		0	0	0	0
WB Left	34	10	44	46	79	125
WB Thru	0		0	0	0	0
WB Right	9		9	9	6	15
NB Left	0		0	0	0	0
NB Thru	284	66	350	368	9	377
NB Right	105	121	226	238	53	291
SB Left	4		4	4	3	7
SB Thru	443	133	576	605	67	672
SB Right	0		0	0	0	0
<b>Total Intersection</b>	<b>879</b>	<b>330</b>	<b>1209</b>	<b>1270</b>	<b>217</b>	<b>1487</b>

River Street Ext. @ Portside Drive	year 2007 Estimated	Adjustments Based on 2010 Counts	year 2010 Estimated	year 2020 Estimated	New Port Trips 8:30-9:30	2020 Build with N River St
EB Left	89	65	154	162	35	197
EB Thru	0		0	0	0	0
EB Right	20	26	46	48	21	69
WB Left	0		0	0	0	0
WB Thru	0		0	0	0	0
WB Right	0		0	0	0	0
NB Left	10		10	11	30	41
NB Thru	10	20	30	32	0	32
NB Right	0		0	0	0	0
SB Left	0		0	0	0	0
SB Thru	15		15	16	0	16
SB Right	35		35	37	55	92
<b>Total Intersection</b>	<b>179</b>	<b>111</b>	<b>290</b>	<b>306</b>	<b>141</b>	<b>447</b>

## Appendix G

### 2020 Build Turning Movement Diagrams

2020 Build Friday 6:30 – 7:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 No North River Street Connection between Corrigan Street and Portside Drive





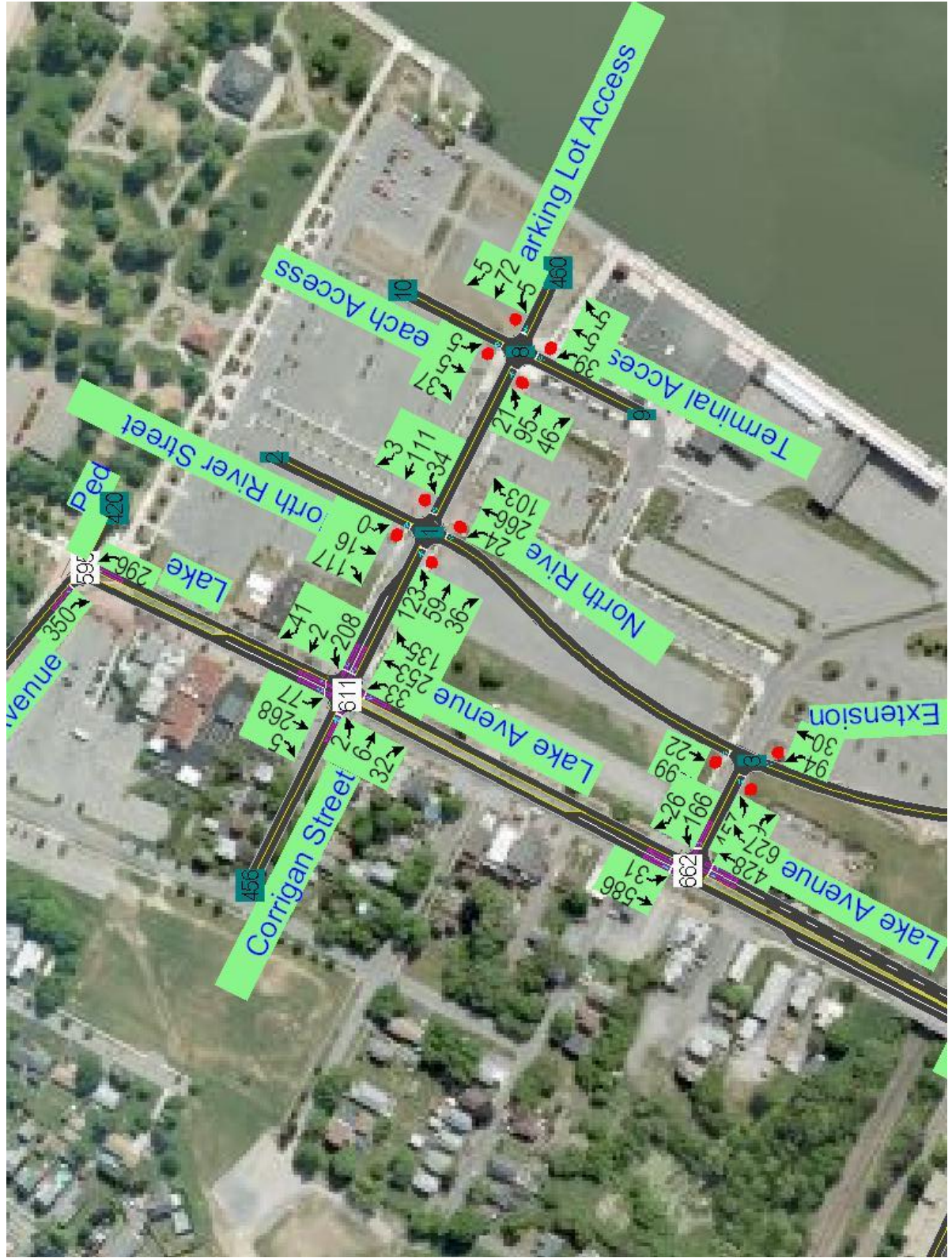
2020 Build Friday 8:30 – 9:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 No North River Street Connection between Corrigan Street and Portside Drive



2020 Build Saturday 3:30 – 4:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 No North River Street Connection between Corrigan Street and Portside Drive



2020 Build Friday 6:30 – 7:30 PM  
Peak Hour Intersection Turning Movement Volumes  
With North River Street Connection between Corrigan Street and Portside Drive



2020 Build Friday 8:30 – 9:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 With North River Street Connection between Corrigan Street and Portside Drive



2020 Build Saturday 3:30 – 4:30 PM  
 Peak Hour Intersection Turning Movement Volumes  
 With North River Street Connection between Corrigan Street and Portside Drive



## **Appendix H**

### **Detailed Synchro LOS Analysis Results**

#### **2010 Existing Conditions**

## DEFINITION OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. The criteria are given in the following table. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (sec)
A	Less than or equal to 10.0
B	Greater than 10.0 to no more than 20.0
C	Greater than 20.0 to no more than 35.0
D	Greater than 35.0 to no more than 55.0
E	Greater than 55.0 to no more than 80.0
F	Greater than 80.0

**Level Of Service A** describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

**Level Of Service B** describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

**Level Of Service C** describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

**Level Of Service D** describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

**Level Of Service E** describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

**Level Of Service F** describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.



## DEFINITION OF LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

The level of service for a Two-Way-Stop-Control (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. LOS criteria are given in the accompanying table.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (sec)
A	Less than or equal to 10.0
B	Greater than 10.0 to no more than 15.0
C	Greater than 15.0 to no more than 25.0
D	Greater than 25.0 to no more than 35.0
E	Greater than 35.0 to no more than 50.0
F	Greater than 50.0

The LOS criteria for TWSC intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection would be designed to carry higher traffic volumes than an unsignalized intersection. In addition, a number of driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersection versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service would be less for an unsignalized intersection than it would be for a signalized intersection.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometrics and in the absence of incidents, control and traffic. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOE's) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95<sup>th</sup> percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, inappropriate traffic control decisions may be made.

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	2	6	30	129	2	29	31	230	69	51	239	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95			0.96	0.93		0.98		0.97	1.00	
Frt		0.895				0.850		0.972			0.997	
Flt Protected		0.997			0.953			0.995		0.950		
Satd. Flow (prot)	0	1586	0	0	1775	1583	0	1769	0	1770	1855	0
Flt Permitted		0.979			0.693			0.953		0.564		
Satd. Flow (perm)	0	1554	0	0	1244	1476	0	1691	0	1015	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38				36		24			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	27		22	22		27	18		38	38		18
Peak Hour Factor	0.79	0.79	0.79	0.81	0.81	0.81	0.88	0.88	0.88	0.83	0.83	0.83
Adj. Flow (vph)	3	8	38	159	2	36	35	261	78	61	288	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	161	36	0	374	0	61	294	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		15.1			15.1	15.1		41.9		41.9	41.9	
Actuated g/C Ratio		0.23			0.23	0.23		0.64		0.64	0.64	
v/c Ratio		0.13			0.56	0.10		0.34		0.09	0.25	
Control Delay		8.7			28.4	7.0		8.7		3.6	3.5	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

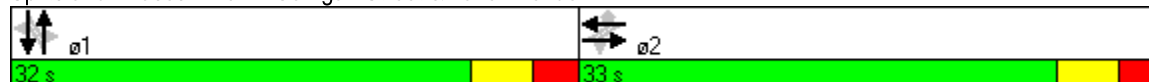


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		8.7			28.4	7.0		8.7		3.6	3.5	
LOS		A			C	A		A		A	A	
Approach Delay		8.7			24.5			8.7				3.5
Approach LOS		A			C			A				A
Queue Length 50th (ft)		3			53	0		146		4	17	
Queue Length 95th (ft)		19			87	15		0		8	25	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		668			517	634		1098		654	1195	
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			0.31	0.06		0.34		0.09	0.25	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	45 (69%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay:	10.0
Intersection LOS:	A
Intersection Capacity Utilization	63.3%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/15/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	96	0	30	11	51	3	17	220	0	0	9	92
Peak Hour Factor	0.87	0.87	0.87	0.66	0.66	0.66	0.82	0.82	0.82	0.80	0.80	0.80
Hourly flow rate (vph)	110	0	34	17	77	5	21	268	0	0	11	115












Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	145	17	82	289	126
Volume Left (vph)	110	17	0	21	0
Volume Right (vph)	34	0	5	0	115
Hadj (s)	0.04	0.53	0.00	0.05	-0.51
Departure Headway (s)	5.2	6.2	5.7	4.8	4.4
Degree Utilization, x	0.21	0.03	0.13	0.38	0.16
Capacity (veh/h)	633	530	580	722	750
Control Delay (s)	9.6	8.2	8.3	10.7	8.2
Approach Delay (s)	9.6	8.3		10.7	8.2
Approach LOS	A	A		B	A

Intersection Summary				
Delay			9.6	
HCM Level of Service			A	
Intersection Capacity Utilization		39.7%		ICU Level of Service A
Analysis Period (min)			15	

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	31	14	348	317	13	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.98	
Frt	0.958			0.850		
Flt Protected	0.967				0.950	
Satd. Flow (prot)	1726	0	1863	1583	1770	1863
Flt Permitted	0.967				0.495	
Satd. Flow (perm)	1726	0	1863	1491	903	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	21			341		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				24	24	
Peak Hour Factor	0.67	0.67	0.93	0.93	0.85	0.85
Adj. Flow (vph)	46	21	374	341	15	575
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	0	374	341	15	575
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.7		34.0	38.9	49.4	52.8
Actuated g/C Ratio	0.15		0.52	0.60	0.76	0.81
v/c Ratio	0.24		0.38	0.32	0.02	0.38
Control Delay	20.0		6.0	0.9	1.5	2.6
Queue Delay	0.0		0.0	0.0	0.0	0.0

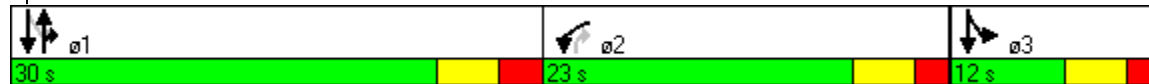


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	20.0		6.0	0.9	1.5	2.6
LOS	B		A	A	A	A
Approach Delay	20.0		3.5			2.5
Approach LOS	B		A			A
Queue Length 50th (ft)	16		17	0	1	38
Queue Length 95th (ft)	31		81	1	m3	61
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	533		973	1078	863	1483
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	0.13		0.38	0.32	0.02	0.39

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.38  
 Intersection Signal Delay: 3.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 39.1%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/15/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	238	33	25	29	21	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	264	37	28	32	23	24
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	301	60	48			
Volume Left (vph)	264	28	0			
Volume Right (vph)	37	0	24			
Hadj (s)	0.14	0.13	-0.27			
Departure Headway (s)	4.3	4.8	4.4			
Degree Utilization, x	0.36	0.08	0.06			
Capacity (veh/h)	820	702	752			
Control Delay (s)	9.7	8.2	7.7			
Approach Delay (s)	9.7	8.2	7.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.2			
HCM Level of Service			A			
Intersection Capacity Utilization			31.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (vph)	49	15	31	53	20	16	48	634	37	4	507	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.99	0.99			1.00			1.00	
Frt		0.957			0.933			0.992			0.990	
Flt Protected		0.975		0.950				0.997				
Satd. Flow (prot)	0	1726	0	1770	1719	0	0	3487	0	0	3496	0
Flt Permitted		0.813		0.771				0.878			0.950	
Satd. Flow (perm)	0	1430	0	1424	1719	0	0	3070	0	0	3321	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			20			13			16	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	12		9	9		12	9		31	31		9
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.96	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	58	18	36	67	25	20	50	660	39	5	583	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	67	45	0	0	749	0	0	629	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.4		11.4	9.4			47.2			47.2	
Actuated g/C Ratio		0.14		0.18	0.14			0.73			0.73	
v/c Ratio		0.47		0.27	0.17			0.34			0.26	
Control Delay		24.1		24.8	16.6			6.6			2.4	
Queue Delay		0.0		0.0	0.0			0.0			0.0	





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		24.1		24.8	16.6			6.6			2.4	
LOS		C		C	B			A			A	
Approach Delay		24.1			21.5			6.6			2.4	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		28		23	9			136			10	
Queue Length 95th (ft)		61		44	27			120			37	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		443		460	517			2233			2416	
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		0.25		0.15	0.09			0.34			0.26	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	7.2
Intersection LOS:	A
Intersection Capacity Utilization	64.1%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/15/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↱		↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	52	0	6	6	0	54
Peak Hour Factor	0.73	0.73	0.83	0.83	0.80	0.80
Hourly flow rate (vph)	71	0	7	7	0	68
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	71	14	68			
Volume Left (vph)	71	7	0			
Volume Right (vph)	0	0	68			
Hadj (s)	0.23	0.13	-0.57			
Departure Headway (s)	4.3	4.3	3.5			
Degree Utilization, x	0.08	0.02	0.07			
Capacity (veh/h)	819	818	999			
Control Delay (s)	7.7	7.3	6.8			
Approach Delay (s)	7.7	7.3	6.8			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.2			
HCM Level of Service			A			
Intersection Capacity Utilization			28.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	352	130	174	368	224	145	362	157	233	279	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	0.99	0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.943			0.955				0.967
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3192	0	1652	3140	0	1652	3182	0
Flt Permitted	0.159			0.348			0.520			0.290		
Satd. Flow (perm)	285	3421	1544	623	3192	0	901	3140	0	504	3182	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149		102			52			28	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	9		7	7		9	4		2	2		4
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	153	405	149	249	526	320	169	421	183	251	300	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	405	149	249	846	0	169	604	0	251	385	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	42.7	28.9	28.9	54.5	37.2		61.0	44.6		68.3	48.6	
Actuated g/C Ratio	0.33	0.22	0.22	0.42	0.29		0.47	0.34		0.53	0.37	
v/c Ratio	0.70	0.53	0.32	0.59	0.86		0.34	0.54		0.59	0.32	
Control Delay	45.3	47.7	8.6	31.1	47.9		15.7	29.0		26.3	29.0	



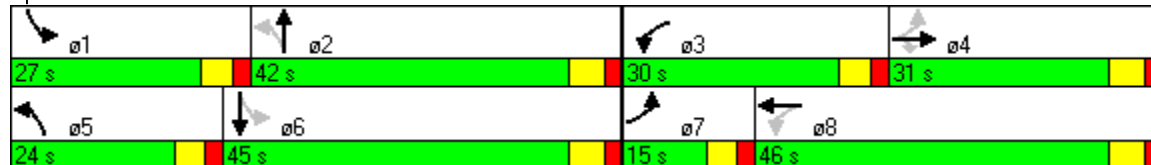
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.3	47.7	8.6	31.1	47.9		15.7	29.0		26.3	29.0	
LOS	D	D	A	C	D		B	C		C	C	
Approach Delay		39.0			44.1			26.1			27.9	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	78	155	0	136	310		76	136		122	84	
Queue Length 95th (ft)	#152	212	52	148	266		110	250		184	175	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	220	760	459	483	1053		578	1111		473	1207	
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	0.70	0.53	0.32	0.52	0.80		0.29	0.54		0.53	0.32	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 35.4  
 Intersection Capacity Utilization 77.1%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service D

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 557: LOSP & Lake Avenue



Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	1	37	241	1	67	22	236	40	35	296	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94			0.96	0.93		0.99		0.96	1.00	
Frt		0.877				0.850		0.982			0.997	
Flt Protected		0.996			0.953			0.996		0.950		
Satd. Flow (prot)	0	1540	0	0	1775	1583	0	1801	0	1770	1855	0
Flt Permitted		0.974			0.686			0.961		0.565		
Satd. Flow (perm)	0	1502	0	0	1231	1476	0	1735	0	1014	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51				77		14			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	27		22	22		27	18		38	38		18
Peak Hour Factor	0.73	0.73	0.73	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	4	1	51	277	1	77	25	268	45	40	336	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	0	278	77	0	338	0	40	344	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		19.9			19.9	19.9		33.1		33.1	33.1	
Actuated g/C Ratio		0.31			0.31	0.31		0.51		0.51	0.51	
v/c Ratio		0.11			0.74	0.15		0.38		0.08	0.36	
Control Delay		5.3			31.3	4.3		14.2		4.1	4.8	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

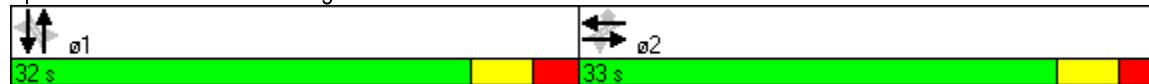


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		5.3			31.3	4.3		14.2		4.1	4.8	
LOS		A			C	A		B		A	A	
Approach Delay		5.3			25.5			14.2				4.7
Approach LOS		A			C			B				A
Queue Length 50th (ft)		1			97	0		140		2	18	
Queue Length 95th (ft)		13			142	20		220		m5	27	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		654			511	658		889		516	944	
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		0.09			0.54	0.12		0.38		0.08	0.36	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 14.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 63.9%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/15/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘			↕			↘	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	56	2	18	9	93	4	24	137	0	0	20	192
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.70	0.70	0.70	0.81	0.81	0.81
Hourly flow rate (vph)	65	2	21	11	118	5	34	196	0	0	25	237
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	88	11	123	230	262							
Volume Left (vph)	65	11	0	34	0							
Volume Right (vph)	21	0	5	0	237							
Hadj (s)	0.04	0.53	0.01	0.06	-0.51							
Departure Headway (s)	5.4	6.3	5.8	4.9	4.3							
Degree Utilization, x	0.13	0.02	0.20	0.31	0.31							
Capacity (veh/h)	593	521	570	696	782							
Control Delay (s)	9.3	8.2	9.0	10.1	9.3							
Approach Delay (s)	9.3	8.9		10.1	9.3							
Approach LOS	A	A		B	A							
Intersection Summary												
Delay			9.5									
HCM Level of Service			A									
Intersection Capacity Utilization			45.5%	ICU Level of Service	A							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	44	9	350	226	4	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.98	
Frt	0.977			0.850		
Flt Protected	0.960				0.950	
Satd. Flow (prot)	1747	0	1863	1583	1770	1863
Flt Permitted	0.960				0.428	
Satd. Flow (perm)	1747	0	1863	1491	784	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10			286		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				24	24	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.83	0.83
Adj. Flow (vph)	49	10	443	286	5	694
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	443	286	5	694
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.7		33.1	38.1	49.5	52.9
Actuated g/C Ratio	0.15		0.51	0.59	0.76	0.81
v/c Ratio	0.22		0.47	0.28	0.01	0.46
Control Delay	22.5		7.7	0.7	2.0	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0



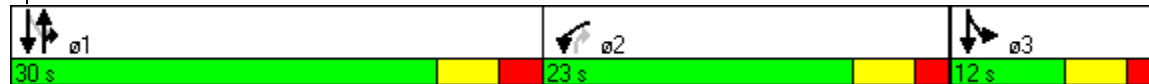


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	22.5		7.7	0.7	2.0	4.1
LOS	C		A	A	A	A
Approach Delay	22.5		5.0			4.1
Approach LOS	C		A			A
Queue Length 50th (ft)	17		49	0	0	47
Queue Length 95th (ft)	45		83	0	m1	139
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	531		950	1039	806	1515
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	0.11		0.47	0.28	0.01	0.46

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 5.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 43.6%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/15/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	154	46	10	30	15	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	171	51	11	33	17	39
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	222	44	56			
Volume Left (vph)	171	11	0			
Volume Right (vph)	51	0	39			
Hadj (s)	0.05	0.08	-0.39			
Departure Headway (s)	4.2	4.5	4.1			
Degree Utilization, x	0.26	0.06	0.06			
Capacity (veh/h)	843	746	825			
Control Delay (s)	8.6	7.8	7.3			
Approach Delay (s)	8.6	7.8	7.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.3			
HCM Level of Service			A			
Intersection Capacity Utilization			27.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	5	26	223	0	49	11	202	57	36	255	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.91			0.91	0.90		0.98		0.96	1.00	
Frt		0.898				0.850		0.972			0.998	
Flt Protected		0.995			0.950			0.998		0.950		
Satd. Flow (prot)	0	1523	0	0	1770	1583	0	1771	0	1770	1857	0
Flt Permitted		0.965			0.730			0.982		0.541		
Satd. Flow (perm)	0	1470	0	0	1239	1423	0	1740	0	969	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				68		25			1	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	46		52	52		46	28		42	42		28
Peak Hour Factor	0.83	0.83	0.83	0.72	0.72	0.72	0.75	0.75	0.75	0.84	0.84	0.84
Adj. Flow (vph)	4	6	31	310	0	68	15	269	76	43	304	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	310	68	0	360	0	43	308	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		21.1			21.1	21.1		31.9		31.9	31.9	
Actuated g/C Ratio		0.32			0.32	0.32		0.49		0.49	0.49	
v/c Ratio		0.08			0.77	0.13		0.41		0.09	0.34	
Control Delay		6.6			32.5	4.3		14.9		4.6	5.2	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

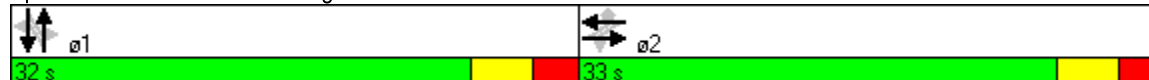


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		6.6			32.5	4.3		14.9		4.6	5.2	
LOS		A			C	A		B		A	A	
Approach Delay		6.6			27.4			14.9			5.2	
Approach LOS		A			C			B			A	
Queue Length 50th (ft)		3			107	0		153		3	19	
Queue Length 95th (ft)		16			121	13		194		7	28	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		629			515	631		868		476	913	
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			0.60	0.11		0.41		0.09	0.34	

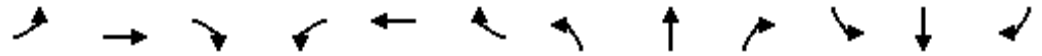
Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	45 (69%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	15.8
Intersection LOS:	B
Intersection Capacity Utilization	56.9%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/15/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	92	0	9	6	79	2	20	155	0	0	14	173
Peak Hour Factor	0.79	0.79	0.79	0.82	0.82	0.82	0.86	0.86	0.86	0.79	0.79	0.79
Hourly flow rate (vph)	116	0	11	7	96	2	23	180	0	0	18	219
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	128	7	99	203	237							
Volume Left (vph)	116	7	0	23	0							
Volume Right (vph)	11	0	2	0	219							
Hadj (s)	0.16	0.53	0.02	0.06	-0.52							
Departure Headway (s)	5.4	6.2	5.7	4.9	4.3							
Degree Utilization, x	0.19	0.01	0.16	0.28	0.28							
Capacity (veh/h)	610	527	575	695	783							
Control Delay (s)	9.7	8.1	8.6	9.7	9.0							
Approach Delay (s)	9.7	8.6		9.7	9.0							
Approach LOS	A	A		A	A							
Intersection Summary												
Delay			9.3									
HCM Level of Service			A									
Intersection Capacity Utilization			44.2%	ICU Level of Service	A							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	33	7	334	185	8	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.93	0.98	
Frt	0.975			0.850		
Flt Protected	0.961				0.950	
Satd. Flow (prot)	1745	0	1863	1583	1770	1863
Flt Permitted	0.961				0.456	
Satd. Flow (perm)	1745	0	1863	1471	829	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10			231		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				32	32	
Peak Hour Factor	0.73	0.73	0.80	0.80	0.86	0.86
Adj. Flow (vph)	45	10	418	231	9	581
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	418	231	9	581
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.6		33.9	38.8	49.6	53.0
Actuated g/C Ratio	0.15		0.52	0.60	0.76	0.82
v/c Ratio	0.21		0.43	0.22	0.01	0.38
Control Delay	22.2		6.6	0.7	2.4	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0

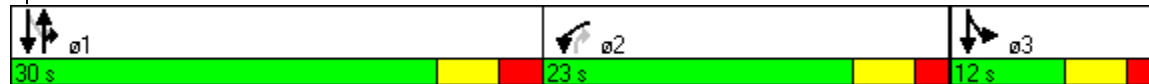


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	22.2		6.6	0.7	2.4	4.1
LOS	C		A	A	A	A
Approach Delay	22.3		4.5			4.1
Approach LOS	C		A			A
Queue Length 50th (ft)	16		30	1	0	43
Queue Length 95th (ft)	34		72	0	m2	137
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	531		972	1029	825	1486
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	0.10		0.43	0.22	0.01	0.39

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.43  
 Intersection Signal Delay: 5.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 39.6%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/15/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	158	35	7	40	8	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	176	39	8	44	9	31
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	214	52	40			
Volume Left (vph)	176	8	0			
Volume Right (vph)	39	0	31			
Hadj (s)	0.09	0.06	-0.43			
Departure Headway (s)	4.2	4.5	4.0			
Degree Utilization, x	0.25	0.07	0.04			
Capacity (veh/h)	839	757	845			
Control Delay (s)	8.6	7.8	7.2			
Approach Delay (s)	8.6	7.8	7.2			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.3			
HCM Level of Service			A			
Intersection Capacity Utilization			26.6%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (vph)	57	9	38	30	12	5	41	491	20	5	506	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98		0.98	0.99			1.00			1.00	
Frt		0.950			0.956			0.995				0.987
Flt Protected		0.973		0.950				0.996				
Satd. Flow (prot)	0	1703	0	1770	1763	0	0	3496	0	0	3481	0
Flt Permitted		0.816		0.735				0.864			0.950	
Satd. Flow (perm)	0	1411	0	1348	1763	0	0	3031	0	0	3306	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			7			9			23	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	21		17	17		21	12		43	43		12
Peak Hour Factor	0.81	0.81	0.81	0.69	0.69	0.69	0.83	0.83	0.83	0.80	0.80	0.80
Adj. Flow (vph)	70	11	47	43	17	7	49	592	24	6	632	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	128	0	43	24	0	0	665	0	0	699	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.8		11.8	9.8			46.8			46.8	
Actuated g/C Ratio		0.15		0.18	0.15			0.72			0.72	
v/c Ratio		0.51		0.18	0.09			0.30			0.29	
Control Delay		23.7		22.7	18.3			7.0			2.7	
Queue Delay		0.0		0.0	0.0			0.0			0.0	

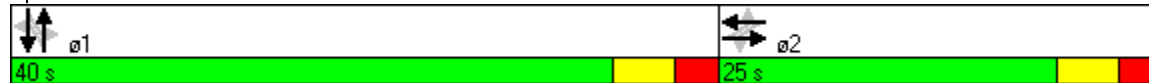


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		23.7		22.7	18.3			7.0			2.7	
LOS		C		C	B			A			A	
Approach Delay		23.7			21.1			7.0			2.7	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		30		15	6			91			10	
Queue Length 95th (ft)		60		27	16			122			43	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		444		436	520			2186			2388	
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		0.29		0.10	0.05			0.30			0.29	

**Intersection Summary**

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	7.0
Intersection LOS:	A
Intersection Capacity Utilization	60.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/15/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↱		↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	40	0	9	7	0	43
Peak Hour Factor	0.73	0.73	0.58	0.58	0.78	0.78
Hourly flow rate (vph)	55	0	16	12	0	55
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	55	28	55			
Volume Left (vph)	55	16	0			
Volume Right (vph)	0	0	55			
Hadj (s)	0.23	0.15	-0.57			
Departure Headway (s)	4.3	4.2	3.5			
Degree Utilization, x	0.07	0.03	0.05			
Capacity (veh/h)	818	829	1010			
Control Delay (s)	7.6	7.4	6.7			
Approach Delay (s)	7.6	7.4	6.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.2			
HCM Level of Service			A			
Intersection Capacity Utilization			20.6%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/15/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	326	103	179	299	182	146	246	151	235	261	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.97	0.99	0.99			0.99		1.00		
Frt			0.850		0.943			0.943				0.965
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3189	0	1652	3099	0	1652	3188	0
Flt Permitted	0.356			0.329			0.534			0.438		
Satd. Flow (perm)	635	3421	1538	588	3189	0	928	3099	0	761	3188	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110		103			100				31
Link Speed (mph)		40			35			37				37
Link Distance (ft)		660			1790			1685				788
Travel Time (s)		11.3			34.9			31.1				14.5
Confl. Peds. (#/hr)	10		9	9		10			1	1		
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	132	347	110	183	305	186	159	267	164	253	281	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	347	110	183	491	0	159	431	0	253	365	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	33.3	19.7	19.7	42.7	25.8		72.7	57.8		79.7	61.7	
Actuated g/C Ratio	0.26	0.15	0.15	0.33	0.20		0.56	0.44		0.61	0.47	
v/c Ratio	0.52	0.67	0.34	0.54	0.69		0.27	0.30		0.44	0.24	
Control Delay	38.1	58.3	11.0	37.3	42.3		10.1	16.9		17.0	21.7	

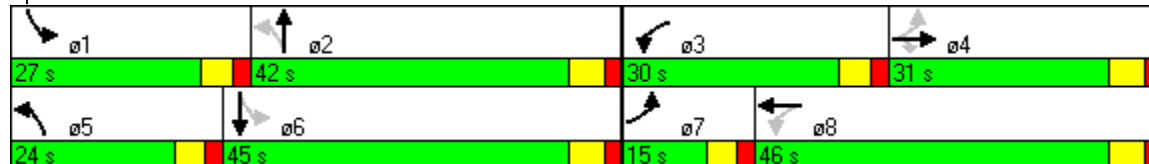


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.1	58.3	11.0	37.3	42.3		10.1	16.9		17.0	21.7	
LOS	D	E	B	D	D		B	B		B	C	
Approach Delay		44.9			41.0			15.0			19.8	
Approach LOS		D			D			B			B	
Queue Length 50th (ft)	81	147	0	116	162		55	88		112	79	
Queue Length 95th (ft)	118	191	51	159	203		107	116		159	136	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	260	658	385	423	1053		675	1435		630	1530	
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	0.51	0.53	0.29	0.43	0.47		0.24	0.30		0.40	0.24	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	30.4
Intersection LOS:	C
Intersection Capacity Utilization	74.4%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 557: LOSP & Lake Avenue



## **Appendix I**

### **Detailed Synchro LOS Analysis Results**

#### **2020 No Build Conditions**

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	2	6	32	136	2	30	33	242	73	54	251	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95			0.96	0.93		0.98		0.97	1.00	
Frt		0.894				0.850		0.972			0.997	
Flt Protected		0.997			0.953			0.995		0.950		
Satd. Flow (prot)	0	1583	0	0	1775	1583	0	1769	0	1770	1855	0
Flt Permitted		0.981			0.690			0.948		0.543		
Satd. Flow (perm)	0	1554	0	0	1238	1476	0	1682	0	979	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				37		24			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	27		22	22		27	18		38	38		18
Peak Hour Factor	0.79	0.79	0.79	0.81	0.81	0.81	0.88	0.88	0.88	0.83	0.83	0.83
Adj. Flow (vph)	3	8	41	168	2	37	38	275	83	65	302	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	0	0	170	37	0	396	0	65	308	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		15.4			15.4	15.4		37.6		37.6	37.6	
Actuated g/C Ratio		0.24			0.24	0.24		0.58		0.58	0.58	
v/c Ratio		0.13			0.58	0.10		0.40		0.11	0.29	
Control Delay		8.3			28.9	6.9		9.9		3.8	4.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

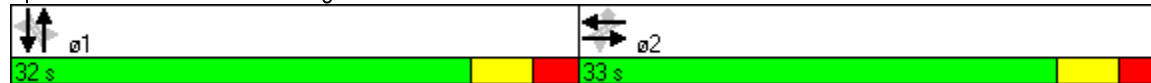


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		8.3			28.9	6.9		9.9		3.8	4.0	
LOS		A			C	A		A		A	A	
Approach Delay		8.3			25.0			9.9			4.0	
Approach LOS		A			C			A			A	
Queue Length 50th (ft)		3			56	0		158		4	18	
Queue Length 95th (ft)		19			90	14		239		9	27	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		669			514	635		983		566	1074	
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		0.08			0.33	0.06		0.40		0.11	0.29	

Intersection Summary

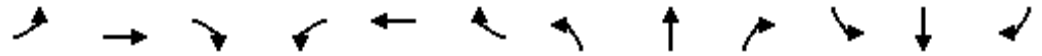
Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	45 (69%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	10.7
Intersection LOS:	B
Intersection Capacity Utilization	64.4%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 611: Corrigan Street & Lake Avenue





HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	101	0	32	12	54	3	18	231	0	0	9	97
Peak Hour Factor	0.87	0.87	0.87	0.66	0.66	0.66	0.82	0.82	0.82	0.80	0.80	0.80
Hourly flow rate (vph)	116	0	37	18	82	5	22	282	0	0	11	121

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	153	18	86	304	133
Volume Left (vph)	116	18	0	22	0
Volume Right (vph)	37	0	5	0	121
Hadj (s)	0.04	0.53	0.00	0.05	-0.52
Departure Headway (s)	5.3	6.3	5.8	4.8	4.5
Degree Utilization, x	0.22	0.03	0.14	0.41	0.17
Capacity (veh/h)	623	522	570	714	733
Control Delay (s)	9.8	8.3	8.5	11.1	8.4
Approach Delay (s)	9.8	8.5		11.1	8.4
Approach LOS	A	A		B	A

Intersection Summary	
Delay	9.9
HCM Level of Service	A
Intersection Capacity Utilization	40.7%
ICU Level of Service	A
Analysis Period (min)	15

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	33	15	366	333	14	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.98	
Frt	0.958			0.850		
Flt Protected	0.967				0.950	
Satd. Flow (prot)	1726	0	1863	1583	1770	1863
Flt Permitted	0.967				0.476	
Satd. Flow (perm)	1726	0	1863	1491	869	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	22			358		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				24	24	
Peak Hour Factor	0.67	0.67	0.93	0.93	0.85	0.85
Adj. Flow (vph)	49	22	394	358	16	605
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	394	358	16	605
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.8		33.7	38.8	49.4	52.8
Actuated g/C Ratio	0.15		0.52	0.60	0.76	0.81
v/c Ratio	0.25		0.41	0.33	0.02	0.40
Control Delay	20.1		6.8	0.9	1.6	2.8
Queue Delay	0.0		0.0	0.0	0.0	0.0

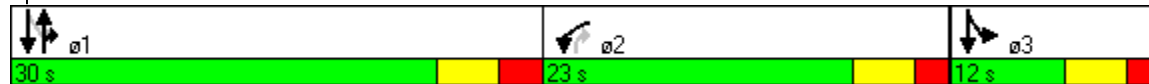


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	20.1		6.8	0.9	1.6	2.8
LOS	C		A	A	A	A
Approach Delay	20.1		4.0			2.8
Approach LOS	C		A			A
Queue Length 50th (ft)	17		17	0	1	42
Queue Length 95th (ft)	32		93	1	m3	68
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	533		967	1082	844	1480
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	0.13		0.41	0.33	0.02	0.41

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.41  
 Intersection Signal Delay: 4.3  
 Intersection LOS: A  
 Intersection Capacity Utilization 40.4%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	250	35	26	30	22	23
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	278	39	29	33	24	26
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	317	62	50			
Volume Left (vph)	278	29	0			
Volume Right (vph)	39	0	26			
Hadj (s)	0.14	0.13	-0.27			
Departure Headway (s)	4.3	4.8	4.5			
Degree Utilization, x	0.38	0.08	0.06			
Capacity (veh/h)	818	694	743			
Control Delay (s)	9.9	8.3	7.7			
Approach Delay (s)	9.9	8.3	7.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.4			
HCM Level of Service			A			
Intersection Capacity Utilization			32.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (vph)	52	16	33	55	21	17	50	666	39	4	533	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.99	0.99			1.00			1.00	
Frt		0.956			0.933			0.992			0.990	
Flt Protected		0.975		0.950				0.997				
Satd. Flow (prot)	0	1724	0	1770	1719	0	0	3487	0	0	3496	0
Flt Permitted		0.813		0.755				0.873			0.950	
Satd. Flow (perm)	0	1429	0	1395	1719	0	0	3052	0	0	3320	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			22			13			17	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	12		9	9		12	9		31	31		9
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.96	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	61	19	39	70	27	22	52	694	41	5	613	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	0	70	49	0	0	787	0	0	662	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.6		11.6	9.6			47.0			47.0	
Actuated g/C Ratio		0.15		0.18	0.15			0.72			0.72	
v/c Ratio		0.49		0.28	0.18			0.36			0.28	
Control Delay		24.4		24.9	16.3			6.4			2.6	
Queue Delay		0.0		0.0	0.0			0.0			0.0	

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		24.4		24.9	16.3			6.4			2.6	
LOS		C		C	B			A			A	
Approach Delay		24.4			21.3			6.4			2.6	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		30		24	9			145			11	
Queue Length 95th (ft)		64		45	28			127			42	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		445		451	518			2212			2407	
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		0.27		0.16	0.09			0.36			0.28	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	7.2
Intersection LOS:	A
Intersection Capacity Utilization	65.7%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↱		↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	55	0	6	6	0	57
Peak Hour Factor	0.73	0.73	0.83	0.83	0.80	0.80
Hourly flow rate (vph)	75	0	7	7	0	71
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	75	14	71			
Volume Left (vph)	75	7	0			
Volume Right (vph)	0	0	71			
Hadj (s)	0.23	0.13	-0.57			
Departure Headway (s)	4.3	4.3	3.5			
Degree Utilization, x	0.09	0.02	0.07			
Capacity (veh/h)	817	815	996			
Control Delay (s)	7.7	7.3	6.8			
Approach Delay (s)	7.7	7.3	6.8			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.3			
HCM Level of Service			A			
Intersection Capacity Utilization			28.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	370	137	183	387	235	152	381	165	245	293	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	0.99	0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.943			0.955				0.967
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3192	0	1652	3140	0	1652	3182	0
Flt Permitted	0.142			0.335			0.503			0.263		
Satd. Flow (perm)	255	3421	1544	600	3192	0	872	3140	0	457	3182	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		102			52			28	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	9		7	7		9	4		2	2		4
Peak Hour Factor	0.87	0.87	0.87	0.70	0.70	0.70	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	161	425	157	261	553	336	177	443	192	263	315	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	425	157	261	889	0	177	635	0	263	404	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	43.5	29.5	29.5	55.7	38.2		59.7	42.8		67.2	46.9	
Actuated g/C Ratio	0.33	0.23	0.23	0.43	0.29		0.46	0.33		0.52	0.36	
v/c Ratio	0.76	0.55	0.33	0.61	0.88		0.36	0.59		0.65	0.35	
Control Delay	51.6	47.9	8.6	31.3	49.4		16.4	31.1		29.0	30.4	



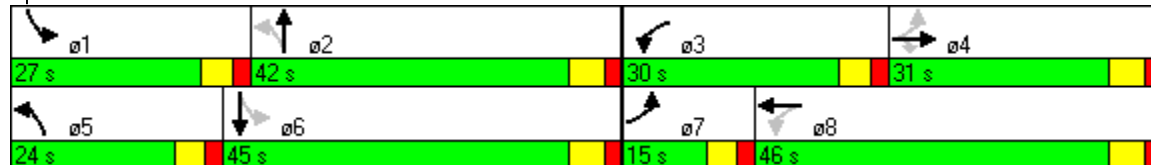


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.6	47.9	8.6	31.3	49.4		16.4	31.1		29.0	30.4	
LOS	D	D	A	C	D		B	C		C	C	
Approach Delay		40.4			45.3			27.9			29.8	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	82	163	0	142	331		80	143		129	132	
Queue Length 95th (ft)	#183	224	53	155	284		113	273		194	186	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	214	777	472	484	1053		557	1069		453	1166	
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	0.75	0.55	0.33	0.54	0.84		0.32	0.59		0.58	0.35	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 37.0  
 Intersection LOS: D  
 Intersection Capacity Utilization 79.1%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 557: LOSP & Lake Avenue



Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	1	39	253	1	70	23	248	42	37	311	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94			0.96	0.93		0.99		0.96	1.00	
Frt		0.877				0.850		0.982			0.997	
Flt Protected		0.997			0.953			0.996		0.950		
Satd. Flow (prot)	0	1541	0	0	1775	1583	0	1800	0	1770	1855	0
Flt Permitted		0.975			0.684			0.959		0.548		
Satd. Flow (perm)	0	1504	0	0	1228	1476	0	1731	0	985	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				80		14			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	27		22	22		27	18		38	38		18
Peak Hour Factor	0.73	0.73	0.73	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	4	1	53	291	1	80	26	282	48	42	353	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	292	80	0	356	0	42	361	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		20.5			20.5	20.5		32.5		32.5	32.5	
Actuated g/C Ratio		0.32			0.32	0.32		0.50		0.50	0.50	
v/c Ratio		0.11			0.75	0.15		0.41		0.09	0.39	
Control Delay		5.2			32.0	4.2		14.7		7.1	8.4	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



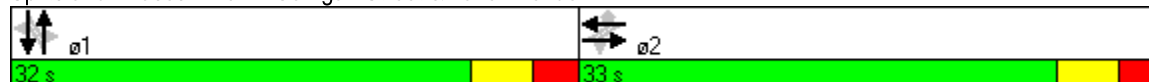
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		5.2			32.0	4.2		14.7		7.1	8.4	
LOS		A			C	A		B		A	A	
Approach Delay		5.2			26.0			14.7				8.3
Approach LOS		A			C			B				A
Queue Length 50th (ft)		1			101	0		151		5	43	
Queue Length 95th (ft)		13			150	20		231		14	75	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		656			510	660		873		493	929	
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		0.09			0.57	0.12		0.41		0.09	0.39	

Intersection Summary

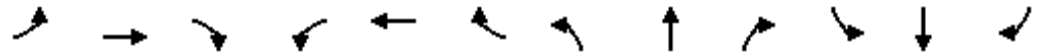
Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.75  
 Intersection Signal Delay: 15.6  
 Intersection Capacity Utilization 66.1%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	59	2	19	9	98	4	25	144	0	0	21	202
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.70	0.70	0.70	0.81	0.81	0.81
Hourly flow rate (vph)	69	2	22	11	124	5	36	206	0	0	26	249

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	93	11	129	241	275
Volume Left (vph)	69	11	0	36	0
Volume Right (vph)	22	0	5	0	249
Hadj (s)	0.04	0.53	0.01	0.06	-0.51
Departure Headway (s)	5.6	6.4	5.9	5.0	4.4
Degree Utilization, x	0.14	0.02	0.21	0.33	0.34
Capacity (veh/h)	580	513	560	687	771
Control Delay (s)	9.5	8.4	9.3	10.5	9.6
Approach Delay (s)	9.5	9.2		10.5	9.6
Approach LOS	A	A		B	A

Intersection Summary				
Delay			9.8	
HCM Level of Service			A	
Intersection Capacity Utilization		46.9%		ICU Level of Service A
Analysis Period (min)		15		

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	46	9	368	238	4	605
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.98	
Frt	0.978			0.850		
Flt Protected	0.960				0.950	
Satd. Flow (prot)	1749	0	1863	1583	1770	1863
Flt Permitted	0.960				0.405	
Satd. Flow (perm)	1749	0	1863	1491	742	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10			301		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				24	24	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.83	0.83
Adj. Flow (vph)	51	10	466	301	5	729
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	466	301	5	729
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.8		32.9	37.9	49.4	52.8
Actuated g/C Ratio	0.15		0.51	0.58	0.76	0.81
v/c Ratio	0.22		0.49	0.29	0.01	0.48
Control Delay	22.5		8.4	0.8	2.2	5.3
Queue Delay	0.0		0.0	0.0	0.0	0.0

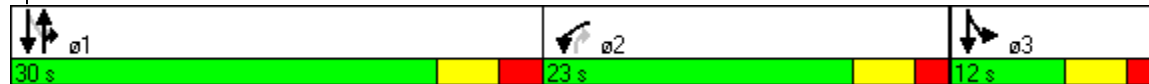


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	22.5		8.4	0.8	2.2	5.3
LOS	C		A	A	A	A
Approach Delay	22.5		5.4			5.3
Approach LOS	C		A			A
Queue Length 50th (ft)	18		57	0	0	87
Queue Length 95th (ft)	46		90	0	m1	219
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	532		944	1042	785	1513
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	0.11		0.49	0.29	0.01	0.48

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.49  
 Intersection Signal Delay: 6.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 45.2%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	162	48	11	32	16	37
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	180	53	12	36	18	41
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	233	48	59			
Volume Left (vph)	180	12	0			
Volume Right (vph)	53	0	41			
Hadj (s)	0.05	0.09	-0.38			
Departure Headway (s)	4.2	4.6	4.1			
Degree Utilization, x	0.27	0.06	0.07			
Capacity (veh/h)	839	739	817			
Control Delay (s)	8.8	7.9	7.4			
Approach Delay (s)	8.8	7.9	7.4			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.4			
HCM Level of Service			A			
Intersection Capacity Utilization			28.1%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	5	27	234	0	52	12	212	60	38	268	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.91			0.91	0.90		0.98		0.96	1.00	
Frt		0.896				0.850		0.972			0.998	
Flt Protected		0.995			0.950			0.998		0.950		
Satd. Flow (prot)	0	1518	0	0	1770	1583	0	1771	0	1770	1857	0
Flt Permitted		0.966			0.729			0.981		0.523		
Satd. Flow (perm)	0	1467	0	0	1238	1423	0	1739	0	938	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33				72		25			1	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	46		52	52		46	28		42	42		28
Peak Hour Factor	0.83	0.83	0.83	0.72	0.72	0.72	0.75	0.75	0.75	0.84	0.84	0.84
Adj. Flow (vph)	4	6	33	325	0	72	16	283	80	45	319	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	325	72	0	379	0	45	323	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		21.7			21.7	21.7		31.3		31.3	31.3	
Actuated g/C Ratio		0.33			0.33	0.33		0.48		0.48	0.48	
v/c Ratio		0.08			0.79	0.14		0.45		0.10	0.36	
Control Delay		6.4			32.9	4.2		16.4		4.7	5.5	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	



Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



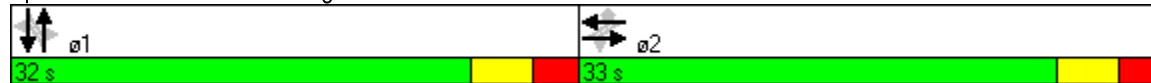
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		6.4			32.9	4.2		16.4		4.7	5.5	
LOS		A			C	A		B		A	A	
Approach Delay		6.4			27.7			16.4			5.4	
Approach LOS		A			C			B			A	
Queue Length 50th (ft)		3			111	0		164		3	20	
Queue Length 95th (ft)		16			128	13		203		7	29	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80				175		
Base Capacity (vph)		629			514	633		851		452	895	
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			0.63	0.11		0.45		0.10	0.36	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 16.4  
 Intersection Capacity Utilization 57.8%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘			↖			↗	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	97	0	9	6	83	2	21	163	0	0	15	182
Peak Hour Factor	0.79	0.79	0.79	0.82	0.82	0.82	0.86	0.86	0.86	0.79	0.79	0.79
Hourly flow rate (vph)	123	0	11	7	101	2	24	190	0	0	19	230
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	134	7	104	214	249							
Volume Left (vph)	123	7	0	24	0							
Volume Right (vph)	11	0	2	0	230							
Hadj (s)	0.17	0.53	0.02	0.06	-0.52							
Departure Headway (s)	5.5	6.3	5.8	4.9	4.4							
Degree Utilization, x	0.20	0.01	0.17	0.29	0.30							
Capacity (veh/h)	599	519	565	686	772							
Control Delay (s)	9.9	8.2	8.8	10.0	9.2							
Approach Delay (s)	9.9	8.7		10.0	9.2							
Approach LOS	A	A		A	A							
Intersection Summary												
Delay			9.5									
HCM Level of Service			A									
Intersection Capacity Utilization			45.6%	ICU Level of Service	A							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	35	7	351	194	8	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.93	0.98	
Frt	0.977			0.850		
Flt Protected	0.960				0.950	
Satd. Flow (prot)	1747	0	1863	1583	1770	1863
Flt Permitted	0.960				0.435	
Satd. Flow (perm)	1747	0	1863	1471	792	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10			242		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				32	32	
Peak Hour Factor	0.73	0.73	0.80	0.80	0.86	0.86
Adj. Flow (vph)	48	10	439	242	9	612
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	439	242	9	612
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	9.7		33.7	38.6	49.5	52.9
Actuated g/C Ratio	0.15		0.52	0.59	0.76	0.81
v/c Ratio	0.22		0.45	0.23	0.01	0.40
Control Delay	22.4		9.1	0.6	2.5	4.5
Queue Delay	0.0		0.0	0.0	0.0	0.0

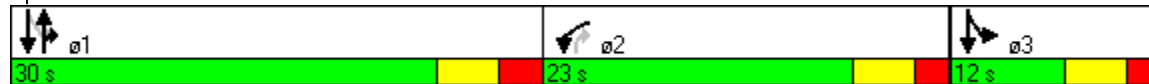


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	22.4		9.1	0.6	2.5	4.5
LOS	C		A	A	A	A
Approach Delay	22.4		6.1			4.4
Approach LOS	C		A			A
Queue Length 50th (ft)	17		55	0	0	39
Queue Length 95th (ft)	35		104	0	m2	162
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	531		966	1030	804	1483
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	0.11		0.45	0.23	0.01	0.41

**Intersection Summary**

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	12 (18%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	6.0
Intersection LOS:	A
Intersection Capacity Utilization:	41.0%
ICU Level of Service:	A
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	166	37	7	42	8	29
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	184	41	8	47	9	32
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	226	54	41			
Volume Left (vph)	184	8	0			
Volume Right (vph)	41	0	32			
Hadj (s)	0.09	0.06	-0.44			
Departure Headway (s)	4.2	4.5	4.0			
Degree Utilization, x	0.26	0.07	0.05			
Capacity (veh/h)	837	751	828			
Control Delay (s)	8.7	7.9	7.2			
Approach Delay (s)	8.7	7.9	7.2			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.4			
HCM Level of Service			A			
Intersection Capacity Utilization			27.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (vph)	60	9	40	32	13	5	43	516	21	5	532	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98		0.99	0.99			1.00			1.00	
Frt		0.951			0.960			0.995			0.987	
Flt Protected		0.973		0.950				0.996				
Satd. Flow (prot)	0	1705	0	1770	1772	0	0	3496	0	0	3481	0
Flt Permitted		0.814		0.723				0.856			0.950	
Satd. Flow (perm)	0	1409	0	1327	1772	0	0	3003	0	0	3306	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			7			8			23	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	21		17	17		21	12		43	43		12
Peak Hour Factor	0.81	0.81	0.81	0.69	0.69	0.69	0.83	0.83	0.83	0.80	0.80	0.80
Adj. Flow (vph)	74	11	49	46	19	7	52	622	25	6	665	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	134	0	46	26	0	0	699	0	0	736	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.0		12.0	10.0			46.6			46.6	
Actuated g/C Ratio		0.15		0.18	0.15			0.72			0.72	
v/c Ratio		0.52		0.19	0.09			0.32			0.31	
Control Delay		24.1		22.6	18.2			7.3			3.1	
Queue Delay		0.0		0.0	0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		24.1		22.6	18.2			7.3			3.1	
LOS		C		C	B			A			A	
Approach Delay		24.1			21.0			7.3			3.1	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)		33		16	7			96			15	
Queue Length 95th (ft)		63		28	17			133			46	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		444		429	523			2154			2376	
Starvation Cap Reductn		0		0	0			0			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.30		0.11	0.05			0.32			0.31	

**Intersection Summary**

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	7.4
Intersection LOS:	A
Intersection Capacity Utilization:	62.1%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖			↖		↘
Sign Control	Stop			Stop	Stop	
Volume (vph)	42	0	9	7	0	45
Peak Hour Factor	0.73	0.73	0.58	0.58	0.78	0.78
Hourly flow rate (vph)	58	0	16	12	0	58
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	58	28	58			
Volume Left (vph)	58	16	0			
Volume Right (vph)	0	0	58			
Hadj (s)	0.23	0.15	-0.57			
Departure Headway (s)	4.3	4.2	3.5			
Degree Utilization, x	0.07	0.03	0.06			
Capacity (veh/h)	816	827	1007			
Control Delay (s)	7.6	7.4	6.7			
Approach Delay (s)	7.6	7.4	6.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.2			
HCM Level of Service			A			
Intersection Capacity Utilization			20.6%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	343	108	188	314	191	153	259	159	247	274	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.97	0.99	0.99			0.99		1.00		
Frt			0.850		0.943			0.943			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3189	0	1652	3099	0	1652	3191	0
Flt Permitted	0.342			0.318			0.525			0.418		
Satd. Flow (perm)	610	3421	1538	568	3189	0	913	3099	0	726	3191	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115		103			100			31	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	10		9	9		10			1	1		
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	138	365	115	192	320	195	166	282	173	266	295	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	365	115	192	515	0	166	455	0	266	383	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	34.3	20.6	20.6	44.0	26.9		71.0	55.8		78.5	60.1	
Actuated g/C Ratio	0.26	0.16	0.16	0.34	0.21		0.55	0.43		0.60	0.46	
v/c Ratio	0.54	0.67	0.34	0.55	0.69		0.29	0.33		0.47	0.26	
Control Delay	38.0	57.6	10.5	36.9	42.2		10.9	18.3		18.8	23.7	

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

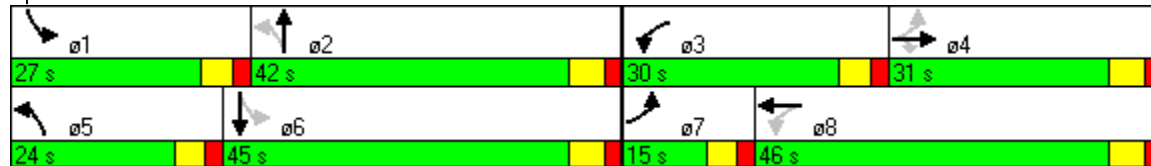


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.0	57.6	10.5	36.9	42.2		10.9	18.3		18.8	23.7	
LOS	D	E	B	D	D		B	B		B	C	
Approach Delay		44.5			40.8			16.3			21.7	
Approach LOS		D			D			B			C	
Queue Length 50th (ft)	83	155	0	120	172		60	94		118	83	
Queue Length 95th (ft)	120	197	51	163	211		113	123		166	177	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	260	665	392	426	1053		656	1387		609	1492	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.53	0.55	0.29	0.45	0.49		0.25	0.33		0.44	0.26	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	31.0
Intersection LOS:	C
Intersection Capacity Utilization	75.9%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 557: LOSP & Lake Avenue



## **Appendix J**

### **Detailed Synchro LOS Analysis Results**

#### **2020 Build Conditions without North River Street**

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/19/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔	↔	↔	↔
Volume (vph)	2	6	32	275	2	41	33	253	560	60	285	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		200	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95			0.96	0.92		1.00	0.90	0.95	1.00	
Frt		0.894				0.850			0.850		0.997	
Flt Protected		0.997			0.953			0.994		0.950		
Satd. Flow (prot)	0	1574	0	0	1775	1583	0	1852	1583	1770	1855	0
Flt Permitted		0.979			0.689			0.930		0.534		
Satd. Flow (perm)	0	1542	0	0	1228	1459	0	1728	1423	946	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				51			636			2
Link Speed (mph)		30			30			37				37
Link Distance (ft)		353			365			632				480
Travel Time (s)		8.0			8.3			11.6				8.8
Confl. Peds. (#/hr)	33		26	26		33	22		46	46		22
Peak Hour Factor	0.79	0.79	0.79	0.81	0.81	0.81	0.88	0.88	0.88	0.83	0.83	0.83
Adj. Flow (vph)	3	8	41	340	2	51	38	288	636	72	343	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	0	0	342	51	0	326	636	72	349	0
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			2			1				1
Permitted Phases	2			2		2	1		1	1		
Detector Phase	2	2		2	2	2	1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	32.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0	26.0	26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	5.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0	0	0	0	
Act Effct Green (s)		22.4			22.4	22.4		30.6	31.6	30.6	30.6	
Actuated g/C Ratio		0.34			0.34	0.34		0.47	0.49	0.47	0.47	
v/c Ratio		0.09			0.81	0.09		0.40	0.62	0.16	0.40	
Control Delay		5.9			34.1	4.4		12.7	11.0	5.2	5.8	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

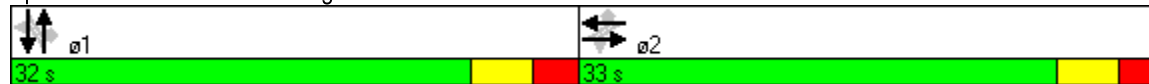


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		5.9			34.1	4.4		12.7	11.0	5.2	5.8	
LOS		A			C	A		B	B	A	A	
Approach Delay		5.9			30.2			11.6			5.7	
Approach LOS		A			C			B			A	
Queue Length 50th (ft)		3			116	0		130	187	5	22	
Queue Length 95th (ft)		16			164	14		m117	m129	10	31	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80			200	175		
Base Capacity (vph)		664			510	636		812	1018	444	873	
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		0.08			0.67	0.08		0.40	0.62	0.16	0.40	

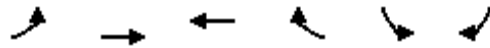
Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 14.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 78.7%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/19/2010














Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Sign Control		Stop	Stop		Stop	
Volume (vph)	438	162	145	3	0	150
Peak Hour Factor	0.87	0.87	0.66	0.66	0.80	0.80
Hourly flow rate (vph)	503	186	220	5	0	188
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	690	224	188			
Volume Left (vph)	503	0	0			
Volume Right (vph)	0	5	188			
Hadj (s)	0.18	0.02	-0.57			
Departure Headway (s)	5.0	5.4	5.6			
Degree Utilization, x	0.95	0.34	0.29			
Capacity (veh/h)	717	651	622			
Control Delay (s)	44.5	11.1	10.9			
Approach Delay (s)	44.5	11.1	10.9			
Approach LOS	E	B	B			
Intersection Summary						
Delay			32.0			
HCM Level of Service			D			
Intersection Capacity Utilization			62.6%	ICU Level of Service	B	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/19/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	112	56	823	232	61	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94		
Frt	0.955			0.850		
Flt Protected	0.968				0.950	
Satd. Flow (prot)	1722	0	1863	1583	1770	1863
Flt Permitted	0.968				0.149	
Satd. Flow (perm)	1722	0	1863	1481	278	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	40			249		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				28	28	
Peak Hour Factor	0.67	0.67	0.93	0.93	0.85	0.85
Adj. Flow (vph)	167	84	885	249	72	753
Shared Lane Traffic (%)						
Lane Group Flow (vph)	251	0	885	249	72	753
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	15.2		24.9	37.6	39.3	40.3
Actuated g/C Ratio	0.23		0.38	0.58	0.60	0.62
v/c Ratio	0.58		1.24	0.25	0.16	0.65
Control Delay	23.2		138.8	0.9	5.3	11.6
Queue Delay	0.0		0.0	0.0	0.0	0.0

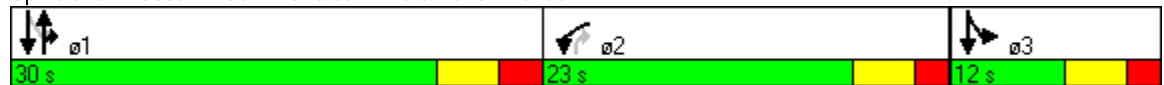


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	23.2		138.8	0.9	5.3	11.6
LOS	C		F	A	A	B
Approach Delay	23.2		108.5			11.0
Approach LOS	C		F			B
Queue Length 50th (ft)	72		~720	0	6	185
Queue Length 95th (ft)	84		#1183	2	m20	312
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	545		713	1001	441	1154
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	0.46		1.24	0.25	0.16	0.65

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.24  
 Intersection Signal Delay: 62.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 68.0%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue





HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & River Street Extension 10/19/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	62	169	124	0	0	45
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	188	138	0	0	50
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	257	138	50			
Volume Left (vph)	69	138	0			
Volume Right (vph)	188	0	50			
Hadj (s)	-0.35	0.23	-0.57			
Departure Headway (s)	4.0	4.7	4.1			
Degree Utilization, x	0.28	0.18	0.06			
Capacity (veh/h)	867	718	817			
Control Delay (s)	8.6	8.8	7.3			
Approach Delay (s)	8.6	8.8	7.3			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.5			
HCM Level of Service			A			
Intersection Capacity Utilization			34.9%	ICU Level of Service	A	
Analysis Period (min)			15			

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### Summary of All Intervals

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Start Time	6:25
End Time	7:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvls	1
Vehs Entered	4937
Vehs Exited	4895
Starting Vehs	201
Ending Vehs	243
Denied Entry Before	1
Denied Entry After	1
Travel Distance (mi)	3335
Travel Time (hr)	203.6
Total Delay (hr)	94.6
Total Stops	10267
Fuel Used (gal)	1472.6

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### Interval #0 Information Seeding

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Start Time	6:25
End Time	6:30
Total Time (min)	5

Volumes adjusted by Growth Factors.  
No data recorded this interval.

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### Interval #1 Information Recording

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Start Time	6:30
End Time	7:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4937
Vehs Exited	4895
Starting Vehs	201
Ending Vehs	243
Denied Entry Before	1
Denied Entry After	1
Travel Distance (mi)	3335
Travel Time (hr)	203.6
Total Delay (hr)	94.6
Total Stops	10267
Fuel Used (gal)	1472.6

1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	WBT	WBR	SBR	All
Total Delay (hr)	1.3	0.5	0.2	0.0	0.2	2.2
Delay / Veh (s)	10.7	10.0	5.8	2.6	3.9	8.6
Stop Delay (hr)	0.9	0.3	0.1	0.0	0.1	1.5
St Del/Veh (s)	7.7	6.0	3.9	2.6	3.5	6.0
Total Stops	422	166	133	2	151	874
Stop/Veh	1.00	0.85	1.00	1.00	1.01	0.97
Travel Dist (mi)	26.7	11.5	4.8	0.1	7.2	50.2
Travel Time (hr)	2.7	1.1	0.4	0.0	0.5	4.8
Avg Speed (mph)	10	11	11	12	13	11
Vehicles Entered	426	195	134	2	149	906
Vehicles Exited	421	195	133	2	151	902
Hourly Exit Rate	421	195	133	2	151	902
Input Volume	438	188	145	3	150	924
% of Volume	96	104	92	67	101	98
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

3: Portside Drive & River Street Extension Performance by movement

Movement	EBL	EBT	EBR	NBL	SBR	All
Total Delay (hr)	0.1	0.0	0.2	0.2	0.0	0.5
Delay / Veh (s)	5.5	0.9	4.1	4.4	2.8	3.9
Stop Delay (hr)	0.1	0.0	0.1	0.1	0.0	0.4
St Del/Veh (s)	3.0	0.3	2.9	2.9	2.8	2.6
Total Stops	79	0	177	124	55	435
Stop/Veh	1.00	0.00	1.01	1.00	1.00	0.88
Travel Dist (mi)	4.9	2.3	11.0	7.5	2.7	28.4
Travel Time (hr)	0.4	0.1	0.9	0.5	0.2	2.0
Avg Speed (mph)	13	16	13	16	15	14
Vehicles Entered	78	64	175	123	55	495
Vehicles Exited	79	64	177	124	55	499
Hourly Exit Rate	79	64	177	124	55	499
Input Volume	62	62	169	124	45	462
% of Volume	127	103	105	100	122	108
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

4: Latta Road & River Street Performance by movement

Movement	EBL	EBT	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	4.9	0.5	3.3	4.5	0.1	2.6	1.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	2.8	0.2	2.5	2.5	0.0	2.3	1.2
Total Stops	50	0	2	9	0	48	109
Stop/Veh	1.00	0.00	1.00	1.00	0.00	1.00	0.45
Travel Dist (mi)	6.4	0.2	0.1	0.4	15.7	11.1	33.8
Travel Time (hr)	0.3	0.0	0.0	0.0	0.5	0.4	1.4
Avg Speed (mph)	19	22	14	14	29	25	25
Vehicles Entered	50	3	2	9	129	48	241
Vehicles Exited	50	3	2	9	129	48	241
Hourly Exit Rate	50	3	2	9	129	48	241
Input Volume	57	2	6	6	114	55	240
% of Volume	88	150	33	150	113	87	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.0	0.2	0.2	2.8	0.8	0.0	4.0
Delay / Veh (s)	31.0	28.7	18.6	9.9	4.2	3.3	8.2
Stop Delay (hr)	0.0	0.2	0.1	1.4	0.3	0.0	2.1
St Del/Veh (s)	29.0	28.4	13.3	5.1	1.7	0.0	4.3
Total Stops	4	27	30	299	99	0	459
Stop/Veh	1.00	0.96	1.03	0.29	0.15	0.00	0.26
Travel Dist (mi)	0.3	2.2	2.6	90.4	81.6	0.1	177.3
Travel Time (hr)	0.0	0.3	0.2	5.3	3.1	0.0	9.1
Avg Speed (mph)	6	7	11	17	26	22	20
Vehicles Entered	4	29	30	1035	676	1	1775
Vehicles Exited	4	28	29	1028	676	1	1766
Hourly Exit Rate	4	28	29	1028	676	1	1766
Input Volume	4	28	38	1051	751	1	1873
% of Volume	100	100	76	98	90	100	94
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	3.3	4.1	0.4	1.8	4.5	3.2	1.0	7.0	1.6	5.9	3.0	0.7
Delay / Veh (s)	57.4	41.9	10.4	35.6	17.7	36.9	25.8	30.7	35.2	68.0	31.0	23.8
Stop Delay (hr)	3.0	3.5	0.3	1.5	3.2	2.4	0.8	5.3	1.3	5.3	2.4	0.5
St Del/Veh (s)	51.4	36.3	8.2	29.9	12.7	27.4	20.4	22.9	27.5	60.4	24.7	19.2
Total Stops	246	269	104	150	275	276	122	413	134	345	201	66
Stop/Veh	1.18	0.77	0.80	0.83	0.30	0.89	0.85	0.50	0.80	1.10	0.57	0.65
Travel Dist (mi)	24.4	40.9	15.2	61.5	218.1	103.9	45.4	218.0	52.7	45.6	51.3	14.8
Travel Time (hr)	4.1	5.2	0.9	3.8	11.3	6.7	2.4	13.0	3.3	7.4	4.5	1.2
Avg Speed (mph)	6	8	21	16	19	16	19	17	16	6	11	12
Vehicles Entered	209	351	130	183	910	308	145	818	167	312	349	101
Vehicles Exited	209	345	130	178	910	309	144	832	169	314	354	102
Hourly Exit Rate	209	345	130	178	910	309	144	832	169	314	354	102
Input Volume	208	370	137	183	952	336	152	810	165	304	391	122
% of Volume	100	93	95	97	96	92	95	103	102	103	91	84
Denied Entry Before	1	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	36.5
Delay / Veh (s)	32.9
Stop Delay (hr)	29.4
St Del/Veh (s)	26.5
Total Stops	2601
Stop/Veh	0.65
Travel Dist (mi)	891.7
Travel Time (hr)	63.8
Avg Speed (mph)	14
Vehicles Entered	3983
Vehicles Exited	3996
Hourly Exit Rate	3996
Input Volume	4130
% of Volume	97
Denied Entry Before	1
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.8	0.1	1.0	0.3	0.1	0.3	2.5
Delay / Veh (s)	50.6	18.2	4.0	4.0	16.1	2.1	5.1
Stop Delay (hr)	0.8	0.1	0.5	0.2	0.0	0.1	1.6
St Del/Veh (s)	49.1	17.8	1.8	2.1	13.8	0.6	3.2
Total Stops	51	16	137	52	12	28	296
Stop/Veh	0.91	1.00	0.15	0.20	1.00	0.05	0.17
Travel Dist (mi)	2.1	0.6	82.6	23.7	1.4	60.4	170.9
Travel Time (hr)	0.9	0.1	3.5	1.3	0.1	1.9	7.8
Avg Speed (mph)	2	5	24	19	14	31	22
Vehicles Entered	56	16	920	265	13	519	1789
Vehicles Exited	56	16	914	265	12	517	1780
Hourly Exit Rate	56	16	914	265	12	517	1780
Input Volume	53	14	916	247	15	575	1820
% of Volume	106	114	100	107	80	90	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.3	0.8	2.1
Delay / Veh (s)	4.2	4.2	4.2
Stop Delay (hr)	0.6	0.2	0.8
St Del/Veh (s)	2.0	1.0	1.6
Total Stops	151	71	222
Stop/Veh	0.13	0.11	0.12
Travel Dist (mi)	128.4	192.3	320.6
Travel Time (hr)	4.9	6.3	11.3
Avg Speed (mph)	26	30	29
Vehicles Entered	1134	662	1796
Vehicles Exited	1130	652	1782
Hourly Exit Rate	1130	652	1782
Input Volume	1127	710	1837
% of Volume	100	92	97
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.2	0.7	1.9
Delay / Veh (s)	12.1	9.0	10.7
Stop Delay (hr)	0.9	0.5	1.5
St Del/Veh (s)	9.7	6.3	8.1
Total Stops	182	76	258
Stop/Veh	0.52	0.26	0.40
Travel Dist (mi)	45.4	27.0	72.4
Travel Time (hr)	3.0	1.7	4.7
Avg Speed (mph)	15	16	15
Vehicles Entered	346	294	640
Vehicles Exited	348	294	642
Hourly Exit Rate	348	294	642
Input Volume	350	296	646
% of Volume	99	99	99
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	3.5	0.8	0.4	3.8	6.3	0.3	15.1
Delay / Veh (s)	19.6	7.6	29.8	18.0	35.9	13.3	21.5
Stop Delay (hr)	2.6	0.2	0.4	3.2	5.3	0.3	11.9
St Del/Veh (s)	14.7	2.3	26.5	14.9	29.8	12.5	17.0
Total Stops	340	231	48	461	481	29	1590
Stop/Veh	0.53	0.64	0.91	0.60	0.76	0.39	0.63
Travel Dist (mi)	187.8	121.2	2.8	40.6	80.0	9.4	441.8
Travel Time (hr)	10.0	5.2	0.6	5.4	9.3	0.6	31.2
Avg Speed (mph)	19	23	6	8	11	20	15
Vehicles Entered	640	357	52	765	634	75	2523
Vehicles Exited	637	361	54	764	637	74	2527
Hourly Exit Rate	637	361	54	764	637	74	2527
Input Volume	588	423	53	824	647	78	2613
% of Volume	108	85	102	93	98	95	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	1	0	1

611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.0	0.0	1.7	0.0	0.1	0.1	0.9	1.7	0.5	0.5	0.0
Delay / Veh (s)	25.6	19.0	4.6	24.1	28.1	9.7	16.2	12.3	11.1	26.6	6.5	2.4
Stop Delay (hr)	0.0	0.0	0.0	1.4	0.0	0.1	0.1	0.3	0.5	0.5	0.4	0.0
St Del/Veh (s)	24.6	17.2	4.5	20.7	21.2	7.5	8.3	4.3	3.6	24.1	4.7	1.6
Total Stops	1	3	24	204	1	51	19	95	294	54	60	1
Stop/Veh	1.00	0.60	0.77	0.81	0.50	0.96	0.79	0.35	0.54	0.77	0.22	0.20
Travel Dist (mi)	0.1	0.3	1.9	15.9	0.1	3.3	2.9	30.9	65.1	6.0	24.0	0.4
Travel Time (hr)	0.0	0.0	0.1	2.5	0.0	0.3	0.2	1.8	4.1	0.8	1.5	0.0
Avg Speed (mph)	6	8	15	6	7	10	14	17	16	7	16	16
Vehicles Entered	1	5	31	254	2	53	24	270	538	69	274	5
Vehicles Exited	1	5	31	251	2	53	24	273	546	70	274	5
Hourly Exit Rate	1	5	31	251	2	53	24	273	546	70	274	5
Input Volume	2	6	32	275	2	41	33	286	560	60	285	5
% of Volume	50	83	97	91	100	129	73	95	98	117	96	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	5.6
Delay / Veh (s)	13.2
Stop Delay (hr)	3.4
St Del/Veh (s)	8.0
Total Stops	807
Stop/Veh	0.53
Travel Dist (mi)	150.9
Travel Time (hr)	11.4
Avg Speed (mph)	13
Vehicles Entered	1526
Vehicles Exited	1535
Hourly Exit Rate	1535
Input Volume	1587
% of Volume	97
Denied Entry Before	0
Denied Entry After	0



650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	3.0	1.0	4.0
Delay / Veh (s)	10.1	5.2	8.2
Stop Delay (hr)	1.4	0.6	2.0
St Del/Veh (s)	4.8	2.8	4.0
Total Stops	263	158	421
Stop/Veh	0.24	0.22	0.24
Travel Dist (mi)	112.2	64.2	176.4
Travel Time (hr)	6.2	2.8	9.0
Avg Speed (mph)	18	23	20
Vehicles Entered	1080	704	1784
Vehicles Exited	1070	703	1773
Hourly Exit Rate	1070	703	1773
Input Volume	1092	779	1871
% of Volume	98	90	95
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	0.1	0.1	0.4	0.1	0.0	0.2	2.9	0.1	0.0	1.0	0.0
Delay / Veh (s)	28.5	21.0	11.8	33.1	20.2	6.7	16.5	10.6	5.4	29.4	5.6	3.0
Stop Delay (hr)	0.5	0.1	0.1	0.4	0.1	0.0	0.1	1.0	0.0	0.0	0.6	0.0
St Del/Veh (s)	26.3	17.8	11.1	30.9	17.8	6.5	9.6	3.5	1.3	26.8	3.1	1.4
Total Stops	57	9	37	42	14	9	44	325	13	3	132	7
Stop/Veh	0.83	0.82	0.82	0.89	0.64	0.64	0.94	0.33	0.33	1.00	0.20	0.21
Travel Dist (mi)	4.5	0.7	3.0	5.0	1.9	1.3	7.0	148.5	5.9	0.3	65.8	3.4
Travel Time (hr)	0.7	0.1	0.3	0.6	0.2	0.1	0.5	7.5	0.3	0.0	2.8	0.2
Avg Speed (mph)	6	8	10	8	10	15	15	20	21	9	23	22
Vehicles Entered	67	11	44	46	21	13	48	1003	40	3	667	34
Vehicles Exited	71	11	45	47	22	14	46	993	39	3	669	34
Hourly Exit Rate	71	11	45	47	22	14	46	993	39	3	669	34
Input Volume	70	16	33	55	21	17	50	1005	39	4	728	48
% of Volume	101	69	136	85	105	82	92	99	100	75	92	71
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	5.6
Delay / Veh (s)	10.2
Stop Delay (hr)	3.0
St Del/Veh (s)	5.3
Total Stops	692
Stop/Veh	0.35
Travel Dist (mi)	247.1
Travel Time (hr)	13.4
Avg Speed (mph)	19
Vehicles Entered	1997
Vehicles Exited	1994
Hourly Exit Rate	1994
Input Volume	2086
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.9	0.0	0.2	10.1	0.4	0.4	1.2	13.2
Delay / Veh (s)	27.6	0.8	13.6	46.7	5.3	17.9	8.0	25.9
Stop Delay (hr)	0.8	0.0	0.2	7.0	0.2	0.3	0.6	9.1
St Del/Veh (s)	25.2	0.3	12.6	32.3	2.3	14.1	4.1	17.8
Total Stops	102	0	48	1027	107	56	163	1503
Stop/Veh	0.89	0.00	0.80	1.32	0.44	0.79	0.29	0.82
Travel Dist (mi)	7.4	0.1	3.9	94.2	29.5	8.0	64.0	207.2
Travel Time (hr)	1.3	0.0	0.4	12.7	1.4	0.6	3.3	19.8
Avg Speed (mph)	6	17	9	7	21	13	20	11
Vehicles Entered	115	3	61	788	244	70	564	1845
Vehicles Exited	115	3	60	772	246	71	562	1829
Hourly Exit Rate	115	3	60	772	246	71	562	1829
Input Volume	112	1	56	823	232	61	640	1925
% of Volume	103	300	107	94	106	116	88	95
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	94.6
Delay / Veh (s)	69.3
Stop Delay (hr)	66.9
St Del/Veh (s)	49.0
Total Stops	10267
Stop/Veh	2.09
Travel Dist (mi)	3335.5
Travel Time (hr)	203.6
Avg Speed (mph)	17
Vehicles Entered	4937
Vehicles Exited	4895
Hourly Exit Rate	4895
Input Volume	26098
% of Volume	19
Denied Entry Before	1
Denied Entry After	1

Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	241	79	114
Average Queue (ft)	122	41	44
95th Queue (ft)	199	63	72
Link Distance (ft)	294	188	254
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Portside Drive & River Street Extension

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	79	67	55
Average Queue (ft)	41	37	27
95th Queue (ft)	62	55	50
Link Distance (ft)	288	399	260
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	24	31	32
Average Queue (ft)	21	8	25
95th Queue (ft)	34	30	44
Link Distance (ft)	624	209	1173
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report  
 2020 Build (No N.River) PM Pk Hr 6:30-7:30

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Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	74	431	355	138	176
Average Queue (ft)	29	128	72	37	35
95th Queue (ft)	64	313	233	100	107
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)		0			
Queuing Penalty (veh)		2			
Storage Bay Dist (ft)					400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	244	176	200	72	193	273	375	179	346	366	388	204
Average Queue (ft)	133	110	113	33	115	168	255	80	204	219	240	98
95th Queue (ft)	217	167	173	48	192	249	348	147	321	332	356	174
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400				400
Storage Blk Time (%)			0									0
Queuing Penalty (veh)			0									0

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	223
Average Queue (ft)	130
95th Queue (ft)	210
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 2020 Build (No N.River) PM Pk Hr 6:30-7:30

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Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	159	183	266	53	52
Average Queue (ft)	60	57	76	16	14
95th Queue (ft)	109	145	192	47	44
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	197	186	118	121
Average Queue (ft)	57	63	23	43
95th Queue (ft)	137	151	70	101
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	202	132
Average Queue (ft)	105	57
95th Queue (ft)	175	117
Link Distance (ft)	692	419
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report  
 2020 Build (No N.River) PM Pk Hr 6:30-7:30

10/19/2010

Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	178	183	105	174	245	249	445	73
Average Queue (ft)	103	114	64	39	151	154	299	19
95th Queue (ft)	168	180	101	88	221	238	404	48
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					6		0	
Queuing Penalty (veh)					3		0	

Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	53	197	105	254	224	92	84
Average Queue (ft)	22	110	29	77	110	40	37
95th Queue (ft)	49	184	86	169	206	79	74
Link Distance (ft)	318	294		582			419
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			80		200	175	
Storage Blk Time (%)		15	0	0	0		
Queuing Penalty (veh)		6	0	0	1		

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	241	213	158	136
Average Queue (ft)	116	64	62	52
95th Queue (ft)	236	155	124	110
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report  
 2020 Build (No N.River) PM Pk Hr 6:30-7:30

10/19/2010

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	113	94	99	291	165	96	74
Average Queue (ft)	63	34	18	143	67	47	38
95th Queue (ft)	111	63	56	248	136	98	81
Link Distance (ft)	352		624	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		300					
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	132	633	651	199	246
Average Queue (ft)	81	438	202	44	113
95th Queue (ft)	125	676	608	117	212
Link Distance (ft)	288	580	580		582
Upstream Blk Time (%)		7	2		
Queuing Penalty (veh)		39	9		
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					2
Queuing Penalty (veh)					1

Network Summary

Network wide Queuing Penalty: 62



Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/25/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Volume (vph)	3	1	39	393	1	81	23	254	266	31	323	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		200	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94			0.96	0.92		1.00	0.90	0.95	1.00	
Frt		0.877				0.850			0.850		0.997	
Flt Protected		0.997			0.952			0.996		0.950		
Satd. Flow (prot)	0	1530	0	0	1773	1583	0	1855	1583	1770	1855	0
Flt Permitted		0.971			0.684			0.950		0.526		
Satd. Flow (perm)	0	1488	0	0	1219	1459	0	1767	1423	931	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				82			302			2
Link Speed (mph)		30			30			37				37
Link Distance (ft)		353			365			632				480
Travel Time (s)		8.0			8.3			11.6				8.8
Confl. Peds. (#/hr)	33		26	26		33	22		46	46		22
Peak Hour Factor	0.73	0.73	0.73	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	4	1	53	452	1	93	26	289	302	35	367	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	453	93	0	315	302	35	375	0
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			2			1				1
Permitted Phases	2			2		2	1		1	1		
Detector Phase	2	2		2	2	2	1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	32.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0	26.0	26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	5.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0	0	0	0	
Act Effct Green (s)		26.0			26.0	26.0		27.0	28.0	27.0	27.0	
Actuated g/C Ratio		0.40			0.40	0.40		0.42	0.43	0.42	0.42	
v/c Ratio		0.09			0.93	0.15		0.43	0.38	0.09	0.49	
Control Delay		4.8			47.8	4.6		16.8	9.7	4.6	6.8	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

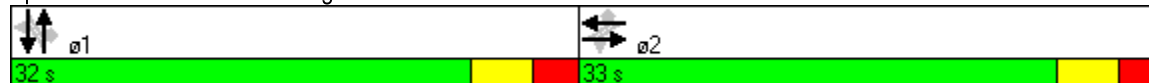


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		4.8			47.8	4.6		16.8	9.7	4.6	6.8	
LOS		A			D	A		B	A	A	A	
Approach Delay		4.8			40.4			13.3				6.6
Approach LOS		A			D			B				A
Queue Length 50th (ft)		1			160	2		136	83	2	20	
Queue Length 95th (ft)		13			#312	24		m156	m103	m4	29	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80			200	175		
Base Capacity (vph)		649			506	654		734	785	386	771	
Starvation Cap Reductn		0			0	0		0	0	0	0	
Spillback Cap Reductn		0			0	0		0	0	0	0	
Storage Cap Reductn		0			0	0		0	0	0	0	
Reduced v/c Ratio		0.09			0.90	0.14		0.43	0.38	0.09	0.49	

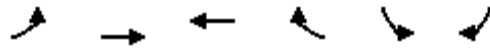
Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay: 20.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 70.9%  
 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: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/19/2010














Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↪		↪	
Sign Control		Stop	Stop		Stop	
Volume (vph)	265	22	207	4	0	243
Peak Hour Factor	0.86	0.86	0.79	0.79	0.81	0.81
Hourly flow rate (vph)	308	26	262	5	0	300
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	334	267	300			
Volume Left (vph)	308	0	0			
Volume Right (vph)	0	5	300			
Hadj (s)	0.22	0.02	-0.57			
Departure Headway (s)	5.3	5.2	4.9			
Degree Utilization, x	0.49	0.39	0.41			
Capacity (veh/h)	648	654	678			
Control Delay (s)	13.3	11.5	11.2			
Approach Delay (s)	13.3	11.5	11.2			
Approach LOS	B	B	B			
Intersection Summary						
Delay			12.1			
HCM Level of Service			B			
Intersection Capacity Utilization			54.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/19/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	59	47	560	108	23	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.93		
Frt	0.941			0.850		
Flt Protected	0.973				0.950	
Satd. Flow (prot)	1706	0	1863	1583	1770	1863
Flt Permitted	0.973				0.139	
Satd. Flow (perm)	1706	0	1863	1479	259	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	52			137		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				29	29	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.83	0.83
Adj. Flow (vph)	66	52	709	137	28	889
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	709	137	28	889
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	10.6		28.0	35.0	46.2	48.4
Actuated g/C Ratio	0.16		0.43	0.54	0.71	0.74
v/c Ratio	0.37		0.88	0.15	0.05	0.64
Control Delay	17.6		27.1	0.5	3.6	9.2
Queue Delay	0.0		0.0	0.0	0.0	0.0

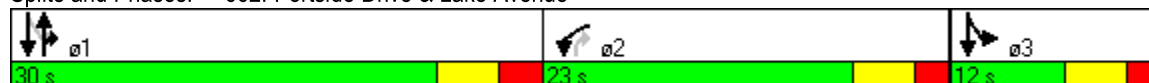


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	17.6		27.1	0.5	3.6	9.2
LOS	B		C	A	A	A
Approach Delay	17.6		22.8			9.0
Approach LOS	B		C			A
Queue Length 50th (ft)	23		~349	1	3	196
Queue Length 95th (ft)	60		#448	0	m5	m307
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	548		803	904	550	1388
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	0.22		0.88	0.15	0.05	0.64

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 15.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.3%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & River Street Extension 10/19/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	85	73	0	0	26
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	94	81	0	0	29
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	110	81	29			
Volume Left (vph)	16	81	0			
Volume Right (vph)	94	0	29			
Hadj (s)	-0.45	0.23	-0.57			
Departure Headway (s)	3.7	4.4	3.6			
Degree Utilization, x	0.11	0.10	0.03			
Capacity (veh/h)	945	793	952			
Control Delay (s)	7.2	7.9	6.7			
Approach Delay (s)	7.2	7.9	6.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.4			
HCM Level of Service			A			
Intersection Capacity Utilization			26.3%	ICU Level of Service	A	
Analysis Period (min)			15			

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Summary of All Intervals

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Start Time	8:25
End Time	9:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvl	1
Vehs Entered	5270
Vehs Exited	5233
Starting Vehs	131
Ending Vehs	168
Denied Entry Before	0
Denied Entry After	4
Travel Distance (mi)	2940
Travel Time (hr)	161.7
Total Delay (hr)	66.0
Total Stops	7604
Fuel Used (gal)	1262.1

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Interval #0 Information Seeding

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Start Time	8:25
End Time	8:30
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

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Interval #1 Information Recording

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Start Time	8:30
End Time	9:30
Total Time (min)	60
Volumes adjusted by Growth Factors.	
Vehs Entered	5270
Vehs Exited	5233
Starting Vehs	131
Ending Vehs	168
Denied Entry Before	0
Denied Entry After	4
Travel Distance (mi)	2940
Travel Time (hr)	161.7
Total Delay (hr)	66.0
Total Stops	7604
Fuel Used (gal)	1262.1

1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	WBT	WBR	SBR	All
Total Delay (hr)	0.6	0.1	0.3	0.0	0.3	1.2
Delay / Veh (s)	7.2	3.8	6.5	12.5	4.4	6.1
Stop Delay (hr)	0.4	0.0	0.2	0.0	0.2	0.9
St Del/Veh (s)	4.8	1.8	4.7	13.4	4.0	4.4
Total Stops	279	20	189	5	209	702
Stop/Veh	1.00	0.42	0.99	1.00	1.00	0.96
Travel Dist (mi)	17.8	2.3	6.2	0.2	10.1	36.5
Travel Time (hr)	1.5	0.2	0.6	0.0	0.8	3.1
Avg Speed (mph)	12	14	10	6	13	12
Vehicles Entered	280	48	191	5	209	733
Vehicles Exited	279	48	189	5	208	729
Hourly Exit Rate	279	48	189	5	208	729
Input Volume	265	45	207	4	243	764
% of Volume	105	107	91	125	86	95
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

3: Portside Drive & River Street Extension Performance by movement

Movement	EBL	EBT	EBR	NBL	SBR	All
Total Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.2
Delay / Veh (s)	4.6	0.4	3.4	5.2	2.5	3.6
Stop Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.2
St Del/Veh (s)	2.8	0.2	2.7	3.5	2.6	2.6
Total Stops	14	0	67	80	29	190
Stop/Veh	1.00	0.00	0.99	1.00	1.00	0.85
Travel Dist (mi)	0.9	1.1	4.2	6.1	1.4	13.7
Travel Time (hr)	0.1	0.1	0.3	0.4	0.1	0.9
Avg Speed (mph)	13	16	13	17	16	15
Vehicles Entered	14	32	70	80	29	225
Vehicles Exited	14	32	67	80	29	222
Hourly Exit Rate	14	32	67	80	29	222
Input Volume	14	32	85	73	26	230
% of Volume	100	100	79	110	112	97
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0



4: Latta Road & River Street Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	4.9	3.3	4.1	0.0	2.6	2.9
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	2.6	2.5	2.5	0.0	2.3	1.8
Total Stops	57	3	7	0	28	95
Stop/Veh	1.00	1.00	1.00	0.00	1.00	0.71
Travel Dist (mi)	7.4	0.1	0.3	4.6	6.5	18.9
Travel Time (hr)	0.4	0.0	0.0	0.2	0.3	0.8
Avg Speed (mph)	19	14	14	29	25	23
Vehicles Entered	57	3	7	38	28	133
Vehicles Exited	57	3	7	38	28	133
Hourly Exit Rate	57	3	7	38	28	133
Input Volume	53	6	6	41	44	153
% of Volume	108	50	117	93	64	87
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.0	0.3	0.1	0.9	0.5	0.0	1.9
Delay / Veh (s)	35.2	28.8	8.1	5.0	2.4	2.9	4.4
Stop Delay (hr)	0.0	0.3	0.0	0.4	0.1	0.0	0.9
St Del/Veh (s)	33.3	28.6	4.2	2.0	0.7	0.0	2.1
Total Stops	4	36	20	112	50	0	222
Stop/Veh	1.00	0.92	0.56	0.17	0.06	0.00	0.14
Travel Dist (mi)	0.3	2.9	2.9	53.9	77.6	0.1	137.6
Travel Time (hr)	0.1	0.4	0.2	2.4	2.7	0.0	5.8
Avg Speed (mph)	6	6	16	23	29	25	24
Vehicles Entered	4	37	36	670	785	1	1533
Vehicles Exited	4	40	36	671	786	1	1538
Hourly Exit Rate	4	40	36	671	786	1	1538
Input Volume	4	28	38	661	796	1	1528
% of Volume	100	143	95	102	99	100	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	1.3	4.3	0.4	2.0	4.8	1.7	0.7	3.0	1.1	1.4	1.9	0.3
Delay / Veh (s)	38.5	44.0	10.5	38.6	16.7	34.2	17.5	12.2	22.2	24.7	26.4	17.5
Stop Delay (hr)	1.2	3.7	0.3	1.7	3.6	1.3	0.5	2.0	0.8	1.2	1.6	0.3
St Del/Veh (s)	34.4	37.8	8.1	33.0	12.4	26.4	12.7	8.5	15.5	20.8	21.7	15.2
Total Stops	106	279	106	157	279	139	93	193	110	184	141	43
Stop/Veh	0.84	0.79	0.73	0.86	0.27	0.76	0.64	0.22	0.63	0.91	0.55	0.63
Travel Dist (mi)	14.6	41.0	17.0	61.2	237.0	61.8	45.9	192.6	54.4	28.7	36.2	9.9
Travel Time (hr)	1.8	5.5	1.0	3.9	12.2	3.8	2.1	8.2	2.8	2.3	2.9	0.7
Avg Speed (mph)	9	8	21	16	19	16	22	23	20	12	12	14
Vehicles Entered	125	350	146	181	1037	185	148	869	175	205	260	69
Vehicles Exited	127	356	146	182	1041	182	143	869	175	201	254	68
Hourly Exit Rate	127	356	146	182	1041	182	143	869	175	201	254	68
Input Volume	124	350	129	173	1087	211	144	826	157	217	258	72
% of Volume	102	102	113	105	96	86	99	105	111	93	98	94
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	23.0
Delay / Veh (s)	22.1
Stop Delay (hr)	18.2
St Del/Veh (s)	17.4
Total Stops	1830
Stop/Veh	0.49
Travel Dist (mi)	800.4
Travel Time (hr)	47.2
Avg Speed (mph)	17
Vehicles Entered	3750
Vehicles Exited	3744
Hourly Exit Rate	3744
Input Volume	3748
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.9	0.1	1.0	0.3	0.1	0.5	2.8
Delay / Veh (s)	52.9	38.7	3.6	3.9	21.5	2.9	5.3
Stop Delay (hr)	0.8	0.1	0.4	0.1	0.1	0.2	1.8
St Del/Veh (s)	51.5	38.2	1.6	2.0	19.1	1.1	3.4
Total Stops	53	11	132	46	13	41	296
Stop/Veh	0.91	0.92	0.13	0.20	0.93	0.07	0.16
Travel Dist (mi)	2.2	0.5	88.0	21.0	1.7	69.7	183.1
Travel Time (hr)	1.0	0.2	3.6	1.1	0.1	2.4	8.3
Avg Speed (mph)	2	3	25	19	12	29	22
Vehicles Entered	58	12	980	235	15	598	1898
Vehicles Exited	58	12	977	233	14	596	1890
Hourly Exit Rate	58	12	977	233	14	596	1890
Input Volume	53	14	916	247	15	575	1820
% of Volume	109	86	107	94	93	104	104
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.7	1.1	2.8
Delay / Veh (s)	5.1	6.2	5.5
Stop Delay (hr)	0.8	0.4	1.3
St Del/Veh (s)	2.5	2.6	2.5
Total Stops	195	140	335
Stop/Veh	0.16	0.23	0.19
Travel Dist (mi)	136.2	190.5	326.7
Travel Time (hr)	5.5	6.6	12.1
Avg Speed (mph)	25	29	27
Vehicles Entered	1188	614	1802
Vehicles Exited	1192	613	1805
Hourly Exit Rate	1192	613	1805
Input Volume	1127	590	1717
% of Volume	106	104	105
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.5	1.1	2.5
Delay / Veh (s)	13.6	11.2	12.4
Stop Delay (hr)	1.1	0.7	1.9
St Del/Veh (s)	10.5	7.5	9.1
Total Stops	224	106	330
Stop/Veh	0.58	0.31	0.45
Travel Dist (mi)	50.6	31.6	82.2
Travel Time (hr)	3.5	2.3	5.8
Avg Speed (mph)	15	14	14
Vehicles Entered	384	349	733
Vehicles Exited	390	346	736
Hourly Exit Rate	390	346	736
Input Volume	361	338	699
% of Volume	108	102	105
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	3.1	0.7	0.4	4.0	6.6	0.3	15.0
Delay / Veh (s)	15.9	7.6	23.6	17.8	39.1	12.9	21.0
Stop Delay (hr)	2.2	0.2	0.3	3.3	5.5	0.3	11.8
St Del/Veh (s)	11.3	2.2	20.4	14.9	32.8	11.9	16.6
Total Stops	301	186	51	466	451	45	1500
Stop/Veh	0.43	0.58	0.89	0.58	0.75	0.54	0.59
Travel Dist (mi)	186.2	107.2	3.0	42.9	75.8	10.5	425.6
Travel Time (hr)	9.5	4.7	0.5	5.7	9.4	0.7	30.5
Avg Speed (mph)	20	23	7	8	10	20	15
Vehicles Entered	697	319	58	806	602	83	2565
Vehicles Exited	698	323	56	800	603	83	2563
Hourly Exit Rate	698	323	56	800	603	83	2563
Input Volume	588	423	53	824	647	78	2613
% of Volume	119	76	106	97	93	106	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	1	0	3	0	4

611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.0	0.1	2.9	0.0	0.3	0.1	1.2	0.6	0.3	0.7	0.0
Delay / Veh (s)	15.5	11.7	5.7	30.0	16.5	13.4	19.8	13.5	7.3	22.7	7.0	1.1
Stop Delay (hr)	0.0	0.0	0.1	2.5	0.0	0.2	0.1	0.6	0.2	0.2	0.5	0.0
St Del/Veh (s)	14.2	10.1	5.5	25.7	9.2	10.6	13.9	6.9	2.8	20.2	5.2	1.0
Total Stops	3	9	29	332	1	81	19	154	173	31	66	3
Stop/Veh	0.50	0.60	0.64	0.96	1.00	0.98	0.83	0.48	0.64	0.76	0.19	0.38
Travel Dist (mi)	0.4	0.9	2.7	21.9	0.1	5.2	2.8	35.7	32.8	3.6	29.6	0.7
Travel Time (hr)	0.0	0.1	0.2	3.9	0.0	0.6	0.2	2.2	1.8	0.4	1.9	0.0
Avg Speed (mph)	9	11	14	6	10	9	13	16	19	8	16	18
Vehicles Entered	6	15	45	347	1	83	23	325	273	42	340	8
Vehicles Exited	6	15	45	345	1	83	23	322	272	41	338	8
Hourly Exit Rate	6	15	45	345	1	83	23	322	272	41	338	8
Input Volume	3	13	39	393	1	81	23	318	266	31	323	7
% of Volume	200	115	115	88	100	102	100	101	102	132	105	114
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	6.2
Delay / Veh (s)	14.8
Stop Delay (hr)	4.5
St Del/Veh (s)	10.8
Total Stops	901
Stop/Veh	0.60
Travel Dist (mi)	136.3
Travel Time (hr)	11.4
Avg Speed (mph)	12
Vehicles Entered	1508
Vehicles Exited	1499
Hourly Exit Rate	1499
Input Volume	1498
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.2	0.6	1.9
Delay / Veh (s)	7.3	4.5	6.0
Stop Delay (hr)	0.6	0.4	1.0
St Del/Veh (s)	3.8	2.5	3.2
Total Stops	162	111	273
Stop/Veh	0.27	0.22	0.25
Travel Dist (mi)	62.6	44.9	107.5
Travel Time (hr)	3.0	1.9	4.9
Avg Speed (mph)	21	23	22
Vehicles Entered	601	515	1116
Vehicles Exited	594	514	1108
Hourly Exit Rate	594	514	1108
Input Volume	600	508	1108
% of Volume	99	101	100
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.1	0.1	0.4	0.1	0.0	0.1	1.0	0.0	0.0	0.5	0.0
Delay / Veh (s)	43.8	31.4	16.4	40.8	31.6	4.6	9.8	6.0	3.2	12.8	4.2	1.6
Stop Delay (hr)	0.6	0.1	0.1	0.4	0.1	0.0	0.1	0.4	0.0	0.0	0.3	0.0
St Del/Veh (s)	41.8	28.2	15.4	38.3	29.3	4.3	6.3	2.5	1.3	9.2	2.2	0.6
Total Stops	45	9	22	31	13	16	23	127	10	3	60	4
Stop/Veh	0.85	0.60	0.76	0.79	0.87	0.76	0.58	0.22	0.26	0.75	0.14	0.12
Travel Dist (mi)	3.5	1.0	1.9	3.3	1.3	1.9	6.0	82.3	5.7	0.4	42.2	3.4
Travel Time (hr)	0.8	0.2	0.2	0.6	0.2	0.1	0.3	3.5	0.2	0.0	1.6	0.1
Avg Speed (mph)	4	6	9	6	7	17	19	23	23	14	26	24
Vehicles Entered	52	15	29	39	14	21	39	579	38	4	427	34
Vehicles Exited	53	15	29	39	15	21	41	578	38	4	426	34
Hourly Exit Rate	53	15	29	39	15	21	41	578	38	4	426	34
Input Volume	49	15	31	53	20	16	48	590	37	4	425	36
% of Volume	108	100	94	74	75	131	85	98	103	100	100	94
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	3.1
Delay / Veh (s)	8.8
Stop Delay (hr)	2.2
St Del/Veh (s)	6.1
Total Stops	363
Stop/Veh	0.28
Travel Dist (mi)	152.7
Travel Time (hr)	8.0
Avg Speed (mph)	19
Vehicles Entered	1291
Vehicles Exited	1293
Hourly Exit Rate	1293
Input Volume	1324
% of Volume	98
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.6	0.2	2.4	0.0	0.1	1.2	4.5
Delay / Veh (s)	32.1	12.3	14.9	1.8	10.0	6.2	10.6
Stop Delay (hr)	0.6	0.2	1.4	0.0	0.0	0.5	2.7
St Del/Veh (s)	30.0	11.4	8.9	0.8	7.3	2.5	6.4
Total Stops	60	39	268	34	12	152	565
Stop/Veh	0.88	0.78	0.46	0.35	0.63	0.21	0.37
Travel Dist (mi)	4.1	3.2	69.4	11.7	2.4	87.0	177.8
Travel Time (hr)	0.8	0.4	4.3	0.5	0.1	4.0	10.0
Avg Speed (mph)	5	9	16	25	17	22	18
Vehicles Entered	67	50	584	98	20	713	1532
Vehicles Exited	69	50	571	97	19	717	1523
Hourly Exit Rate	69	50	571	97	19	717	1523
Input Volume	59	47	560	108	23	738	1535
% of Volume	117	106	102	90	83	97	99
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	66.0
Delay / Veh (s)	45.3
Stop Delay (hr)	47.4
St Del/Veh (s)	32.5
Total Stops	7604
Stop/Veh	1.45
Travel Dist (mi)	2940.0
Travel Time (hr)	161.7
Avg Speed (mph)	19
Vehicles Entered	5270
Vehicles Exited	5233
Hourly Exit Rate	5233
Input Volume	22313
% of Volume	23
Denied Entry Before	0
Denied Entry After	4



Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	121	115	98
Average Queue (ft)	62	53	47
95th Queue (ft)	103	85	73
Link Distance (ft)	294	172	254
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Portside Drive & River Street Extension

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	54	99	55
Average Queue (ft)	33	34	22
95th Queue (ft)	43	64	48
Link Distance (ft)	288	399	259
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	48	31	31
Average Queue (ft)	22	9	18
95th Queue (ft)	39	32	42
Link Distance (ft)	624	209	1173
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report  
 2020 Build (No N.River) Night Pk Hr 8:30-9:30

10/19/2010

Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	73	205	122	97	74
Average Queue (ft)	30	72	18	22	20
95th Queue (ft)	65	159	71	68	54
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				400	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	134	227	225	91	204	327	332	111	192	257	203	140
Average Queue (ft)	68	113	133	37	107	149	186	63	112	129	107	60
95th Queue (ft)	117	200	214	70	176	252	285	100	186	228	188	107
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400			400	
Storage Blk Time (%)				1								
Queuing Penalty (veh)				2								

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	142
Average Queue (ft)	91
95th Queue (ft)	135
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 2020 Build (No N.River) Night Pk Hr 8:30-9:30

10/19/2010

Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	141	157	184	97	92
Average Queue (ft)	62	57	70	26	20
95th Queue (ft)	116	137	165	67	62
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	222	198	116	162
Average Queue (ft)	70	69	43	57
95th Queue (ft)	162	159	105	134
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	244	180
Average Queue (ft)	131	69
95th Queue (ft)	221	144
Link Distance (ft)	692	419
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report  
 2020 Build (No N.River) Night Pk Hr 8:30-9:30

10/19/2010

Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	223	204	141	174	290	251	454	560
Average Queue (ft)	88	108	65	47	160	167	301	61
95th Queue (ft)	163	184	123	123	251	244	456	280
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					0			
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					7		1	
Queuing Penalty (veh)					4		1	

Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	72	305	105	248	97	65	101
Average Queue (ft)	27	179	45	100	57	24	43
95th Queue (ft)	60	295	108	179	97	50	82
Link Distance (ft)	318	294		582			419
Upstream Blk Time (%)		1					
Queuing Penalty (veh)		2					
Storage Bay Dist (ft)			80		200	175	
Storage Blk Time (%)		33	0	0			
Queuing Penalty (veh)		27	0	1			

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	202	132	97	132
Average Queue (ft)	84	28	36	41
95th Queue (ft)	160	82	80	85
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report  
 2020 Build (No N.River) Night Pk Hr 8:30-9:30

10/19/2010

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	137	92	51	180	178	94	73
Average Queue (ft)	63	29	25	69	37	22	25
95th Queue (ft)	112	70	49	149	105	62	58
Link Distance (ft)	352		624	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		300					
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	174	422	54	31	245
Average Queue (ft)	60	136	19	11	96
95th Queue (ft)	123	291	44	34	217
Link Distance (ft)	288	580	580		582
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					1
Queuing Penalty (veh)					0

Network Summary

Network wide Queuing Penalty: 37

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/19/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔	↔	↔	↔	
Volume (vph)	3	14	27	395	9	67	12	226	451	41	290	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		80	0		200	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.92			0.90	0.88		1.00	0.89	0.95	1.00	
Frt		0.917				0.850			0.850		0.998	
Flt Protected		0.996			0.953			0.997		0.950		
Satd. Flow (prot)	0	1566	0	0	1775	1583	0	1857	1583	1770	1857	0
Flt Permitted		0.964			0.691			0.974		0.517		
Satd. Flow (perm)	0	1513	0	0	1156	1395	0	1811	1412	911	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33				66			601		1	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			365			632			480	
Travel Time (s)		8.0			8.3			11.6			8.8	
Confl. Peds. (#/hr)	56		62	62		56	34		50	50		34
Peak Hour Factor	0.83	0.83	0.83	0.72	0.72	0.72	0.75	0.75	0.75	0.84	0.84	0.84
Adj. Flow (vph)	4	17	33	549	12	93	16	301	601	49	345	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	0	0	561	93	0	317	601	49	349	0
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1		1	1		
Detector Phase	2	2		2	2	2	1	1	1	1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	32.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	49.2%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0	26.0	26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	5.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0	8.0	8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0	10.0	10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0	0	0	0	
Act Effct Green (s)		27.0			27.0	27.0		26.0	27.0	26.0	26.0	
Actuated g/C Ratio		0.42			0.42	0.42		0.40	0.42	0.40	0.40	
v/c Ratio		0.08			1.17	0.15		0.44	0.64	0.13	0.47	
Control Delay		6.8			119.3	5.9		14.8	11.7	5.2	7.5	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

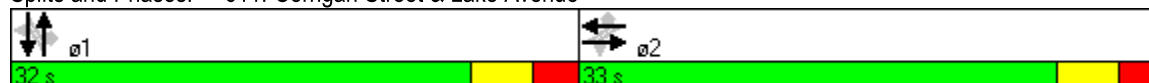


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		6.8			119.3	5.9		14.8	11.7	5.2	7.5	
LOS		A			F	A		B	B	A	A	
Approach Delay		6.8			103.2			12.8			7.2	
Approach LOS		A			F			B			A	
Queue Length 50th (ft)		5			~272	6		132	165	3	22	
Queue Length 95th (ft)		21			#316	20		m111	m117	7	31	
Internal Link Dist (ft)		273			285			552			400	
Turn Bay Length (ft)						80			200	175		
Base Capacity (vph)		648			480	618		724	938	364	743	
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		0.08			1.17	0.15		0.44	0.64	0.13	0.47	

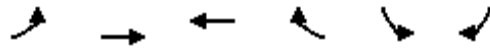
Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.17  
 Intersection Signal Delay: 40.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 75.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 611: Corrigan Street & Lake Avenue














HCM Unsignalized Intersection Capacity Analysis Report of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/19/2010



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Sign Control		Stop	Stop		Stop	
Volume (vph)	357	143	190	2	0	252
Peak Hour Factor	0.79	0.79	0.82	0.82	0.79	0.79
Hourly flow rate (vph)	452	181	232	2	0	319
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	633	234	319			
Volume Left (vph)	452	0	0			
Volume Right (vph)	0	2	319			
Hadj (s)	0.18	0.03	-0.57			
Departure Headway (s)	5.4	5.9	5.7			
Degree Utilization, x	0.96	0.38	0.50			
Capacity (veh/h)	655	593	621			
Control Delay (s)	48.4	12.5	14.2			
Approach Delay (s)	48.4	12.5	14.2			
Approach LOS	E	B	B			
Intersection Summary						
Delay			32.1			
HCM Level of Service			D			
Intersection Capacity Utilization			65.5%	ICU Level of Service	C	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	132	63	700	159	30	687
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.92		
Frt	0.957			0.850		
Flt Protected	0.967				0.950	
Satd. Flow (prot)	1724	0	1863	1583	1770	1863
Flt Permitted	0.967				0.151	
Satd. Flow (perm)	1724	0	1863	1456	281	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	38			199		
Link Speed (mph)	30		37			37
Link Distance (ft)	364		647			632
Travel Time (s)	8.3		11.9			11.6
Confl. Peds. (#/hr)				38	38	
Peak Hour Factor	0.73	0.73	0.80	0.80	0.86	0.86
Adj. Flow (vph)	181	86	875	199	35	799
Shared Lane Traffic (%)						
Lane Group Flow (vph)	267	0	875	199	35	799
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	15.7		24.5	37.7	38.8	39.8
Actuated g/C Ratio	0.24		0.38	0.58	0.60	0.61
v/c Ratio	0.60		1.24	0.20	0.08	0.70
Control Delay	23.9		142.1	0.7	6.3	14.0
Queue Delay	0.0		0.0	0.0	0.0	0.0

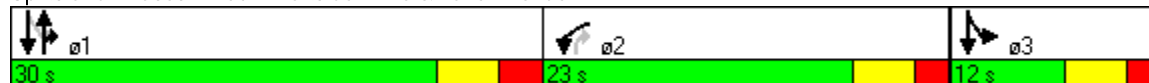


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	23.9		142.1	0.7	6.3	14.0
LOS	C		F	A	A	B
Approach Delay	23.9		115.9			13.7
Approach LOS	C		F			B
Queue Length 50th (ft)	79		~645	0	4	237
Queue Length 95th (ft)	102		#826	0	m7	m247
Internal Link Dist (ft)	284		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	544		703	976	438	1141
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	0.49		1.24	0.20	0.08	0.70

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.24  
 Intersection Signal Delay: 65.4  
 Intersection LOS: E  
 Intersection Capacity Utilization 56.3%  
 ICU Level of Service B  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & River Street Extension 10/19/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	53	137	137	0	0	52
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	59	152	152	0	0	58
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	211	152	58			
Volume Left (vph)	59	152	0			
Volume Right (vph)	152	0	58			
Hadj (s)	-0.34	0.23	-0.57			
Departure Headway (s)	4.0	4.7	4.0			
Degree Utilization, x	0.24	0.20	0.06			
Capacity (veh/h)	851	737	840			
Control Delay (s)	8.3	8.8	7.2			
Approach Delay (s)	8.3	8.8	7.2			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.3			
HCM Level of Service			A			
Intersection Capacity Utilization			33.6%	ICU Level of Service	A	
Analysis Period (min)			15			

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### Summary of All Intervals

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Start Time	3:25
End Time	4:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvl	1
Vehs Entered	5007
Vehs Exited	5005
Starting Vehs	186
Ending Vehs	188
Denied Entry Before	4
Denied Entry After	2
Travel Distance (mi)	3284
Travel Time (hr)	203.2
Total Delay (hr)	96.3
Total Stops	10636
Fuel Used (gal)	1464.8

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### Interval #0 Information Seeding

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Start Time	3:25
End Time	3:30
Total Time (min)	5

Volumes adjusted by Growth Factors.  
No data recorded this interval.

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### Interval #1 Information Recording

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Start Time	3:30
End Time	4:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	5007
Vehs Exited	5005
Starting Vehs	186
Ending Vehs	188
Denied Entry Before	4
Denied Entry After	2
Travel Distance (mi)	3284
Travel Time (hr)	203.2
Total Delay (hr)	96.3
Total Stops	10636
Fuel Used (gal)	1464.8

1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	WBT	WBR	SBR	All
Total Delay (hr)	1.0	0.4	0.6	0.0	0.8	2.9
Delay / Veh (s)	10.0	10.7	10.8	11.1	12.9	11.0
Stop Delay (hr)	0.7	0.3	0.5	0.0	0.8	2.3
St Del/Veh (s)	7.0	6.7	9.0	11.6	12.8	8.8
Total Stops	359	141	202	4	233	939
Stop/Veh	1.00	0.96	1.00	1.33	1.00	0.99
Travel Dist (mi)	22.7	9.1	7.2	0.1	11.2	50.4
Travel Time (hr)	2.2	0.9	0.9	0.0	1.4	5.5
Avg Speed (mph)	10	10	8	8	8	9
Vehicles Entered	361	148	202	4	232	947
Vehicles Exited	359	147	203	3	233	945
Hourly Exit Rate	359	147	203	3	233	945
Input Volume	357	149	190	2	252	950
% of Volume	101	99	107	150	92	99
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

3: Portside Drive & River Street Extension Performance by movement

Movement	EBL	EBR	NBL	SBR	All
Total Delay (hr)	0.1	0.2	0.2	0.0	0.5
Delay / Veh (s)	5.7	4.3	4.5	3.0	4.4
Stop Delay (hr)	0.0	0.1	0.1	0.0	0.3
St Del/Veh (s)	3.0	3.1	3.0	2.9	3.0
Total Stops	51	155	143	58	407
Stop/Veh	1.00	1.00	1.00	1.00	1.00
Travel Dist (mi)	3.2	9.6	7.8	2.4	22.9
Travel Time (hr)	0.3	0.7	0.5	0.2	1.7
Avg Speed (mph)	13	13	15	14	14
Vehicles Entered	52	155	143	57	407
Vehicles Exited	50	155	143	58	406
Hourly Exit Rate	50	155	143	58	406
Input Volume	53	137	137	52	379
% of Volume	94	113	104	112	107
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

4: Latta Road & River Street Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	4.6	4.3	4.5	0.1	2.9	2.0
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	2.7	3.4	2.5	0.0	2.3	1.3
Total Stops	48	7	1	0	53	109
Stop/Veh	1.00	1.00	1.00	0.00	1.00	0.51
Travel Dist (mi)	5.5	0.3	0.0	12.6	12.5	30.9
Travel Time (hr)	0.3	0.0	0.0	0.4	0.5	1.2
Avg Speed (mph)	19	13	14	30	25	25
Vehicles Entered	48	7	1	104	53	213
Vehicles Exited	48	7	1	104	53	213
Hourly Exit Rate	48	7	1	104	53	213
Input Volume	42	9	7	92	45	195
% of Volume	114	78	14	113	118	109
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.0	0.3	0.1	2.8	1.2	0.0	4.4
Delay / Veh (s)	32.7	29.1	14.1	11.3	5.3	1.3	8.9
Stop Delay (hr)	0.0	0.2	0.1	1.4	0.5	0.0	2.3
St Del/Veh (s)	31.5	28.5	8.3	5.9	2.1	0.7	4.6
Total Stops	2	29	39	317	123	0	510
Stop/Veh	1.00	0.94	1.03	0.36	0.15	0.00	0.29
Travel Dist (mi)	0.2	2.4	3.3	77.1	98.3	0.1	181.4
Travel Time (hr)	0.0	0.4	0.3	4.9	4.0	0.0	9.5
Avg Speed (mph)	6	7	13	16	24	21	19
Vehicles Entered	2	31	38	874	816	1	1762
Vehicles Exited	2	31	38	884	815	1	1771
Hourly Exit Rate	2	31	38	884	815	1	1771
Input Volume	4	28	38	855	819	1	1745
% of Volume	50	111	100	103	100	100	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	2.7	3.6	0.4	1.6	3.9	2.8	0.9	4.5	1.1	5.7	4.0	1.2
Delay / Veh (s)	47.9	39.7	10.8	35.4	14.5	40.1	21.4	19.4	26.2	69.0	34.0	31.6
Stop Delay (hr)	2.4	3.2	0.3	1.4	2.8	2.2	0.7	3.3	0.9	5.0	3.1	1.0
St Del/Veh (s)	42.6	34.4	8.6	30.0	10.5	31.7	16.7	14.2	20.2	60.6	26.8	26.0
Total Stops	209	232	84	142	231	214	115	269	98	367	268	100
Stop/Veh	1.04	0.70	0.70	0.87	0.24	0.84	0.74	0.32	0.63	1.24	0.64	0.74
Travel Dist (mi)	23.2	38.7	14.0	54.9	220.2	86.1	48.5	202.5	48.7	43.3	61.0	19.7
Travel Time (hr)	3.4	4.8	0.9	3.4	10.7	5.7	2.4	10.0	2.6	7.1	5.7	1.9
Avg Speed (mph)	7	8	21	16	21	15	21	20	18	6	11	10
Vehicles Entered	198	328	120	164	973	257	155	824	155	296	415	135
Vehicles Exited	201	333	120	162	973	252	155	837	157	294	421	136
Hourly Exit Rate	201	333	120	162	973	252	155	837	157	294	421	136
Input Volume	190	343	108	188	1003	280	153	815	159	321	397	131
% of Volume	106	97	111	86	97	90	101	103	99	92	106	104
Denied Entry Before	0	1	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	32.3
Delay / Veh (s)	28.9
Stop Delay (hr)	26.2
St Del/Veh (s)	23.4
Total Stops	2329
Stop/Veh	0.58
Travel Dist (mi)	860.9
Travel Time (hr)	58.4
Avg Speed (mph)	15
Vehicles Entered	4020
Vehicles Exited	4041
Hourly Exit Rate	4041
Input Volume	4088
% of Volume	99
Denied Entry Before	1
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.8	0.1	1.2	0.2	0.1	0.5	2.8
Delay / Veh (s)	40.1	18.8	4.5	3.1	27.7	3.4	5.5
Stop Delay (hr)	0.7	0.1	0.6	0.1	0.1	0.2	1.7
St Del/Veh (s)	38.8	18.4	2.1	1.4	26.2	1.5	3.4
Total Stops	61	9	169	42	9	47	337
Stop/Veh	0.90	0.82	0.18	0.16	1.00	0.08	0.18
Travel Dist (mi)	2.6	0.4	83.8	22.9	1.0	65.4	176.1
Travel Time (hr)	0.9	0.1	3.7	1.2	0.1	2.3	8.2
Avg Speed (mph)	3	5	23	20	9	28	22
Vehicles Entered	68	11	931	257	8	560	1835
Vehicles Exited	68	11	936	256	10	562	1843
Hourly Exit Rate	68	11	936	256	10	562	1843
Input Volume	53	14	916	247	15	575	1820
% of Volume	128	79	102	104	67	98	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.6	1.0	2.6
Delay / Veh (s)	5.0	5.3	5.1
Stop Delay (hr)	0.7	0.3	1.1
St Del/Veh (s)	2.3	1.8	2.1
Total Stops	172	117	289
Stop/Veh	0.15	0.17	0.16
Travel Dist (mi)	130.0	204.1	334.1
Travel Time (hr)	5.2	6.9	12.0
Avg Speed (mph)	26	30	28
Vehicles Entered	1135	698	1833
Vehicles Exited	1134	691	1825
Hourly Exit Rate	1134	691	1825
Input Volume	1127	692	1819
% of Volume	101	100	100
Denied Entry Before	0	0	0
Denied Entry After	0	0	0



595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.3	1.0	2.3
Delay / Veh (s)	13.1	10.8	12.0
Stop Delay (hr)	1.1	0.7	1.7
St Del/Veh (s)	10.8	7.7	9.3
Total Stops	207	96	303
Stop/Veh	0.58	0.30	0.45
Travel Dist (mi)	46.3	29.7	76.0
Travel Time (hr)	3.2	2.1	5.3
Avg Speed (mph)	15	14	15
Vehicles Entered	353	325	678
Vehicles Exited	355	323	678
Hourly Exit Rate	355	323	678
Input Volume	334	296	630
% of Volume	106	109	108
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	3.1	0.7	0.5	3.6	5.7	0.2	13.7
Delay / Veh (s)	17.7	7.5	29.0	16.1	34.1	9.6	19.8
Stop Delay (hr)	2.3	0.2	0.4	2.9	4.7	0.2	10.7
St Del/Veh (s)	12.9	2.4	25.8	13.3	28.3	8.7	15.5
Total Stops	325	207	52	440	460	25	1509
Stop/Veh	0.52	0.63	0.90	0.55	0.76	0.37	0.61
Travel Dist (mi)	181.9	110.8	3.0	42.4	76.3	8.5	422.9
Travel Time (hr)	9.4	4.8	0.6	5.2	8.5	0.5	29.1
Avg Speed (mph)	19	23	6	8	11	21	15
Vehicles Entered	634	331	57	800	606	68	2496
Vehicles Exited	625	330	58	793	601	67	2474
Hourly Exit Rate	625	330	58	793	601	67	2474
Input Volume	588	423	53	824	647	78	2613
% of Volume	106	78	109	96	93	86	95
Denied Entry Before	0	0	0	0	1	0	1
Denied Entry After	0	0	0	0	2	0	2

611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.1	0.0	4.1	0.3	0.5	0.0	1.1	1.3	0.2	0.5	0.0
Delay / Veh (s)	1.2	18.4	5.5	39.3	111.9	22.3	22.4	11.8	10.5	21.3	6.1	0.3
Stop Delay (hr)	0.0	0.1	0.0	3.6	0.3	0.4	0.0	0.4	0.5	0.2	0.4	0.0
St Del/Veh (s)	0.1	16.2	5.5	34.5	105.4	18.6	13.5	4.5	3.6	19.4	4.6	0.0
Total Stops	0	11	19	402	11	86	10	124	290	32	53	0
Stop/Veh	0.00	0.92	0.70	1.06	1.22	1.18	1.25	0.39	0.63	0.82	0.17	0.00
Travel Dist (mi)	0.1	0.7	1.6	24.2	0.6	4.8	1.1	34.8	55.3	3.4	27.2	0.2
Travel Time (hr)	0.0	0.1	0.1	5.3	0.3	0.7	0.1	2.1	3.4	0.4	1.6	0.0
Avg Speed (mph)	20	8	14	5	4	7	13	17	16	9	17	19
Vehicles Entered	1	12	28	376	9	73	9	321	458	40	313	2
Vehicles Exited	1	12	26	383	9	73	8	323	459	38	310	2
Hourly Exit Rate	1	12	26	383	9	73	8	323	459	38	310	2
Input Volume	3	14	27	395	9	67	12	300	451	41	290	3
% of Volume	33	86	96	97	100	109	67	108	102	93	107	67
Denied Entry Before	0	0	0	1	0	1	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	8.2
Delay / Veh (s)	17.9
Stop Delay (hr)	5.9
St Del/Veh (s)	12.9
Total Stops	1038
Stop/Veh	0.63
Travel Dist (mi)	153.8
Travel Time (hr)	14.1
Avg Speed (mph)	11
Vehicles Entered	1642
Vehicles Exited	1644
Hourly Exit Rate	1644
Input Volume	1612
% of Volume	102
Denied Entry Before	2
Denied Entry After	0

650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	2.0	1.3	3.2
Delay / Veh (s)	7.7	5.5	6.7
Stop Delay (hr)	0.8	0.7	1.5
St Del/Veh (s)	3.3	3.0	3.2
Total Stops	180	177	357
Stop/Veh	0.20	0.21	0.20
Travel Dist (mi)	95.6	76.8	172.4
Travel Time (hr)	4.7	3.4	8.1
Avg Speed (mph)	21	22	21
Vehicles Entered	913	843	1756
Vehicles Exited	914	836	1750
Hourly Exit Rate	914	836	1750
Input Volume	895	846	1741
% of Volume	102	99	101
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.1	0.3	0.2	0.1	0.0	0.3	2.5	0.0	0.0	1.3	0.1
Delay / Veh (s)	30.3	31.3	22.7	28.1	19.7	15.4	20.0	10.8	5.1	6.7	6.1	4.5
Stop Delay (hr)	0.6	0.1	0.3	0.2	0.1	0.0	0.2	1.1	0.0	0.0	0.7	0.0
St Del/Veh (s)	27.9	28.1	21.9	26.0	17.9	15.0	13.6	4.8	2.9	4.0	3.3	2.5
Total Stops	62	4	43	22	13	9	54	302	6	4	152	17
Stop/Veh	0.86	0.57	0.93	0.79	0.62	0.90	1.02	0.36	0.29	0.40	0.20	0.31
Travel Dist (mi)	4.9	0.5	3.1	3.4	2.2	1.3	8.0	123.8	3.1	1.0	76.4	5.4
Travel Time (hr)	0.8	0.1	0.4	0.4	0.2	0.1	0.6	6.3	0.2	0.1	3.4	0.3
Avg Speed (mph)	6	6	7	9	10	12	14	20	21	19	23	20
Vehicles Entered	73	7	46	29	21	10	54	836	21	10	772	55
Vehicles Exited	71	7	46	27	21	10	52	834	21	10	773	55
Hourly Exit Rate	71	7	46	27	21	10	52	834	21	10	773	55
Input Volume	76	9	40	32	17	5	43	815	21	5	777	65
% of Volume	93	78	115	84	124	200	121	102	100	200	99	85
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	5.6
Delay / Veh (s)	10.4
Stop Delay (hr)	3.3
St Del/Veh (s)	6.2
Total Stops	688
Stop/Veh	0.36
Travel Dist (mi)	232.9
Travel Time (hr)	12.8
Avg Speed (mph)	18
Vehicles Entered	1934
Vehicles Exited	1927
Hourly Exit Rate	1927
Input Volume	1905
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.0	0.4	12.7	0.3	0.1	2.2	16.7
Delay / Veh (s)	28.5	19.1	64.4	6.2	15.6	11.3	33.2
Stop Delay (hr)	0.9	0.4	9.5	0.1	0.1	1.1	12.1
St Del/Veh (s)	25.4	17.6	48.4	2.7	11.9	5.6	24.0
Total Stops	108	74	1222	90	21	306	1821
Stop/Veh	0.85	0.94	1.72	0.51	0.75	0.44	1.00
Travel Dist (mi)	8.2	5.0	85.6	21.3	3.3	84.5	207.8
Travel Time (hr)	1.4	0.7	15.0	1.1	0.2	4.9	23.3
Avg Speed (mph)	6	7	6	20	14	17	9
Vehicles Entered	128	78	709	177	28	695	1815
Vehicles Exited	127	79	709	178	28	690	1811
Hourly Exit Rate	127	79	709	178	28	690	1811
Input Volume	132	63	700	159	30	687	1771
% of Volume	96	125	101	112	93	100	102
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	96.3
Delay / Veh (s)	69.2
Stop Delay (hr)	69.5
St Del/Veh (s)	50.0
Total Stops	10636
Stop/Veh	2.12
Travel Dist (mi)	3283.9
Travel Time (hr)	203.2
Avg Speed (mph)	16
Vehicles Entered	5007
Vehicles Exited	5005
Hourly Exit Rate	5005
Input Volume	25119
% of Volume	20
Denied Entry Before	4
Denied Entry After	2

Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	164	118	180
Average Queue (ft)	103	62	73
95th Queue (ft)	150	106	144
Link Distance (ft)	294	187	254
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Portside Drive & River Street Extension

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	79	103	54
Average Queue (ft)	43	40	26
95th Queue (ft)	65	65	49
Link Distance (ft)	288	399	220
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	45	31	55
Average Queue (ft)	21	6	28
95th Queue (ft)	36	26	48
Link Distance (ft)	624	209	1173
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	94	366	329	160	160
Average Queue (ft)	27	145	61	49	46
95th Queue (ft)	67	282	207	130	115
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				400	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	204	183	182	95	182	265	377	134	215	253	474	676
Average Queue (ft)	123	100	105	33	98	149	218	69	133	146	218	193
95th Queue (ft)	195	170	157	66	167	254	328	132	204	222	444	446
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400			400	
Storage Blk Time (%)			0									9
Queuing Penalty (veh)			0									18

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	592
Average Queue (ft)	197
95th Queue (ft)	385
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	94	136	174	157	141
Average Queue (ft)	54	70	74	28	26
95th Queue (ft)	93	138	149	89	79
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	162	185	118	136
Average Queue (ft)	50	51	35	41
95th Queue (ft)	125	133	102	111
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	204	138
Average Queue (ft)	118	66
95th Queue (ft)	182	125
Link Distance (ft)	692	419
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Queuing and Blocking Report  
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Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	179	180	145	94	284	291	436	48
Average Queue (ft)	98	113	64	36	143	147	279	16
95th Queue (ft)	148	175	101	79	224	244	416	38
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					4		0	
Queuing Penalty (veh)					2		0	

Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	LT	R	L	TR
Maximum Queue (ft)	71	310	105	182	182	50	66
Average Queue (ft)	21	220	40	82	100	23	33
95th Queue (ft)	53	320	111	144	164	47	63
Link Distance (ft)	318	294		582			419
Upstream Blk Time (%)		8					
Queuing Penalty (veh)		34					
Storage Bay Dist (ft)			80		200	175	
Storage Blk Time (%)		40	0	0	0		
Queuing Penalty (veh)		27	0	0	0		

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	204	98	178	142
Average Queue (ft)	85	34	65	57
95th Queue (ft)	169	88	149	121
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	183	52	53	242	208	117	112
Average Queue (ft)	71	20	21	118	70	55	49
95th Queue (ft)	127	52	52	234	166	106	96
Link Distance (ft)	352		624	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	300						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	238	634	627	199	357
Average Queue (ft)	104	507	246	22	174
95th Queue (ft)	188	733	665	81	306
Link Distance (ft)	288	580	580		582
Upstream Blk Time (%)		12	1		
Queuing Penalty (veh)		53	3		
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					4
Queuing Penalty (veh)					1

Network Summary

Network wide Queuing Penalty: 139

## **Appendix K**

### **Detailed Synchro LOS Analysis Results**

#### **2020 Build Conditions with North River Street**

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	2	6	32	208	2	41	33	253	135	77	268	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		140	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		50	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.95			0.96	0.92		0.97		0.97	1.00	
Frt		0.894				0.850		0.957			0.997	
Flt Protected		0.997			0.953			0.996		0.950		
Satd. Flow (prot)	0	1574	0	0	1775	1583	0	1718	0	1770	1855	0
Flt Permitted		0.980			0.689			0.954		0.470		
Satd. Flow (perm)	0	1543	0	0	1228	1459	0	1643	0	847	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41				51		43			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			301			632			480	
Travel Time (s)		8.0			6.8			11.6			8.8	
Confl. Peds. (#/hr)	33		26	26		33	22		46	46		22
Peak Hour Factor	0.79	0.79	0.79	0.81	0.81	0.81	0.88	0.88	0.88	0.83	0.83	0.83
Adj. Flow (vph)	3	8	41	257	2	51	38	288	153	93	323	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	0	0	259	51	0	479	0	93	329	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		19.2			19.2	19.2		33.8		33.8	33.8	
Actuated g/C Ratio		0.30			0.30	0.30		0.52		0.52	0.52	
v/c Ratio		0.11			0.71	0.11		0.55		0.21	0.34	
Control Delay		6.5			30.6	4.8		14.9		5.1	4.9	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



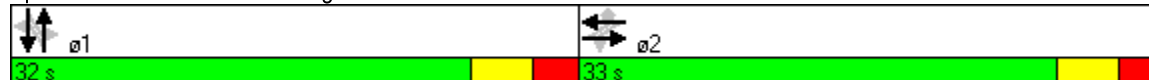
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		6.5			30.6	4.8		14.9		5.1	4.9	
LOS		A			C	A		B		A	A	
Approach Delay		6.5			26.4			14.9				5.0
Approach LOS		A			C			B				A
Queue Length 50th (ft)		3			90	0		0		6	20	
Queue Length 95th (ft)		16			117	14		281		12	30	
Internal Link Dist (ft)		273			221			552				400
Turn Bay Length (ft)						140				175		
Base Capacity (vph)		665			510	636		874		440	965	
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		0.08			0.51	0.08		0.55		0.21	0.34	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 14.0  
 Intersection Capacity Utilization 72.9%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	123	59	36	34	111	3	24	266	103	0	16	117
Peak Hour Factor	0.87	0.87	0.87	0.66	0.66	0.66	0.82	0.82	0.82	0.80	0.80	0.80
Hourly flow rate (vph)	141	68	41	52	168	5	29	324	126	0	20	146
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	251	224	479	166								
Volume Left (vph)	141	52	29	0								
Volume Right (vph)	41	5	126	146								
Hadj (s)	0.05	0.07	-0.11	-0.49								
Departure Headway (s)	6.4	6.5	5.7	5.9								
Degree Utilization, x	0.44	0.40	0.76	0.27								
Capacity (veh/h)	497	489	613	515								
Control Delay (s)	14.4	13.8	24.1	11.2								
Approach Delay (s)	14.4	13.8	24.1	11.2								
Approach LOS	B	B	C	B								
Intersection Summary												
Delay			17.9									
HCM Level of Service			C									
Intersection Capacity Utilization			61.0%	ICU Level of Service	B							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	166	26	428	627	31	586
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.98	
Frt	0.982			0.850		
Flt Protected	0.959				0.950	
Satd. Flow (prot)	1754	0	1863	1583	1770	1863
Flt Permitted	0.959				0.351	
Satd. Flow (perm)	1754	0	1863	1481	641	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	12			674		
Link Speed (mph)	30		37			37
Link Distance (ft)	210		647			632
Travel Time (s)	4.8		11.9			11.6
Confl. Peds. (#/hr)				28	28	
Peak Hour Factor	0.67	0.67	0.93	0.93	0.85	0.85
Adj. Flow (vph)	248	39	460	674	36	689
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	0	460	674	36	689
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	16.7		24.6	38.8	37.8	38.8
Actuated g/C Ratio	0.26		0.38	0.60	0.58	0.60
v/c Ratio	0.62		0.65	0.56	0.06	0.62
Control Delay	26.3		15.2	3.1	4.0	10.3
Queue Delay	0.0		0.0	0.0	0.0	0.0

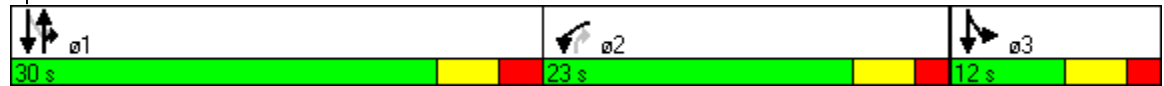


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	26.3		15.2	3.1	4.0	10.3
LOS	C		B	A	A	B
Approach Delay	26.3		8.0			10.0
Approach LOS	C		A			B
Queue Length 50th (ft)	94		81	25	2	136
Queue Length 95th (ft)	107		160	11	m10	271
Internal Link Dist (ft)	130		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	535		705	1195	558	1112
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	0.54		0.65	0.56	0.06	0.62

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 11.1      Intersection LOS: B  
 Intersection Capacity Utilization 53.0%      ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue





HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010




















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	457	139	94	30	22	99
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	508	154	104	33	24	110
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	662	138	134			
Volume Left (vph)	508	104	0			
Volume Right (vph)	154	0	110			
Hadj (s)	0.05	0.19	-0.46			
Departure Headway (s)	4.7	6.0	5.4			
Degree Utilization, x	0.87	0.23	0.20			
Capacity (veh/h)	746	570	626			
Control Delay (s)	31.0	10.9	9.8			
Approach Delay (s)	31.0	10.9	9.8			
Approach LOS	D	B	A			
Intersection Summary						
Delay			25.0			
HCM Level of Service			C			
Intersection Capacity Utilization			58.1%	ICU Level of Service		B
Analysis Period (min)			15			

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	16	33	55	21	17	50	1004	39	4	728	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.99	0.99			1.00			1.00	
Frt		0.962			0.933			0.995			0.991	
Flt Protected		0.972		0.950				0.998				
Satd. Flow (prot)	0	1731	0	1770	1718	0	0	3505	0	0	3499	0
Flt Permitted		0.792		0.714				0.871			0.949	
Satd. Flow (perm)	0	1399	0	1318	1718	0	0	3058	0	0	3321	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			22			9			15	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	13		10	10		13	10		33	33		10
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.96	0.96	0.96	0.87	0.87	0.87
Adj. Flow (vph)	82	19	39	70	27	22	52	1046	41	5	837	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	70	49	0	0	1139	0	0	897	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.8		12.8	10.8			45.8			45.8	
Actuated g/C Ratio		0.17		0.20	0.17			0.70			0.70	
v/c Ratio		0.54		0.27	0.16			0.53			0.38	
Control Delay		26.5		23.2	14.9			7.1			3.9	
Queue Delay		0.0		0.0	0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		26.5		23.2	14.9			7.1			3.9	
LOS		C		C	B			A			A	
Approach Delay		26.5			19.8			7.1			3.9	
Approach LOS		C			B			A			A	
Queue Length 50th (ft)		40		24	9			155			43	
Queue Length 95th (ft)		75		43	27			m287			40	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		430		426	518			2156			2342	
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		0.33		0.16	0.09			0.53			0.38	

**Intersection Summary**

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	7.7
Intersection LOS:	A
Intersection Capacity Utilization:	81.4%
ICU Level of Service:	D
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↱		↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	55	0	6	6	0	57
Peak Hour Factor	0.73	0.73	0.83	0.83	0.80	0.80
Hourly flow rate (vph)	75	0	7	7	0	71
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	75	14	71			
Volume Left (vph)	75	7	0			
Volume Right (vph)	0	0	71			
Hadj (s)	0.23	0.13	-0.57			
Departure Headway (s)	4.3	4.3	3.5			
Degree Utilization, x	0.09	0.02	0.07			
Capacity (veh/h)	817	815	996			
Control Delay (s)	7.7	7.3	6.8			
Approach Delay (s)	7.7	7.3	6.8			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.3			
HCM Level of Service			A			
Intersection Capacity Utilization			28.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	370	137	183	387	336	152	550	165	304	390	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	0.99		1.00	1.00			1.00	
Frt			0.850		0.930			0.965			0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3137	0	1652	3176	0	1652	3170	0
Flt Permitted	0.120			0.346			0.429			0.126		
Satd. Flow (perm)	215	3421	1541	619	3137	0	744	3176	0	219	3170	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		174			30			33	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	10		8	8		10	5		3	3		5
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	239	425	157	244	516	448	177	640	192	327	419	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	425	157	244	964	0	177	832	0	327	550	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	45.3	31.3	31.3	56.1	38.8		54.7	37.8		66.7	46.2	
Actuated g/C Ratio	0.35	0.24	0.24	0.43	0.30		0.42	0.29		0.51	0.36	
v/c Ratio	1.15	0.52	0.32	0.57	0.91		0.43	0.88		0.90	0.48	
Control Delay	142.9	46.0	8.2	29.9	48.9		17.8	47.8		59.9	35.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	142.9	46.0	8.2	29.9	48.9		17.8	47.8		59.9	35.0	
LOS	F	D	A	C	D		B	D		E	D	
Approach Delay		67.0			45.1			42.5			44.3	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	~183	161	0	131	344		80	348		185	215	
Queue Length 95th (ft)	#355	221	53	157	321		113	#432		#378	283	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	207	823	490	490	1086		491	944		372	1149	
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	1.15	0.52	0.32	0.50	0.89		0.36	0.88		0.88	0.48	

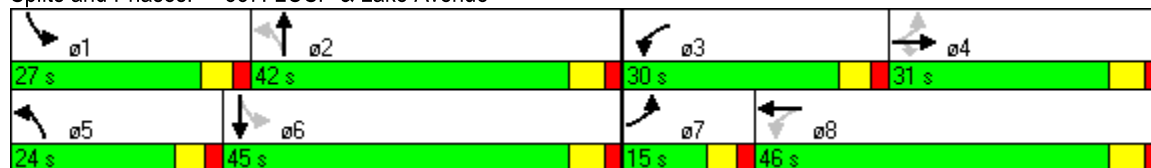
**Intersection Summary**

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.15  
 Intersection Signal Delay: 48.8  
 Intersection Capacity Utilization 89.5%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E

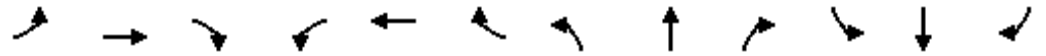
~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 557: LOSP & Lake Avenue



Lanes, Volumes, Timings  
557: LOSP & Lake Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	370	137	183	387	336	152	550	165	304	390	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.97	0.99	0.99		1.00	1.00			1.00	
Frt			0.850		0.930			0.965				0.964
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3137	0	1652	3176	0	1652	3170	0
Flt Permitted	0.114			0.358			0.424			0.112		
Satd. Flow (perm)	205	3421	1541	641	3137	0	735	3176	0	195	3170	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		170			30			32	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	10		8	8		10	5		3	3		5
Peak Hour Factor	0.87	0.87	0.87	0.75	0.75	0.75	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	239	425	157	244	516	448	177	640	192	327	419	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	425	157	244	964	0	177	832	0	327	550	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	18.0	31.0	31.0	31.0	44.0	0.0	24.0	41.0	0.0	27.0	44.0	0.0
Total Split (%)	13.8%	23.8%	23.8%	23.8%	33.8%	0.0%	18.5%	31.5%	0.0%	20.8%	33.8%	0.0%
Maximum Green (s)	12.5	25.0	25.0	25.5	38.0		18.5	35.0		21.5	38.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	50.2	33.2	33.2	56.7	37.5		53.0	35.9		65.0	44.4	
Actuated g/C Ratio	0.39	0.26	0.26	0.44	0.29		0.41	0.28		0.50	0.34	
v/c Ratio	0.97	0.49	0.31	0.56	0.94		0.44	0.92		0.92	0.50	
Control Delay	85.6	44.2	7.9	28.7	54.1		18.4	53.9		66.1	35.7	

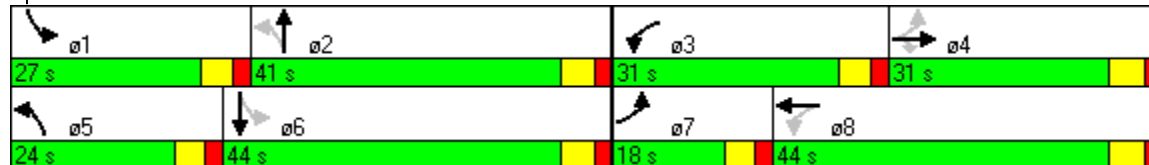


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	85.6	44.2	7.9	28.7	54.1		18.4	53.9		66.1	35.7	
LOS	F	D	A	C	D		B	D		E	D	
Approach Delay		49.3			49.0			47.6			47.1	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	151	160	0	129	355		80	353		194	215	
Queue Length 95th (ft)	#320	218	52	155	331		113	#444		#395	285	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	247	873	510	512	1037		478	900		361	1104	
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	0.97	0.49	0.31	0.48	0.93		0.37	0.92		0.91	0.50	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 48.3  
 Intersection Capacity Utilization 89.5%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

**Splits and Phases: 557: LOSP & Lake Avenue**





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### Summary of All Intervals

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Start Time	6:25
End Time	7:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvl	1
Vehs Entered	4999
Vehs Exited	5012
Starting Vehs	217
Ending Vehs	204
Denied Entry Before	2
Denied Entry After	3
Travel Distance (mi)	3366
Travel Time (hr)	193.3
Total Delay (hr)	83.2
Total Stops	9785
Fuel Used (gal)	1456.8

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### Interval #0 Information Seeding

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Start Time	6:25
End Time	6:30
Total Time (min)	5

Volumes adjusted by Growth Factors.  
No data recorded this interval.

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### Interval #1 Information Recording

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Start Time	6:30
End Time	7:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4999
Vehs Exited	5012
Starting Vehs	217
Ending Vehs	204
Denied Entry Before	2
Denied Entry After	3
Travel Distance (mi)	3366
Travel Time (hr)	193.3
Total Delay (hr)	83.2
Total Stops	9785
Fuel Used (gal)	1456.8

1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.2	0.1	0.0	0.1	0.3	0.0	0.0	0.7	0.1	0.0	0.1	1.8
Delay / Veh (s)	5.9	7.5	4.8	6.8	8.2	5.5	7.7	7.2	5.5	6.3	3.5	6.4
Stop Delay (hr)	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.1	1.0
St Del/Veh (s)	3.8	4.2	3.9	3.7	4.0	3.3	4.3	3.4	3.7	3.9	3.2	3.6
Total Stops	121	59	37	36	116	3	17	257	96	19	129	890
Stop/Veh	1.00	0.95	1.00	0.97	1.01	1.00	1.00	0.72	1.00	1.00	1.01	0.90
Travel Dist (mi)	6.4	3.2	2.0	2.2	7.0	0.2	2.1	38.1	11.7	0.9	6.2	80.1
Travel Time (hr)	0.6	0.3	0.2	0.2	0.5	0.0	0.1	2.2	0.7	0.1	0.4	5.2
Avg Speed (mph)	12	11	11	13	13	14	17	18	18	13	14	15
Vehicles Entered	122	62	37	37	114	3	17	358	96	19	127	992
Vehicles Exited	121	62	37	37	116	3	17	357	96	19	129	994
Hourly Exit Rate	121	62	37	37	116	3	17	357	96	19	129	994
Input Volume	123	60	36	34	111	3	24	360	103	16	117	987
% of Volume	98	103	103	109	105	100	71	99	93	119	110	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Portside Drive & North River Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.9	0.0	0.2	0.1	0.0	0.1	0.1	1.5
Delay / Veh (s)	7.1	2.0	6.0	5.8	6.6	7.2	4.4	6.2
Stop Delay (hr)	0.7	0.0	0.2	0.1	0.0	0.0	0.1	1.2
St Del/Veh (s)	6.0	1.1	6.0	3.8	3.4	3.9	3.6	5.0
Total Stops	421	8	121	93	27	32	96	798
Stop/Veh	0.95	0.14	0.93	1.00	1.00	1.00	1.00	0.91
Travel Dist (mi)	14.4	1.1	4.2	13.3	3.6	3.3	9.9	49.7
Travel Time (hr)	1.8	0.1	0.5	0.6	0.2	0.2	0.6	4.1
Avg Speed (mph)	8	10	8	21	21	17	17	12
Vehicles Entered	444	58	131	92	27	32	96	880
Vehicles Exited	444	58	130	94	27	32	96	881
Hourly Exit Rate	444	58	130	94	27	32	96	881
Input Volume	457	62	139	94	30	22	99	903
% of Volume	97	94	94	100	90	145	97	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

4: Latta Road & River Street Performance by movement

Movement	EBL	EBT	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	5.5	0.4	3.9	4.1	0.0	3.3	2.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	3.3	0.0	3.0	2.5	0.0	2.8	1.6
Total Stops	54	0	6	8	0	53	121
Stop/Veh	1.00	0.00	1.00	1.00	0.00	1.00	0.52
Travel Dist (mi)	7.0	0.2	0.2	0.3	8.2	7.8	23.8
Travel Time (hr)	0.4	0.0	0.0	0.0	0.3	0.3	1.1
Avg Speed (mph)	19	23	13	14	30	22	23
Vehicles Entered	55	3	6	8	108	53	233
Vehicles Exited	54	3	6	8	107	53	231
Hourly Exit Rate	54	3	6	8	107	53	231
Input Volume	55	4	6	6	104	57	232
% of Volume	98	75	100	133	103	93	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay / Veh (s)	5.6	6.8	4.3	3.1	3.9	2.5	3.9	4.6	2.8	3.3	4.2	2.8
Stop Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Del/Veh (s)	2.9	2.9	2.8	2.6	2.9	2.6	3.0	3.0	2.8	2.5	2.6	2.7
Total Stops	22	85	48	7	72	4	35	6	9	2	5	47
Stop/Veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Travel Dist (mi)	1.3	5.1	2.9	0.2	1.6	0.1	1.3	0.2	0.3	0.1	0.2	1.7
Travel Time (hr)	0.1	0.4	0.2	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Avg Speed (mph)	13	13	13	10	10	10	13	13	13	13	13	13
Vehicles Entered	22	85	48	7	72	4	35	6	9	2	5	47
Vehicles Exited	22	85	48	7	72	4	35	6	9	2	5	47
Hourly Exit Rate	22	85	48	7	72	4	35	6	9	2	5	47
Input Volume	21	95	46	5	72	5	39	5	5	5	5	37
% of Volume	105	89	104	140	100	80	90	120	180	40	100	127
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	All
Total Delay (hr)	0.4
Delay / Veh (s)	4.6
Stop Delay (hr)	0.3
St Del/Veh (s)	2.8
Total Stops	342
Stop/Veh	1.00
Travel Dist (mi)	15.0
Travel Time (hr)	1.2
Avg Speed (mph)	13
Vehicles Entered	342
Vehicles Exited	342
Hourly Exit Rate	342
Input Volume	340
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.2	0.1	1.1	0.7	0.0	2.2
Delay / Veh (s)	26.0	26.0	14.4	3.9	3.5	1.8	4.4
Stop Delay (hr)	0.0	0.2	0.1	0.4	0.2	0.0	1.1
St Del/Veh (s)	24.6	25.7	11.0	1.6	1.2	0.4	2.1
Total Stops	7	30	23	144	87	0	291
Stop/Veh	1.00	0.97	0.77	0.15	0.11	0.00	0.16
Travel Dist (mi)	0.5	2.4	2.6	85.9	91.9	0.2	183.6
Travel Time (hr)	0.1	0.3	0.2	3.4	3.4	0.0	7.4
Avg Speed (mph)	7	7	12	25	27	23	25
Vehicles Entered	6	31	30	981	760	2	1810
Vehicles Exited	7	31	30	981	761	2	1812
Hourly Exit Rate	7	31	30	981	761	2	1812
Input Volume	4	28	38	1051	751	1	1873
% of Volume	175	111	79	93	101	200	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	3.7	4.1	0.4	1.7	4.6	3.1	1.1	5.7	1.7	6.6	3.6	0.8
Delay / Veh (s)	63.5	40.2	10.7	35.3	17.7	36.9	22.2	26.4	38.1	74.3	34.3	27.3
Stop Delay (hr)	3.4	3.5	0.3	1.4	3.4	2.3	0.8	4.3	1.4	5.9	2.9	0.7
St Del/Veh (s)	57.6	34.5	8.7	29.9	13.0	27.8	17.0	19.6	30.7	65.9	27.3	22.1
Total Stops	253	280	96	143	276	255	141	342	134	387	252	78
Stop/Veh	1.20	0.77	0.72	0.83	0.29	0.85	0.79	0.44	0.84	1.20	0.66	0.70
Travel Dist (mi)	24.4	42.7	15.5	59.0	225.5	102.3	55.6	203.2	49.6	47.1	55.2	16.3
Travel Time (hr)	4.5	5.3	0.9	3.6	11.6	6.5	2.8	11.3	3.2	8.2	5.2	1.4
Avg Speed (mph)	6	8	21	16	19	16	20	18	15	6	11	11
Vehicles Entered	208	365	132	176	943	303	177	778	158	320	378	109
Vehicles Exited	211	364	133	170	943	300	179	784	161	324	386	113
Hourly Exit Rate	211	364	133	170	943	300	179	784	161	324	386	113
Input Volume	208	370	137	183	952	336	152	810	165	304	391	122
% of Volume	101	98	97	93	99	89	118	97	98	107	99	93
Denied Entry Before	1	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	37.2
Delay / Veh (s)	33.0
Stop Delay (hr)	30.3
St Del/Veh (s)	26.9
Total Stops	2637
Stop/Veh	0.65
Travel Dist (mi)	896.2
Travel Time (hr)	64.4
Avg Speed (mph)	14
Vehicles Entered	4047
Vehicles Exited	4068
Hourly Exit Rate	4068
Input Volume	4130
% of Volume	98
Denied Entry Before	1
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.6	0.1	0.8	0.3	0.1	0.4	2.2
Delay / Veh (s)	46.5	18.6	3.4	3.7	27.3	2.4	4.5
Stop Delay (hr)	0.6	0.1	0.4	0.1	0.1	0.1	1.4
St Del/Veh (s)	45.2	18.3	1.7	1.9	24.7	0.8	2.9
Total Stops	43	18	114	41	10	40	266
Stop/Veh	0.93	1.00	0.13	0.16	0.91	0.07	0.15
Travel Dist (mi)	1.8	0.7	80.6	22.9	1.3	63.5	170.7
Travel Time (hr)	0.7	0.1	3.2	1.2	0.1	2.1	7.5
Avg Speed (mph)	3	5	26	20	10	30	23
Vehicles Entered	46	18	899	258	11	543	1775
Vehicles Exited	46	18	895	257	11	543	1770
Hourly Exit Rate	46	18	895	257	11	543	1770
Input Volume	53	14	916	247	15	575	1820
% of Volume	87	129	98	104	73	94	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	1	0	0	0	1

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.5	0.9	2.4
Delay / Veh (s)	4.8	4.9	4.8
Stop Delay (hr)	0.7	0.3	1.1
St Del/Veh (s)	2.4	1.7	2.1
Total Stops	180	101	281
Stop/Veh	0.16	0.15	0.16
Travel Dist (mi)	126.7	200.6	327.3
Travel Time (hr)	5.0	6.8	11.8
Avg Speed (mph)	26	30	28
Vehicles Entered	1110	687	1797
Vehicles Exited	1113	683	1796
Hourly Exit Rate	1113	683	1796
Input Volume	1127	710	1837
% of Volume	99	96	98
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.1	0.7	1.8
Delay / Veh (s)	11.1	9.0	10.2
Stop Delay (hr)	0.9	0.4	1.3
St Del/Veh (s)	8.6	5.9	7.5
Total Stops	174	66	240
Stop/Veh	0.47	0.25	0.38
Travel Dist (mi)	48.1	24.0	72.1
Travel Time (hr)	3.1	1.5	4.6
Avg Speed (mph)	16	16	16
Vehicles Entered	369	261	630
Vehicles Exited	365	261	626
Hourly Exit Rate	365	261	626
Input Volume	350	296	646
% of Volume	104	88	97
Denied Entry Before	0	0	0
Denied Entry After	1	0	1

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	3.5	0.8	0.4	3.6	6.2	0.3	14.7
Delay / Veh (s)	19.4	7.5	24.4	16.0	36.2	11.0	20.4
Stop Delay (hr)	2.6	0.2	0.3	2.9	5.2	0.3	11.5
St Del/Veh (s)	14.1	2.2	21.0	13.2	30.1	10.2	15.9
Total Stops	359	215	46	431	478	51	1580
Stop/Veh	0.55	0.57	0.87	0.54	0.77	0.57	0.61
Travel Dist (mi)	187.8	127.9	2.9	42.8	77.9	11.3	450.4
Travel Time (hr)	10.1	5.6	0.5	5.3	9.1	0.7	31.1
Avg Speed (mph)	19	23	7	8	10	20	15
Vehicles Entered	650	383	54	804	618	89	2598
Vehicles Exited	652	377	53	804	618	90	2594
Hourly Exit Rate	652	377	53	804	618	90	2594
Input Volume	588	423	53	824	647	78	2613
% of Volume	111	89	100	98	96	115	99
Denied Entry Before	0	0	0	0	1	0	1
Denied Entry After	0	0	0	0	1	0	1



611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Total Delay (hr)	0.0	0.0	1.5	0.0	0.1	0.2	0.9	0.4	0.3	0.5	0.0	3.9
Delay / Veh (s)	8.7	4.2	26.4	9.1	4.6	16.3	12.6	10.2	12.1	7.1	1.3	13.0
Stop Delay (hr)	0.0	0.0	1.4	0.0	0.0	0.1	0.4	0.2	0.2	0.4	0.0	2.8
St Del/Veh (s)	7.0	4.2	23.3	6.2	3.3	9.7	5.3	5.4	9.9	5.2	1.3	9.2
Total Stops	2	27	174	2	33	35	117	83	41	69	2	585
Stop/Veh	0.50	0.87	0.82	0.33	0.70	0.92	0.47	0.61	0.51	0.25	0.67	0.54
Travel Dist (mi)	0.2	1.9	11.3	0.2	2.5	4.6	28.0	16.2	7.0	24.5	0.3	96.7
Travel Time (hr)	0.0	0.1	2.1	0.0	0.2	0.3	1.7	1.0	0.6	1.5	0.0	7.6
Avg Speed (mph)	13	15	5	9	12	14	17	17	11	16	19	13
Vehicles Entered	4	31	210	6	47	38	249	134	81	281	3	1084
Vehicles Exited	4	31	211	6	47	38	251	135	81	279	3	1086
Hourly Exit Rate	4	31	211	6	47	38	251	135	81	279	3	1086
Input Volume	6	32	208	4	41	33	286	135	77	268	5	1097
% of Volume	67	97	101	150	115	115	88	100	105	104	60	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.3	1.2	2.5
Delay / Veh (s)	4.7	5.4	5.0
Stop Delay (hr)	0.5	0.6	1.2
St Del/Veh (s)	1.8	2.9	2.3
Total Stops	116	166	282
Stop/Veh	0.11	0.21	0.16
Travel Dist (mi)	105.6	72.2	177.8
Travel Time (hr)	4.3	3.2	7.5
Avg Speed (mph)	25	23	24
Vehicles Entered	1010	792	1802
Vehicles Exited	1011	786	1797
Hourly Exit Rate	1011	786	1797
Input Volume	1092	779	1871
% of Volume	93	101	96
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.6	0.1	0.1	0.6	0.2	0.1	0.2	2.4	0.1	0.0	1.1	0.1
Delay / Veh (s)	35.1	17.1	17.4	42.7	31.7	17.2	17.0	9.4	5.2	16.5	5.5	4.6
Stop Delay (hr)	0.6	0.0	0.1	0.5	0.2	0.1	0.2	0.9	0.0	0.0	0.6	0.0
St Del/Veh (s)	33.1	13.8	16.8	40.3	28.9	16.8	11.2	3.4	2.5	11.9	3.1	2.7
Total Stops	51	8	28	42	16	17	49	287	16	1	129	15
Stop/Veh	0.81	0.67	0.97	0.89	0.80	0.77	0.94	0.31	0.36	0.50	0.18	0.28
Travel Dist (mi)	4.2	0.8	1.9	4.9	1.8	2.2	7.9	137.7	6.5	0.2	72.0	5.4
Travel Time (hr)	0.8	0.1	0.2	0.8	0.2	0.2	0.5	6.7	0.3	0.0	3.1	0.3
Avg Speed (mph)	5	9	8	6	7	11	15	21	21	12	23	20
Vehicles Entered	63	12	29	46	20	21	53	931	44	2	730	55
Vehicles Exited	63	12	29	47	20	22	52	928	44	2	731	54
Hourly Exit Rate	63	12	29	47	20	22	52	928	44	2	731	54
Input Volume	70	16	33	55	21	17	50	1005	39	4	728	48
% of Volume	90	75	88	85	95	129	104	92	113	50	100	112
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	5.6
Delay / Veh (s)	10.0
Stop Delay (hr)	3.3
St Del/Veh (s)	5.9
Total Stops	659
Stop/Veh	0.33
Travel Dist (mi)	245.7
Travel Time (hr)	13.2
Avg Speed (mph)	19
Vehicles Entered	2006
Vehicles Exited	2004
Hourly Exit Rate	2004
Input Volume	2086
% of Volume	96
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.1	0.1	1.6	1.3	0.1	1.4	5.6
Delay / Veh (s)	23.5	12.3	14.9	7.7	14.7	8.1	11.1
Stop Delay (hr)	1.0	0.1	1.1	0.4	0.1	0.7	3.4
St Del/Veh (s)	22.0	11.8	9.8	2.7	11.9	4.2	6.8
Total Stops	131	21	195	268	27	171	813
Stop/Veh	0.80	0.75	0.49	0.45	0.82	0.29	0.45
Travel Dist (mi)	5.7	1.0	47.7	71.7	3.3	65.9	195.4
Travel Time (hr)	1.4	0.2	3.0	3.9	0.3	3.4	12.1
Avg Speed (mph)	4	6	16	18	14	20	16
Vehicles Entered	162	28	397	592	33	599	1811
Vehicles Exited	166	28	395	600	33	596	1818
Hourly Exit Rate	166	28	395	600	33	596	1818
Input Volume	166	26	429	627	31	586	1866
% of Volume	100	108	92	96	106	102	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	83.2
Delay / Veh (s)	59.8
Stop Delay (hr)	60.0
St Del/Veh (s)	43.2
Total Stops	9785
Stop/Veh	1.95
Travel Dist (mi)	3365.7
Travel Time (hr)	193.3
Avg Speed (mph)	18
Vehicles Entered	4999
Vehicles Exited	5012
Hourly Exit Rate	5012
Input Volume	26294
% of Volume	19
Denied Entry Before	2
Denied Entry After	3

Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	99	69	115	57
Average Queue (ft)	48	37	57	39
95th Queue (ft)	76	57	84	61
Link Distance (ft)	239	276	593	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portside Drive & North River Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	147	79	79
Average Queue (ft)	102	39	37
95th Queue (ft)	154	60	59
Link Distance (ft)	133	950	593
Upstream Blk Time (%)	2		
Queuing Penalty (veh)	14		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	71	31	55
Average Queue (ft)	21	12	29
95th Queue (ft)	43	37	50
Link Distance (ft)	623	209	741
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Corrigan Street & Beach Access

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	57	54	67
Average Queue (ft)	32	33	24	25
95th Queue (ft)	45	53	49	53
Link Distance (ft)	276	115	198	188
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	78	208	229	93	73
Average Queue (ft)	30	81	57	38	28
95th Queue (ft)	65	200	161	82	68
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report  
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Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	334	221	221	96	241	315	394	192	336	390	475	634
Average Queue (ft)	154	116	126	39	99	163	238	86	180	201	253	197
95th Queue (ft)	284	192	196	66	184	252	346	153	280	317	461	486
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400			400	
Storage Blk Time (%)	1		0								7	
Queuing Penalty (veh)	1		1								14	

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	626
Average Queue (ft)	198
95th Queue (ft)	428
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	115	178	328	93	79
Average Queue (ft)	51	57	70	17	29
95th Queue (ft)	96	136	185	57	69
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report  
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Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	171	185	114	138
Average Queue (ft)	66	76	36	47
95th Queue (ft)	153	170	93	117
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	264	137
Average Queue (ft)	104	50
95th Queue (ft)	210	104
Link Distance (ft)	692	418
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	238	207	122	72	220	242	461	50
Average Queue (ft)	112	121	62	30	135	145	292	26
95th Queue (ft)	194	201	101	62	209	225	424	50
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					4		0	
Queuing Penalty (veh)					2		0	

Queuing and Blocking Report  
 2020 Build (With N.River) PM Pk Hr 6:30-7:30

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Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	50	162	52	305	48	147
Average Queue (ft)	19	99	21	119	25	43
95th Queue (ft)	44	154	47	228	50	96
Link Distance (ft)	318	239		582		418
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			140		175	
Storage Blk Time (%)		3				
Queuing Penalty (veh)		1				

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	97	96	140	158
Average Queue (ft)	41	43	63	61
95th Queue (ft)	95	91	131	126
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	139	138	74	224	228	139	114
Average Queue (ft)	61	39	28	113	84	45	45
95th Queue (ft)	108	90	61	200	170	104	89
Link Distance (ft)	352		623	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		300					
Storage Blk Time (%)							
Queuing Penalty (veh)							



Queuing and Blocking Report  
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Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	134	310	210	31	205
Average Queue (ft)	85	119	94	23	105
95th Queue (ft)	136	223	168	42	196
Link Distance (ft)	133	580	580		582
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	2				
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Network Summary

Network wide Queuing Penalty: 35

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	1	39	320	1	81	23	254	51	40	314	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		140	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		50	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.94			0.96	0.92		0.98		0.96	1.00	
Frt		0.877				0.850		0.979			0.997	
Flt Protected		0.997			0.953			0.997		0.950		
Satd. Flow (prot)	0	1530	0	0	1775	1583	0	1789	0	1770	1855	0
Flt Permitted		0.973			0.684			0.959		0.518		
Satd. Flow (perm)	0	1490	0	0	1219	1459	0	1719	0	926	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53				93		17			2	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			301			632			480	
Travel Time (s)		8.0			6.8			11.6			8.8	
Confl. Peds. (#/hr)	33		26	26		33	22		46	46		22
Peak Hour Factor	0.73	0.73	0.73	0.87	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	4	1	53	368	1	93	26	289	58	45	357	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	369	93	0	373	0	45	365	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		23.5			23.5	23.5		29.5		29.5	29.5	
Actuated g/C Ratio		0.36			0.36	0.36		0.45		0.45	0.45	
v/c Ratio		0.10			0.84	0.16		0.47		0.11	0.43	
Control Delay		4.9			36.8	3.9		17.8		4.6	5.8	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

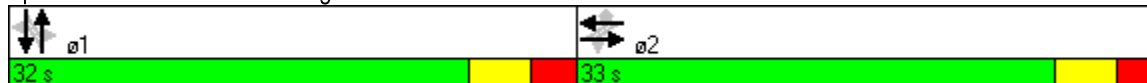


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		4.9			36.8	3.9		17.8		4.6	5.8	
LOS		A			D	A		B		A	A	
Approach Delay		4.9			30.2			17.8			5.7	
Approach LOS		A			C			B			A	
Queue Length 50th (ft)		1			123	0		160		2	20	
Queue Length 95th (ft)		13			#231	22		236		m6	29	
Internal Link Dist (ft)		273			221			552			400	
Turn Bay Length (ft)						140				175		
Base Capacity (vph)		650			506	660		791		421	844	
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		0.09			0.73	0.14		0.47		0.11	0.43	

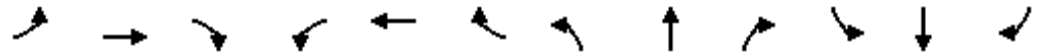
Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.84  
 Intersection Signal Delay: 17.8  
 Intersection LOS: B  
 Intersection Capacity Utilization 70.9%  
 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: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	8	20	36	171	4	26	151	14	0	23	206
Peak Hour Factor	0.86	0.86	0.86	0.79	0.79	0.79	0.70	0.70	0.70	0.81	0.81	0.81
Hourly flow rate (vph)	74	9	23	46	216	5	37	216	20	0	28	254
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	107	267	273	283								
Volume Left (vph)	74	46	37	0								
Volume Right (vph)	23	5	20	254								
Hadj (s)	0.04	0.06	0.02	-0.51								
Departure Headway (s)	5.9	5.6	5.5	5.0								
Degree Utilization, x	0.18	0.42	0.41	0.39								
Capacity (veh/h)	525	589	608	670								
Control Delay (s)	10.2	12.6	12.3	11.1								
Approach Delay (s)	10.2	12.6	12.3	11.1								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				11.8								
HCM Level of Service				B								
Intersection Capacity Utilization				54.1%	ICU Level of Service							A
Analysis Period (min)				15								

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	125	15	377	291	7	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.93	0.98	
Frt	0.985			0.850		
Flt Protected	0.957				0.950	
Satd. Flow (prot)	1756	0	1863	1583	1770	1863
Flt Permitted	0.957				0.363	
Satd. Flow (perm)	1756	0	1863	1479	663	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	10			368		
Link Speed (mph)	30		37			37
Link Distance (ft)	210		647			632
Travel Time (s)	4.8		11.9			11.6
Confl. Peds. (#/hr)				29	29	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.83	0.83
Adj. Flow (vph)	139	17	477	368	8	810
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	477	368	8	810
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	13.0		28.4	37.6	44.0	46.2
Actuated g/C Ratio	0.20		0.44	0.58	0.68	0.71
v/c Ratio	0.44		0.59	0.35	0.01	0.61
Control Delay	24.4		9.8	1.0	4.1	9.5
Queue Delay	0.0		0.0	0.0	0.0	0.0

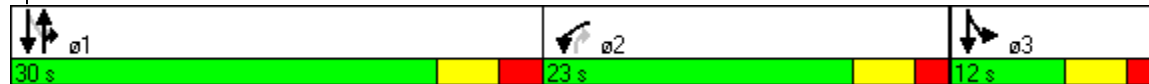


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	24.4		9.8	1.0	4.1	9.5
LOS	C		A	A	A	A
Approach Delay	24.4		6.0			9.5
Approach LOS	C		A			A
Queue Length 50th (ft)	51		51	0	1	155
Queue Length 95th (ft)	92		86	0	m2	317
Internal Link Dist (ft)	130		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	534		813	1056	672	1324
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	0.29		0.59	0.35	0.01	0.61

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 9.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 51.5%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	197	69	41	32	16	92
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	219	77	46	36	18	102
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	296	81	120			
Volume Left (vph)	219	46	0			
Volume Right (vph)	77	0	102			
Hadj (s)	0.03	0.15	-0.48			
Departure Headway (s)	4.4	4.9	4.2			
Degree Utilization, x	0.36	0.11	0.14			
Capacity (veh/h)	782	687	786			
Control Delay (s)	9.9	8.5	7.9			
Approach Delay (s)	9.9	8.5	7.9			
Approach LOS	A	A	A			
Intersection Summary						
Delay			9.2			
HCM Level of Service			A			
Intersection Capacity Utilization			32.7%	ICU Level of Service		A
Analysis Period (min)			15			

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Summary of All Intervals

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Start Time	8:25
End Time	9:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvl	1
Vehs Entered	5279
Vehs Exited	5290
Starting Vehs	178
Ending Vehs	167
Denied Entry Before	4
Denied Entry After	0
Travel Distance (mi)	2953
Travel Time (hr)	161.8
Total Delay (hr)	65.4
Total Stops	7937
Fuel Used (gal)	1265.4

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Interval #0 Information Seeding

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Start Time	8:25
End Time	8:30
Total Time (min)	5

Volumes adjusted by Growth Factors.  
No data recorded this interval.

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Interval #1 Information Recording

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Start Time	8:30
End Time	9:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	5279
Vehs Exited	5290
Starting Vehs	178
Ending Vehs	167
Denied Entry Before	4
Denied Entry After	0
Travel Distance (mi)	2953
Travel Time (hr)	161.8
Total Delay (hr)	65.4
Total Stops	7937
Fuel Used (gal)	1265.4



1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.4	0.0	0.0	0.3	1.4
Delay / Veh (s)	7.0	8.2	4.2	7.0	8.5	4.9	8.3	7.0	5.1	6.3	4.5	6.5
Stop Delay (hr)	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.9
St Del/Veh (s)	5.1	5.1	3.6	4.2	4.2	4.0	5.3	3.3	3.2	3.8	4.1	4.0
Total Stops	66	9	24	50	167	3	15	164	11	17	208	734
Stop/Veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	1.00	1.00	1.00	0.95
Travel Dist (mi)	3.5	0.5	1.3	3.1	10.3	0.2	1.8	22.7	1.3	0.8	10.0	55.6
Travel Time (hr)	0.3	0.0	0.1	0.2	0.8	0.0	0.1	1.3	0.1	0.1	0.8	3.9
Avg Speed (mph)	11	11	12	12	13	12	17	18	18	13	13	14
Vehicles Entered	66	9	24	50	167	3	15	205	11	17	206	773
Vehicles Exited	66	9	24	50	167	3	15	205	11	17	209	776
Hourly Exit Rate	66	9	24	50	167	3	15	205	11	17	209	776
Input Volume	64	9	20	36	171	4	26	189	14	23	206	762
% of Volume	103	100	120	139	98	75	58	108	79	74	101	102
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Portside Drive & North River Street Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.3	0.0	0.1	0.1	0.1	0.0	0.1	0.6
Delay / Veh (s)	4.6	0.7	3.7	5.3	6.7	6.9	4.1	4.4
Stop Delay (hr)	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.4
St Del/Veh (s)	3.3	0.0	3.3	3.3	3.1	3.3	3.1	3.0
Total Stops	195	0	61	35	35	14	115	455
Stop/Veh	0.99	0.00	1.00	1.00	1.00	1.00	1.00	0.93
Travel Dist (mi)	6.3	0.7	2.0	5.8	6.2	1.4	11.8	34.1
Travel Time (hr)	0.7	0.1	0.2	0.3	0.3	0.1	0.7	2.2
Avg Speed (mph)	9	12	9	22	23	18	18	15
Vehicles Entered	196	34	61	35	35	14	114	489
Vehicles Exited	196	34	61	35	35	14	115	490
Hourly Exit Rate	196	34	61	35	35	14	115	490
Input Volume	197	32	69	41	32	16	92	479
% of Volume	99	106	88	85	109	88	125	102
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

4: Latta Road & River Street Performance by movement

Movement	EBL	EBT	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	5.1	0.6	3.6	4.1	0.1	2.8	2.9
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	2.7	0.2	2.7	2.5	0.0	2.4	1.8
Total Stops	52	0	9	6	0	35	102
Stop/Veh	1.00	0.00	1.00	1.00	0.00	1.00	0.69
Travel Dist (mi)	6.7	0.5	0.4	0.2	2.9	5.1	15.9
Travel Time (hr)	0.4	0.0	0.0	0.0	0.1	0.2	0.7
Avg Speed (mph)	19	21	14	14	30	23	21
Vehicles Entered	52	8	9	6	38	35	148
Vehicles Exited	52	8	9	6	38	35	148
Hourly Exit Rate	52	8	9	6	38	35	148
Input Volume	53	3	6	6	41	44	153
% of Volume	98	267	150	100	93	80	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Delay / Veh (s)	6.0	6.7	4.3	2.7	3.5	2.3	4.1	4.3	2.3	3.6	4.5	2.7
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
St Del/Veh (s)	3.5	3.3	2.8	2.4	2.7	2.4	2.9	2.6	2.6	2.7	2.5	2.8
Total Stops	2	7	11	3	63	3	112	5	2	6	1	45
Stop/Veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Travel Dist (mi)	0.1	0.4	0.7	0.1	1.4	0.1	4.2	0.2	0.1	0.2	0.0	1.6
Travel Time (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.1
Avg Speed (mph)	13	13	14	11	10	10	13	13	14	13	13	13
Vehicles Entered	2	7	11	3	63	3	112	5	2	6	1	45
Vehicles Exited	2	7	11	3	63	3	112	5	2	6	1	45
Hourly Exit Rate	2	7	11	3	63	3	112	5	2	6	1	45
Input Volume	5	5	12	5	70	5	100	5	5	5	5	41
% of Volume	40	140	92	60	90	60	112	100	40	120	20	110
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	All
Total Delay (hr)	0.3
Delay / Veh (s)	3.7
Stop Delay (hr)	0.2
St Del/Veh (s)	2.8
Total Stops	260
Stop/Veh	1.00
Travel Dist (mi)	9.1
Travel Time (hr)	0.7
Avg Speed (mph)	12
Vehicles Entered	260
Vehicles Exited	260
Hourly Exit Rate	260
Input Volume	263
% of Volume	99
Denied Entry Before	0
Denied Entry After	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.0	0.3	0.1	0.5	0.6	0.0	1.5
Delay / Veh (s)	18.3	31.0	6.6	2.8	2.6	0.9	3.4
Stop Delay (hr)	0.0	0.3	0.0	0.2	0.1	0.0	0.7
St Del/Veh (s)	16.8	30.6	3.7	1.0	0.6	0.7	1.6
Total Stops	2	33	16	55	52	0	158
Stop/Veh	0.67	0.94	0.55	0.08	0.07	0.00	0.10
Travel Dist (mi)	0.2	2.7	2.3	55.6	79.3	0.1	140.2
Travel Time (hr)	0.0	0.4	0.1	2.0	2.9	0.0	5.5
Avg Speed (mph)	9	6	17	28	28	22	26
Vehicles Entered	3	35	29	682	799	1	1549
Vehicles Exited	3	35	29	682	799	1	1549
Hourly Exit Rate	3	35	29	682	799	1	1549
Input Volume	4	28	38	661	796	1	1528
% of Volume	75	125	76	103	100	100	101
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	1.6	3.5	0.3	1.5	5.2	2.5	0.7	3.2	0.8	2.0	1.8	0.3
Delay / Veh (s)	40.9	38.4	10.2	30.2	17.7	41.9	17.9	13.7	19.1	29.1	25.8	15.8
Stop Delay (hr)	1.4	3.0	0.3	1.3	3.8	1.9	0.6	2.3	0.6	1.7	1.5	0.3
St Del/Veh (s)	36.5	33.2	7.9	25.0	12.8	32.5	13.9	9.7	14.8	24.8	21.5	13.4
Total Stops	132	235	87	143	311	184	96	226	93	207	136	44
Stop/Veh	0.92	0.72	0.71	0.79	0.29	0.86	0.64	0.27	0.64	0.86	0.54	0.58
Travel Dist (mi)	16.8	38.2	14.2	61.2	250.6	72.7	47.8	187.2	45.0	33.9	34.8	10.5
Travel Time (hr)	2.2	4.6	0.8	3.5	13.0	4.9	2.1	8.3	2.2	3.1	2.8	0.7
Avg Speed (mph)	9	9	21	18	19	15	22	23	21	11	13	15
Vehicles Entered	144	327	122	183	1068	218	152	839	144	243	249	75
Vehicles Exited	143	329	122	181	1068	212	151	842	146	242	250	76
Hourly Exit Rate	143	329	122	181	1068	212	151	842	146	242	250	76
Input Volume	124	350	129	173	1087	211	144	826	157	217	258	72
% of Volume	115	94	95	105	98	100	105	102	93	112	97	106
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	23.5
Delay / Veh (s)	22.5
Stop Delay (hr)	18.6
St Del/Veh (s)	17.8
Total Stops	1894
Stop/Veh	0.50
Travel Dist (mi)	812.9
Travel Time (hr)	48.2
Avg Speed (mph)	17
Vehicles Entered	3764
Vehicles Exited	3762
Hourly Exit Rate	3762
Input Volume	3748
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.1	0.1	0.9	0.2	0.1	0.5	3.0
Delay / Veh (s)	62.5	28.8	3.6	3.1	27.3	3.3	5.8
Stop Delay (hr)	1.1	0.1	0.5	0.1	0.1	0.2	2.1
St Del/Veh (s)	61.0	28.3	1.8	1.5	25.4	1.4	4.0
Total Stops	58	13	115	39	13	49	287
Stop/Veh	0.94	0.76	0.12	0.14	0.93	0.09	0.15
Travel Dist (mi)	2.4	0.6	83.1	24.6	1.6	66.4	178.7
Travel Time (hr)	1.2	0.2	3.4	1.3	0.2	2.3	8.5
Avg Speed (mph)	2	4	25	20	10	29	21
Vehicles Entered	63	16	926	274	14	568	1861
Vehicles Exited	62	17	919	276	14	564	1852
Hourly Exit Rate	62	17	919	276	14	564	1852
Input Volume	53	14	916	247	15	575	1820
% of Volume	117	121	100	112	93	98	102
Denied Entry Before	0	0	1	0	0	0	1
Denied Entry After	0	0	0	0	0	0	0

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.3	0.8	2.1
Delay / Veh (s)	4.2	5.1	4.5
Stop Delay (hr)	0.6	0.3	1.0
St Del/Veh (s)	2.0	2.1	2.0
Total Stops	151	102	253
Stop/Veh	0.13	0.18	0.15
Travel Dist (mi)	129.3	180.5	309.8
Travel Time (hr)	4.9	6.1	11.0
Avg Speed (mph)	27	30	28
Vehicles Entered	1131	582	1713
Vehicles Exited	1135	582	1717
Hourly Exit Rate	1135	582	1717
Input Volume	1127	590	1717
% of Volume	101	99	100
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.3	1.2	2.5
Delay / Veh (s)	12.7	12.2	12.4
Stop Delay (hr)	1.0	0.8	1.8
St Del/Veh (s)	10.1	8.4	9.3
Total Stops	199	127	326
Stop/Veh	0.55	0.36	0.46
Travel Dist (mi)	47.7	32.1	79.9
Travel Time (hr)	3.2	2.4	5.6
Avg Speed (mph)	15	13	14
Vehicles Entered	364	353	717
Vehicles Exited	362	354	716
Hourly Exit Rate	362	354	716
Input Volume	361	338	699
% of Volume	100	105	102
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	3.4	0.6	0.4	4.3	6.7	0.3	15.6
Delay / Veh (s)	16.5	7.0	23.3	18.3	38.8	13.5	21.4
Stop Delay (hr)	2.5	0.2	0.3	3.5	5.6	0.3	12.4
St Del/Veh (s)	12.2	2.0	19.9	15.1	32.2	12.2	16.9
Total Stops	348	174	55	510	506	38	1631
Stop/Veh	0.47	0.58	0.93	0.60	0.81	0.48	0.62
Travel Dist (mi)	191.5	99.5	3.1	44.9	78.9	9.9	427.8
Travel Time (hr)	10.1	4.3	0.5	6.0	9.6	0.7	31.2
Avg Speed (mph)	19	23	7	8	10	20	15
Vehicles Entered	730	296	58	840	626	78	2628
Vehicles Exited	736	300	59	845	624	79	2643
Hourly Exit Rate	736	300	59	845	624	79	2643
Input Volume	588	423	53	824	647	78	2613
% of Volume	125	71	111	103	96	101	101
Denied Entry Before	0	0	0	0	3	0	3
Denied Entry After	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.0	0.0	2.1	0.0	0.1	0.1	1.2	0.2	0.1	0.7	0.0
Delay / Veh (s)	6.4	24.3	3.0	25.0	10.0	6.2	13.3	13.1	10.5	14.2	7.8	11.6
Stop Delay (hr)	0.0	0.0	0.0	1.8	0.0	0.1	0.1	0.6	0.1	0.1	0.5	0.0
St Del/Veh (s)	5.0	21.9	2.9	21.5	8.0	4.4	7.8	6.7	6.0	11.9	5.9	10.2
Total Stops	3	1	27	267	1	50	29	163	45	23	70	3
Stop/Veh	0.50	1.00	0.69	0.88	0.25	0.61	1.00	0.48	0.74	0.62	0.22	0.50
Travel Dist (mi)	0.4	0.1	2.4	16.4	0.1	4.4	3.4	36.8	7.4	3.2	27.6	0.5
Travel Time (hr)	0.0	0.0	0.1	2.9	0.0	0.4	0.2	2.3	0.4	0.3	1.8	0.0
Avg Speed (mph)	14	7	17	6	8	11	16	16	17	11	15	11
Vehicles Entered	6	1	39	304	4	83	28	339	61	37	319	6
Vehicles Exited	6	1	39	306	4	81	29	341	61	37	314	6
Hourly Exit Rate	6	1	39	306	4	81	29	341	61	37	314	6
Input Volume	3	1	39	320	2	81	23	318	51	40	314	7
% of Volume	200	100	100	96	200	100	126	107	120	92	100	86
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	4.7
Delay / Veh (s)	13.8
Stop Delay (hr)	3.4
St Del/Veh (s)	10.1
Total Stops	682
Stop/Veh	0.56
Travel Dist (mi)	102.8
Travel Time (hr)	8.6
Avg Speed (mph)	12
Vehicles Entered	1227
Vehicles Exited	1225
Hourly Exit Rate	1225
Input Volume	1199
% of Volume	102
Denied Entry Before	0
Denied Entry After	0



650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	0.9	0.6	1.5
Delay / Veh (s)	5.4	4.0	4.8
Stop Delay (hr)	0.4	0.3	0.8
St Del/Veh (s)	2.5	2.2	2.4
Total Stops	112	93	205
Stop/Veh	0.18	0.18	0.18
Travel Dist (mi)	64.6	45.9	110.5
Travel Time (hr)	2.7	1.9	4.6
Avg Speed (mph)	24	24	24
Vehicles Entered	622	523	1145
Vehicles Exited	615	524	1139
Hourly Exit Rate	615	524	1139
Input Volume	600	508	1108
% of Volume	102	103	103
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.5	0.2	0.2	0.6	0.2	0.0	0.1	1.1	0.0	0.0	0.5	0.0
Delay / Veh (s)	38.5	39.3	16.9	43.7	32.2	5.8	9.9	6.3	4.5	18.0	4.0	3.4
Stop Delay (hr)	0.5	0.2	0.1	0.6	0.1	0.0	0.1	0.4	0.0	0.0	0.3	0.0
St Del/Veh (s)	36.4	36.5	16.2	41.1	29.6	5.5	5.6	2.2	2.4	14.8	2.1	1.8
Total Stops	38	16	31	45	12	10	28	151	12	2	61	5
Stop/Veh	0.81	0.84	0.97	0.87	0.67	0.91	0.67	0.24	0.32	0.50	0.14	0.14
Travel Dist (mi)	3.1	1.2	2.1	5.1	1.4	1.0	6.2	87.9	5.6	0.4	43.1	3.6
Travel Time (hr)	0.6	0.3	0.2	0.8	0.2	0.1	0.3	3.8	0.3	0.0	1.7	0.2
Avg Speed (mph)	5	5	8	6	7	16	19	23	22	12	26	21
Vehicles Entered	46	18	31	51	17	11	43	622	38	4	436	36
Vehicles Exited	47	19	32	53	18	11	42	619	37	4	437	36
Hourly Exit Rate	47	19	32	53	18	11	42	619	37	4	437	36
Input Volume	49	15	31	53	20	16	48	590	37	4	425	36
% of Volume	96	127	103	100	90	69	88	105	100	100	103	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	3.5
Delay / Veh (s)	9.2
Stop Delay (hr)	2.3
St Del/Veh (s)	6.2
Total Stops	411
Stop/Veh	0.30
Travel Dist (mi)	160.6
Travel Time (hr)	8.5
Avg Speed (mph)	19
Vehicles Entered	1353
Vehicles Exited	1355
Hourly Exit Rate	1355
Input Volume	1324
% of Volume	102
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.1	0.1	1.3	0.2	0.0	1.3	4.0
Delay / Veh (s)	28.1	12.9	11.8	2.8	6.9	7.0	9.5
Stop Delay (hr)	1.1	0.1	0.9	0.1	0.0	0.5	2.6
St Del/Veh (s)	26.8	12.7	8.0	0.8	5.2	2.9	6.3
Total Stops	121	20	148	81	2	167	539
Stop/Veh	0.85	0.91	0.36	0.28	0.50	0.25	0.36
Travel Dist (mi)	4.6	0.7	48.9	34.0	0.5	79.8	168.5
Travel Time (hr)	1.4	0.1	2.7	1.4	0.0	3.8	9.4
Avg Speed (mph)	3	5	18	23	18	21	18
Vehicles Entered	140	22	407	282	4	660	1515
Vehicles Exited	143	22	406	287	4	657	1519
Hourly Exit Rate	143	22	406	287	4	657	1519
Input Volume	125	15	377	291	7	672	1487
% of Volume	114	147	108	99	57	98	102
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	65.4
Delay / Veh (s)	44.5
Stop Delay (hr)	47.4
St Del/Veh (s)	32.3
Total Stops	7937
Stop/Veh	1.50
Travel Dist (mi)	2953.3
Travel Time (hr)	161.8
Avg Speed (mph)	19
Vehicles Entered	5279
Vehicles Exited	5290
Hourly Exit Rate	5290
Input Volume	22442
% of Volume	24
Denied Entry Before	4
Denied Entry After	0

Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	78	98	55	78
Average Queue (ft)	38	45	38	49
95th Queue (ft)	61	73	57	72
Link Distance (ft)	239	275	593	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portside Drive & North River Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	100	55	75
Average Queue (ft)	50	32	34
95th Queue (ft)	81	54	58
Link Distance (ft)	134	948	593
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	46	31	55
Average Queue (ft)	20	11	19
95th Queue (ft)	37	35	45
Link Distance (ft)	623	209	741
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Corrigan Street & Beach Access

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	78	73	56
Average Queue (ft)	13	32	38	28
95th Queue (ft)	39	54	58	50
Link Distance (ft)	275	115	198	188
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	53	158	94	76	74
Average Queue (ft)	29	38	14	23	20
95th Queue (ft)	59	103	53	63	58
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report  
 2020 Build (With N.River) Night Pk Hr 8:30-9:30

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Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	156	189	203	54	182	405	461	135	272	280	265	133
Average Queue (ft)	83	94	106	32	94	185	229	58	112	130	126	66
95th Queue (ft)	136	164	169	48	164	293	338	113	205	229	213	113
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400			400	
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	162
Average Queue (ft)	91
95th Queue (ft)	152
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	182	166	182	133	136
Average Queue (ft)	71	44	58	29	24
95th Queue (ft)	150	125	149	85	78
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report  
 2020 Build (With N.River) Night Pk Hr 8:30-9:30

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Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	186	161	96	118
Average Queue (ft)	56	63	34	47
95th Queue (ft)	137	148	86	113
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	162	220
Average Queue (ft)	111	79
95th Queue (ft)	167	171
Link Distance (ft)	692	418
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	181	184	140	174	305	294	474	543
Average Queue (ft)	110	119	55	48	163	167	308	72
95th Queue (ft)	178	181	93	123	250	258	485	307
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)					0	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					7		1	
Queuing Penalty (veh)					4		1	

Queuing and Blocking Report  
 2020 Build (With N.River) Night Pk Hr 8:30-9:30

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Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	49	247	190	288	48	130
Average Queue (ft)	19	143	38	128	16	47
95th Queue (ft)	44	228	107	236	41	96
Link Distance (ft)	318	239		582		418
Upstream Blk Time (%)		1				
Queuing Penalty (veh)		5				
Storage Bay Dist (ft)			140		175	
Storage Blk Time (%)		8				
Queuing Penalty (veh)		7				

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	94	74	115	75
Average Queue (ft)	47	27	38	34
95th Queue (ft)	97	69	87	70
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	137	96	73	200	180	117	92
Average Queue (ft)	62	43	21	79	53	31	19
95th Queue (ft)	103	83	50	165	125	80	63
Link Distance (ft)	352		623	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		300					
Storage Blk Time (%)							
Queuing Penalty (veh)							



Queuing and Blocking Report  
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Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	148	179	78	30	198
Average Queue (ft)	78	92	32	2	98
95th Queue (ft)	127	169	62	14	179
Link Distance (ft)	134	580	580		582
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	1				
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Network Summary

Network wide Queuing Penalty: 17

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Volume (vph)	3	14	27	326	9	67	12	226	115	49	282	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		140	0		0	175		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25		25	25		50	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.92			0.90	0.88		0.96		0.96	1.00	
Frt		0.917				0.850		0.956			0.998	
Flt Protected		0.996			0.954			0.998		0.950		
Satd. Flow (prot)	0	1566	0	0	1777	1583	0	1714	0	1770	1857	0
Flt Permitted		0.969			0.692			0.982		0.411		
Satd. Flow (perm)	0	1519	0	0	1159	1395	0	1685	0	738	1857	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33				93		45			1	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		353			301			632			480	
Travel Time (s)		8.0			6.8			11.6			8.8	
Confl. Peds. (#/hr)	56		62	62		56	34		50	50		34
Peak Hour Factor	0.83	0.83	0.83	0.72	0.72	0.72	0.75	0.75	0.75	0.84	0.84	0.84
Adj. Flow (vph)	4	17	33	453	12	93	16	301	153	58	336	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	0	0	465	93	0	470	0	58	340	0
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2	1			1		
Detector Phase	2	2		2	2	2	1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		24.0	24.0	
Total Split (s)	33.0	33.0	0.0	33.0	33.0	33.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	50.8%	50.8%	0.0%	50.8%	50.8%	50.8%	49.2%	49.2%	0.0%	49.2%	49.2%	0.0%
Maximum Green (s)	27.0	27.0		27.0	27.0	27.0	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5	2.5	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	0.0	-2.0	0.0	0.0	-3.0	0.0	-1.0	0.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	4.0	4.0	6.0	6.0	3.0	6.0	3.0	6.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag	Lag	Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	9.0	9.0		9.0	9.0	9.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	9.0	9.0		9.0	9.0	9.0	10.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)	50	50		50	50	50	0	0		0	0	
Act Effct Green (s)		27.0			27.0	27.0		26.0		26.0	26.0	
Actuated g/C Ratio		0.42			0.42	0.42		0.40		0.40	0.40	
v/c Ratio		0.08			0.97	0.15		0.67		0.20	0.46	
Control Delay		6.8			56.1	3.8		22.0		6.0	7.3	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	

Lanes, Volumes, Timings  
611: Corrigan Street & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

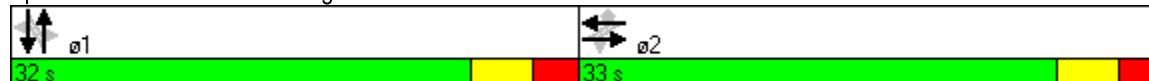


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		6.8			56.1	3.8		22.0		6.0	7.3	
LOS		A			E	A		C		A	A	
Approach Delay		6.8			47.4			22.0			7.1	
Approach LOS		A			D			C			A	
Queue Length 50th (ft)		5			173	0		196		4	21	
Queue Length 95th (ft)		21			#241	14		233		8	30	
Internal Link Dist (ft)		273			221			552			400	
Turn Bay Length (ft)						140				175		
Base Capacity (vph)		650			481	634		701		295	743	
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		0.08			0.97	0.15		0.67		0.20	0.46	

Intersection Summary

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 45 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 27.0  
 Intersection LOS: C  
 Intersection Capacity Utilization 65.6%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 611: Corrigan Street & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 1: Corrigan Street & North River Street 10/18/2010














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	121	48	12	34	156	2	27	191	95	0	25	219
Peak Hour Factor	0.79	0.79	0.79	0.82	0.82	0.82	0.86	0.86	0.86	0.79	0.79	0.79
Hourly flow rate (vph)	153	61	15	41	190	2	31	222	110	0	32	277
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	229	234	364	309								
Volume Left (vph)	153	41	31	0								
Volume Right (vph)	15	2	110	277								
Hadj (s)	0.13	0.06	-0.13	-0.50								
Departure Headway (s)	6.6	6.5	5.9	5.7								
Degree Utilization, x	0.42	0.43	0.60	0.49								
Capacity (veh/h)	479	483	565	567								
Control Delay (s)	14.3	14.3	17.5	14.1								
Approach Delay (s)	14.3	14.3	17.5	14.1								
Approach LOS	B	B	C	B								
Intersection Summary												
Delay			15.3									
HCM Level of Service			C									
Intersection Capacity Utilization			68.9%	ICU Level of Service	C							
Analysis Period (min)			15									

Lanes, Volumes, Timings  
662: Portside Drive & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	201	21	406	453	22	618
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	175	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.92	0.98	
Frt	0.987			0.850		
Flt Protected	0.957				0.950	
Satd. Flow (prot)	1759	0	1863	1583	1770	1863
Flt Permitted	0.957				0.295	
Satd. Flow (perm)	1759	0	1863	1456	537	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	8			566		
Link Speed (mph)	30		37			37
Link Distance (ft)	210		647			632
Travel Time (s)	4.8		11.9			11.6
Confl. Peds. (#/hr)				38	38	
Peak Hour Factor	0.73	0.73	0.80	0.80	0.86	0.86
Adj. Flow (vph)	275	29	508	566	26	719
Shared Lane Traffic (%)						
Lane Group Flow (vph)	304	0	508	566	26	719
Turn Type				custom	pm+pt	
Protected Phases	2		1	1	3	1 3
Permitted Phases				2	1 3	
Detector Phase	2		1	1	3	1 3
Switch Phase						
Minimum Initial (s)	6.0		20.0	20.0	4.0	
Minimum Split (s)	20.5		26.0	26.0	9.5	
Total Split (s)	23.0	0.0	30.0	30.0	12.0	42.0
Total Split (%)	35.4%	0.0%	46.2%	46.2%	18.5%	64.6%
Maximum Green (s)	17.5		24.0	24.0	6.5	
Yellow Time (s)	3.5		3.5	3.5	3.5	
All-Red Time (s)	2.0		2.5	2.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.5	3.0	6.0	6.0	3.5	6.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0	2.0	2.0	
Recall Mode	None		C-Max	C-Max	None	
Walk Time (s)	7.0		9.0	9.0		
Flash Dont Walk (s)	8.0		11.0	11.0		
Pedestrian Calls (#/hr)	0		0	0		
Act Effct Green (s)	17.1		24.3	38.9	37.4	38.4
Actuated g/C Ratio	0.26		0.37	0.60	0.58	0.59
v/c Ratio	0.65		0.73	0.49	0.05	0.65
Control Delay	27.3		19.1	2.3	6.3	13.4
Queue Delay	0.0		0.0	0.0	0.0	0.0

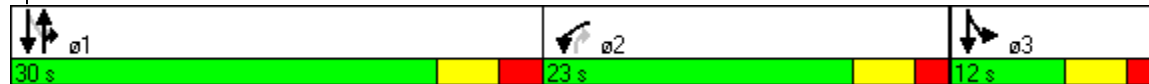


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	27.3		19.1	2.3	6.3	13.4
LOS	C		B	A	A	B
Approach Delay	27.3		10.2			13.2
Approach LOS	C		B			B
Queue Length 50th (ft)	101		78	9	4	215
Queue Length 95th (ft)	129		128	0	m6	m256
Internal Link Dist (ft)	130		567			552
Turn Bay Length (ft)					175	
Base Capacity (vph)	533		698	1147	509	1101
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	0.57		0.73	0.49	0.05	0.65

**Intersection Summary**

Area Type: Other  
 Cycle Length: 65  
 Actuated Cycle Length: 65  
 Offset: 12 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 13.7  
 Intersection LOS: B  
 Intersection Capacity Utilization 53.3%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 662: Portside Drive & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 3: Portside Drive & North River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	347	129	95	42	8	121
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	386	143	106	47	9	134
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	529	152	143			
Volume Left (vph)	386	106	0			
Volume Right (vph)	143	0	134			
Hadj (s)	0.02	0.17	-0.53			
Departure Headway (s)	4.7	5.6	5.0			
Degree Utilization, x	0.69	0.24	0.20			
Capacity (veh/h)	740	574	649			
Control Delay (s)	17.6	10.4	9.2			
Approach Delay (s)	17.6	10.4	9.2			
Approach LOS	C	B	A			
Intersection Summary						
Delay			14.8			
HCM Level of Service			B			
Intersection Capacity Utilization			53.9%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis  
10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (vph)	76	9	40	32	13	5	43	814	21	5	777	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	300		0	0		0	0		0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98		0.98	0.99			1.00			1.00	
Frt		0.957			0.960			0.996			0.989	
Flt Protected		0.970		0.950				0.998				
Satd. Flow (prot)	0	1712	0	1770	1771	0	0	3510	0	0	3488	0
Flt Permitted		0.798		0.696				0.848			0.949	
Satd. Flow (perm)	0	1389	0	1277	1771	0	0	2982	0	0	3310	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			7			5			20	
Link Speed (mph)		30			30			37			37	
Link Distance (ft)		393			694			788			536	
Travel Time (s)		8.9			15.8			14.5			9.9	
Confl. Peds. (#/hr)	22		18	18		22	15		45	45		15
Peak Hour Factor	0.81	0.81	0.81	0.69	0.69	0.69	0.83	0.83	0.83	0.80	0.80	0.80
Adj. Flow (vph)	94	11	49	46	19	7	52	981	25	6	971	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	154	0	46	26	0	0	1058	0	0	1058	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		19.0	19.0		19.0	19.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		25.0	25.0		25.0	25.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
Total Split (%)	38.5%	38.5%	0.0%	38.5%	38.5%	0.0%	61.5%	61.5%	0.0%	61.5%	61.5%	0.0%
Maximum Green (s)	19.0	19.0		19.0	19.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-3.0	0.0	-1.0	-2.0	0.0	-1.0	-3.0	0.0	-1.0	-3.0	0.0	-1.0
Total Lost Time (s)	3.0	6.0	3.0	4.0	6.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0		11.0	11.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		8.0	8.0		8.0	8.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.2		13.2	11.2			45.4			45.4	
Actuated g/C Ratio		0.17		0.20	0.17			0.70			0.70	
v/c Ratio		0.57		0.18	0.08			0.51			0.46	
Control Delay		26.1		21.2	16.9			10.5			4.5	
Queue Delay		0.0		0.0	0.0			0.0			0.0	



Lanes, Volumes, Timings  
661: Latta Road & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		26.1		21.2	16.9			10.5			4.5	
LOS		C		C	B			B			A	
Approach Delay		26.1			19.6			10.5			4.5	
Approach LOS		C			B			B			A	
Queue Length 50th (ft)		42		15	6			195			51	
Queue Length 95th (ft)		74		27	16			242			45	
Internal Link Dist (ft)		313			614			708			456	
Turn Bay Length (ft)				300								
Base Capacity (vph)		432		413	523			2083			2317	
Starvation Cap Reductn		0		0	0			0			0	
Spillback Cap Reductn		0		0	0			0			0	
Storage Cap Reductn		0		0	0			0			0	
Reduced v/c Ratio		0.36		0.11	0.05			0.51			0.46	

Intersection Summary

Area Type:	Other
Cycle Length:	65
Actuated Cycle Length:	65
Offset:	0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization	78.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 661: Latta Road & Lake Avenue



HCM Unsignalized Intersection Capacity Analysis Port of Rochester Traffic and Parking Analysis  
 4: Latta Road & River Street 10/18/2010



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰			↱		↱
Sign Control	Stop			Stop	Stop	
Volume (vph)	42	0	9	7	0	45
Peak Hour Factor	0.73	0.73	0.58	0.58	0.78	0.78
Hourly flow rate (vph)	58	0	16	12	0	58
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total (vph)	58	28	58			
Volume Left (vph)	58	16	0			
Volume Right (vph)	0	0	58			
Hadj (s)	0.23	0.15	-0.57			
Departure Headway (s)	4.3	4.2	3.5			
Degree Utilization, x	0.07	0.03	0.06			
Capacity (veh/h)	816	827	1007			
Control Delay (s)	7.6	7.4	6.7			
Approach Delay (s)	7.6	7.4	6.7			
Approach LOS	A	A	A			
Intersection Summary						
Delay			7.2			
HCM Level of Service			A			
Intersection Capacity Utilization			20.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/18/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗		↖	↗↗		↖	↗↗	
Volume (vph)	190	343	108	188	314	280	153	408	159	321	396	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.97	0.99	0.98		1.00	1.00		1.00	1.00	
Frt			0.850		0.929			0.958			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3130	0	1652	3151	0	1652	3170	0
Flt Permitted	0.237			0.323			0.439			0.305		
Satd. Flow (perm)	423	3421	1536	577	3130	0	763	3151	0	530	3170	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115		179			44			36	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	11		10	10		11	1		2	2		1
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	202	365	115	192	320	286	166	443	173	345	426	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	365	115	192	606	0	166	616	0	345	567	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	15.0	31.0	31.0	30.0	46.0	0.0	24.0	42.0	0.0	27.0	45.0	0.0
Total Split (%)	11.5%	23.8%	23.8%	23.1%	35.4%	0.0%	18.5%	32.3%	0.0%	20.8%	34.6%	0.0%
Maximum Green (s)	9.5	25.0	25.0	24.5	40.0		18.5	36.0		21.5	39.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	35.1	21.1	21.1	44.1	27.1		65.3	50.0		78.4	59.6	
Actuated g/C Ratio	0.27	0.16	0.16	0.34	0.21		0.50	0.38		0.60	0.46	
v/c Ratio	0.89	0.66	0.33	0.55	0.76		0.35	0.50		0.67	0.38	
Control Delay	70.5	56.7	10.4	36.6	39.7		11.8	26.1		25.3	26.1	

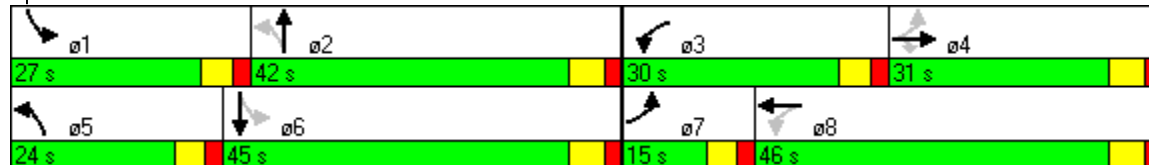


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.5	56.7	10.4	36.6	39.7		11.8	26.1		25.3	26.1	
LOS	E	E	B	D	D		B	C		C	C	
Approach Delay		53.0			38.9			23.1			25.8	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	127	155	0	120	184		60	140		155	137	
Queue Length 95th (ft)	#213	197	51	163	227		113	286		220	184	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	228	665	391	429	1087		565	1240		535	1473	
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	0.55	0.29	0.45	0.56		0.29	0.50		0.64	0.38	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.89  
 Intersection Signal Delay: 34.3  
 Intersection Capacity Utilization 85.7%  
 Analysis Period (min) 15  
 Intersection LOS: C  
 ICU Level of Service E  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

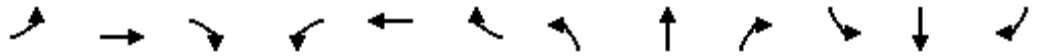
Splits and Phases: 557: LOSP & Lake Avenue



Lanes, Volumes, Timings  
557: LOSP & Lake Avenue

Port of Rochester Traffic and Parking Analysis

10/19/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷	↷	↶	↷		↶	↷		↶	↷	
Volume (vph)	190	343	108	188	314	280	153	408	159	321	396	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	11	11	10	10	11	10	10	11
Storage Length (ft)	300		200	450		0	400		0	400		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	75		150	75		25	50		25	75		25
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.97	0.99	0.98		1.00	1.00		1.00	1.00	
Frt			0.850		0.929			0.958			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3421	1583	1711	3130	0	1652	3151	0	1652	3170	0
Flt Permitted	0.189			0.382			0.439			0.284		
Satd. Flow (perm)	338	3421	1536	682	3130	0	763	3151	0	493	3170	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			115		175			43			34	
Link Speed (mph)		40			35			37			37	
Link Distance (ft)		660			1790			1685			788	
Travel Time (s)		11.3			34.9			31.1			14.5	
Confl. Peds. (#/hr)	11		10	10		11	1		2	2		1
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	202	365	115	192	320	286	166	443	173	345	426	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	365	115	192	606	0	166	616	0	345	567	0
Turn Type	pm+pt		Perm	pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	7.0	7.0	4.0	7.0		4.0	7.0		4.0	7.0	
Minimum Split (s)	9.5	27.0	27.0	9.5	27.0		9.5	33.0		9.5	33.0	
Total Split (s)	20.0	34.0	34.0	30.0	44.0	0.0	24.0	39.0	0.0	27.0	42.0	0.0
Total Split (%)	15.4%	26.2%	26.2%	23.1%	33.8%	0.0%	18.5%	30.0%	0.0%	20.8%	32.3%	0.0%
Maximum Green (s)	14.5	28.0	28.0	24.5	38.0		18.5	33.0		21.5	36.0	
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0	-2.0	0.0	-1.0
Total Lost Time (s)	3.5	6.0	6.0	3.5	6.0	3.0	3.5	6.0	3.0	3.5	6.0	3.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0		2.0	4.0		2.0	4.0	
Recall Mode	None	Min	Min	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		14.0	14.0		14.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	43.0	24.8	24.8	45.7	26.3		60.6	44.9		75.0	55.8	
Actuated g/C Ratio	0.33	0.19	0.19	0.35	0.20		0.47	0.35		0.58	0.43	
v/c Ratio	0.73	0.56	0.30	0.51	0.78		0.37	0.55		0.69	0.41	
Control Delay	45.2	50.7	9.3	33.0	41.7		13.2	29.9		27.3	26.9	

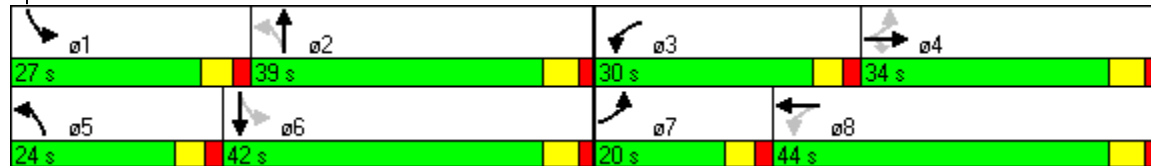


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.2	50.7	9.3	33.0	41.7		13.2	29.9		27.3	26.9	
LOS	D	D	A	C	D		B	C		C	C	
Approach Delay		42.1			39.6			26.4			27.1	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	120	147	0	113	186		64	144		155	139	
Queue Length 95th (ft)	174	192	50	158	237		115	298		228	185	
Internal Link Dist (ft)		580			1710			1605			708	
Turn Bay Length (ft)	300		200	450			400			400		
Base Capacity (vph)	288	741	423	462	1039		538	1117		515	1381	
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	0.70	0.49	0.27	0.42	0.58		0.31	0.55		0.67	0.41	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	96 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	33.3
Intersection LOS:	C
Intersection Capacity Utilization	85.7%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 557: LOSP & Lake Avenue



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### Summary of All Intervals

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Start Time	3:25
End Time	4:30
Total Time (min)	65
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intvl	1
Vehs Entered	5087
Vehs Exited	5077
Starting Vehs	172
Ending Vehs	182
Denied Entry Before	2
Denied Entry After	1
Travel Distance (mi)	3335
Travel Time (hr)	191.1
Total Delay (hr)	82.3
Total Stops	9815
Fuel Used (gal)	1450.4

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### Interval #0 Information Seeding

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Start Time	3:25
End Time	3:30
Total Time (min)	5

Volumes adjusted by Growth Factors.  
No data recorded this interval.

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### Interval #1 Information Recording

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Start Time	3:30
End Time	4:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	5087
Vehs Exited	5077
Starting Vehs	172
Ending Vehs	182
Denied Entry Before	2
Denied Entry After	1
Travel Distance (mi)	3335
Travel Time (hr)	191.1
Total Delay (hr)	82.3
Total Stops	9815
Fuel Used (gal)	1450.4

1: Corrigan Street & North River Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	All
Total Delay (hr)	0.2	0.1	0.0	0.0	0.4	0.0	0.1	0.5	0.1	0.0	0.3	1.9
Delay / Veh (s)	7.4	8.3	4.2	6.7	8.6	4.6	8.5	6.8	5.9	8.1	5.0	6.8
Stop Delay (hr)	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.1	0.0	0.3	1.2
St Del/Veh (s)	5.5	4.8	3.7	3.5	4.3	3.3	5.0	3.4	4.2	5.2	4.7	4.3
Total Stops	120	49	16	26	169	3	28	183	88	17	205	904
Stop/Veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.70	1.00	1.00	1.00	0.92
Travel Dist (mi)	6.4	2.6	0.8	1.6	10.4	0.2	3.4	27.7	10.7	0.8	9.9	74.5
Travel Time (hr)	0.6	0.2	0.1	0.1	0.8	0.0	0.2	1.6	0.6	0.1	0.8	5.1
Avg Speed (mph)	11	11	12	14	13	14	17	18	17	12	12	15
Vehicles Entered	121	50	16	26	169	4	28	264	88	16	204	986
Vehicles Exited	120	49	16	26	169	3	28	261	88	17	205	982
Hourly Exit Rate	120	49	16	26	169	3	28	261	88	17	205	982
Input Volume	121	48	12	34	156	2	27	267	95	25	219	1006
% of Volume	99	102	133	76	108	150	104	98	93	68	94	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: Portside Drive & North River Street Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.6	0.2	0.1	0.1	0.0	0.1	1.2
Delay / Veh (s)	6.3	5.3	5.9	6.8	7.5	4.6	5.8
Stop Delay (hr)	0.5	0.2	0.1	0.0	0.0	0.1	0.9
St Del/Veh (s)	4.9	5.1	3.9	3.4	3.9	3.7	4.6
Total Stops	341	142	88	37	6	101	715
Stop/Veh	0.99	0.99	1.00	1.00	1.00	1.00	1.00
Travel Dist (mi)	11.0	4.6	11.6	4.5	0.4	9.4	41.6
Travel Time (hr)	1.3	0.6	0.6	0.2	0.0	0.6	3.3
Avg Speed (mph)	8	8	20	20	16	17	13
Vehicles Entered	343	142	89	37	7	101	719
Vehicles Exited	343	143	88	37	6	101	718
Hourly Exit Rate	343	143	88	37	6	101	718
Input Volume	347	129	95	42	8	121	742
% of Volume	99	111	93	88	75	83	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0



4: Latta Road & River Street Performance by movement

Movement	EBL	NBL	NBT	SBT	SBR	All
Total Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.1
Delay / Veh (s)	4.6	3.6	4.1	0.1	3.2	2.1
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1
St Del/Veh (s)	3.0	2.7	2.5	0.0	2.8	1.5
Total Stops	41	10	8	0	51	110
Stop/Veh	1.00	1.00	1.00	0.00	1.02	0.53
Travel Dist (mi)	4.3	0.4	0.3	7.5	7.4	19.9
Travel Time (hr)	0.2	0.0	0.0	0.3	0.3	0.9
Avg Speed (mph)	18	14	14	30	23	23
Vehicles Entered	40	10	8	98	50	206
Vehicles Exited	41	10	8	97	50	206
Hourly Exit Rate	41	10	8	97	50	206
Input Volume	42	9	7	92	45	195
% of Volume	98	111	114	105	111	106
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Delay / Veh (s)	6.2	6.6	4.0	3.4	3.7	2.2	3.8	4.2	3.2	3.3	4.0	2.7
Stop Delay (hr)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St Del/Veh (s)	3.1	3.0	2.9	2.8	2.8	2.4	2.9	2.6	2.9	2.5	2.5	2.7
Total Stops	17	77	43	6	104	7	54	3	5	1	6	41
Stop/Veh	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Travel Dist (mi)	1.0	4.6	2.6	0.1	2.3	0.2	2.0	0.1	0.2	0.0	0.2	1.5
Travel Time (hr)	0.1	0.3	0.2	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.1
Avg Speed (mph)	13	13	13	10	10	10	13	14	12	13	13	13
Vehicles Entered	17	77	43	6	104	7	54	3	5	1	6	41
Vehicles Exited	17	77	43	6	104	7	54	3	5	1	6	41
Hourly Exit Rate	17	77	43	6	104	7	54	3	5	1	6	41
Input Volume	20	80	43	5	94	5	52	5	5	5	5	46
% of Volume	85	96	100	120	111	140	104	60	100	20	120	89
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

8: Corrigan Street & Beach Access Performance by movement

Movement	All
Total Delay (hr)	0.4
Delay / Veh (s)	4.3
Stop Delay (hr)	0.3
St Del/Veh (s)	2.9
Total Stops	364
Stop/Veh	1.00
Travel Dist (mi)	14.9
Travel Time (hr)	1.2
Avg Speed (mph)	13
Vehicles Entered	364
Vehicles Exited	364
Hourly Exit Rate	364
Input Volume	365
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

365: Charlotte River Homes & Lake Avenue Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	All
Total Delay (hr)	0.1	0.2	0.1	1.0	0.9	2.3
Delay / Veh (s)	30.8	28.9	9.8	4.0	4.0	4.6
Stop Delay (hr)	0.1	0.2	0.1	0.4	0.3	1.0
St Del/Veh (s)	29.1	28.7	6.2	1.4	1.3	2.0
Total Stops	8	26	24	130	97	285
Stop/Veh	1.00	0.96	0.57	0.14	0.12	0.16
Travel Dist (mi)	0.6	2.0	3.7	79.1	97.0	182.4
Travel Time (hr)	0.1	0.3	0.2	3.2	3.7	7.5
Avg Speed (mph)	7	7	15	25	26	24
Vehicles Entered	8	26	42	900	803	1779
Vehicles Exited	8	27	42	901	801	1779
Hourly Exit Rate	8	27	42	901	801	1779
Input Volume	4	28	38	855	818	1744
% of Volume	200	96	111	105	98	102
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	2.3	3.4	0.3	1.8	3.8	3.2	1.3	4.4	1.3	5.6	3.4	0.7
Delay / Veh (s)	47.9	37.6	10.4	34.1	13.6	39.3	27.2	18.5	28.6	59.8	30.9	21.4
Stop Delay (hr)	2.1	3.0	0.3	1.5	2.6	2.5	1.1	3.2	1.0	4.9	2.7	0.6
St Del/Veh (s)	42.8	33.0	8.5	28.0	9.4	29.8	22.1	13.4	22.7	52.2	24.1	17.0
Total Stops	187	219	73	164	210	247	143	272	122	362	225	59
Stop/Veh	1.06	0.68	0.66	0.87	0.21	0.83	0.83	0.31	0.76	1.08	0.57	0.50
Travel Dist (mi)	20.7	37.7	12.8	64.0	220.8	99.6	53.6	205.6	50.1	49.4	57.9	17.1
Travel Time (hr)	3.0	4.5	0.8	3.8	10.6	6.5	2.9	10.1	2.8	7.2	5.0	1.3
Avg Speed (mph)	8	9	21	17	21	15	18	20	18	7	12	13
Vehicles Entered	177	321	109	191	1000	297	171	864	159	338	395	117
Vehicles Exited	176	324	110	185	994	295	174	869	162	333	399	117
Hourly Exit Rate	176	324	110	185	994	295	174	869	162	333	399	117
Input Volume	190	343	108	188	1003	280	153	815	159	321	397	131
% of Volume	93	94	102	98	99	105	114	107	102	104	101	89
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

557: LOSP & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	31.5
Delay / Veh (s)	27.4
Stop Delay (hr)	25.2
St Del/Veh (s)	21.9
Total Stops	2283
Stop/Veh	0.55
Travel Dist (mi)	889.4
Travel Time (hr)	58.6
Avg Speed (mph)	15
Vehicles Entered	4139
Vehicles Exited	4138
Hourly Exit Rate	4138
Input Volume	4088
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

581: River Street & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	0.6	0.1	1.0	0.2	0.1	0.4	2.5
Delay / Veh (s)	52.7	20.6	3.9	3.5	25.5	2.4	4.8
Stop Delay (hr)	0.6	0.1	0.5	0.1	0.1	0.1	1.5
St Del/Veh (s)	51.2	20.1	1.9	1.9	23.8	0.8	3.0
Total Stops	41	19	139	39	8	37	283
Stop/Veh	0.93	1.06	0.15	0.18	0.89	0.06	0.16
Travel Dist (mi)	1.7	0.7	85.9	19.4	1.0	68.0	176.7
Travel Time (hr)	0.7	0.1	3.6	1.0	0.1	2.2	7.8
Avg Speed (mph)	2	5	25	20	11	30	23
Vehicles Entered	45	19	956	217	9	581	1827
Vehicles Exited	43	18	955	217	9	582	1824
Hourly Exit Rate	43	18	955	217	9	582	1824
Input Volume	53	14	916	247	15	575	1820
% of Volume	81	129	104	88	60	101	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

582: Charlotte MS Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.7	0.9	2.6
Delay / Veh (s)	5.2	4.7	5.0
Stop Delay (hr)	0.8	0.3	1.1
St Del/Veh (s)	2.6	1.3	2.1
Total Stops	198	80	278
Stop/Veh	0.17	0.12	0.15
Travel Dist (mi)	135.7	206.7	342.4
Travel Time (hr)	5.5	6.9	12.4
Avg Speed (mph)	25	30	28
Vehicles Entered	1198	693	1891
Vehicles Exited	1194	688	1882
Hourly Exit Rate	1194	688	1882
Input Volume	1127	692	1819
% of Volume	106	99	103
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

595: Beach Avenue & Lake Avenue Performance by movement

Movement	EBR	NBL	All
Total Delay (hr)	1.2	1.1	2.3
Delay / Veh (s)	12.2	12.7	12.4
Stop Delay (hr)	0.9	0.8	1.8
St Del/Veh (s)	9.9	9.0	9.4
Total Stops	186	124	310
Stop/Veh	0.54	0.38	0.46
Travel Dist (mi)	44.8	29.7	74.5
Travel Time (hr)	3.0	2.3	5.2
Avg Speed (mph)	15	13	14
Vehicles Entered	341	326	667
Vehicles Exited	344	325	669
Hourly Exit Rate	344	325	669
Input Volume	334	296	630
% of Volume	103	110	106
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

596: Pattonwood & Thomas Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Total Delay (hr)	4.0	0.6	0.4	4.7	6.8	0.3	16.8
Delay / Veh (s)	20.0	6.6	25.6	19.8	38.6	12.6	22.7
Stop Delay (hr)	3.0	0.2	0.4	3.9	5.7	0.2	13.4
St Del/Veh (s)	15.2	1.8	21.8	16.5	32.0	11.6	18.1
Total Stops	399	182	58	546	511	32	1728
Stop/Veh	0.56	0.57	0.97	0.64	0.80	0.42	0.65
Travel Dist (mi)	204.0	107.6	3.2	45.1	80.6	9.6	450.0
Travel Time (hr)	11.1	4.6	0.6	6.5	9.8	0.6	33.1
Avg Speed (mph)	18	24	7	7	10	21	15
Vehicles Entered	718	319	60	847	640	76	2660
Vehicles Exited	713	321	60	852	636	76	2658
Hourly Exit Rate	713	321	60	852	636	76	2658
Input Volume	588	423	53	824	647	78	2613
% of Volume	121	76	113	103	98	97	102
Denied Entry Before	0	0	0	0	2	0	2
Denied Entry After	0	0	0	0	1	0	1

611: Corrigan Street & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.1	0.0	2.2	0.1	0.1	0.1	1.3	0.4	0.2	0.6	0.0
Delay / Veh (s)	30.9	14.5	5.4	25.2	29.4	5.6	22.8	13.5	12.3	15.9	7.6	2.7
Stop Delay (hr)	0.0	0.1	0.0	1.9	0.1	0.1	0.0	0.6	0.2	0.2	0.5	0.0
St Del/Veh (s)	29.6	12.2	5.3	21.7	24.3	3.9	14.2	5.9	6.7	13.8	5.8	2.2
Total Stops	2	17	16	264	11	46	6	190	96	25	64	1
Stop/Veh	1.00	0.77	0.64	0.85	1.00	0.58	0.75	0.56	0.83	0.56	0.22	0.33
Travel Dist (mi)	0.1	1.3	1.5	16.7	0.6	4.2	1.1	35.7	13.9	3.9	25.9	0.3
Travel Time (hr)	0.0	0.1	0.1	3.0	0.1	0.4	0.1	2.3	0.9	0.4	1.7	0.0
Avg Speed (mph)	5	9	14	6	6	12	12	16	15	10	16	17
Vehicles Entered	2	21	25	311	12	79	9	340	116	45	296	3
Vehicles Exited	2	22	25	311	11	79	8	339	115	45	298	3
Hourly Exit Rate	2	22	25	311	11	79	8	339	115	45	298	3
Input Volume	3	14	27	326	9	67	12	300	115	49	282	3
% of Volume	67	157	93	95	122	118	67	113	100	92	106	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

611: Corrigan Street & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	5.1
Delay / Veh (s)	14.5
Stop Delay (hr)	3.6
St Del/Veh (s)	10.4
Total Stops	738
Stop/Veh	0.59
Travel Dist (mi)	105.4
Travel Time (hr)	9.1
Avg Speed (mph)	12
Vehicles Entered	1259
Vehicles Exited	1258
Hourly Exit Rate	1258
Input Volume	1207
% of Volume	104
Denied Entry Before	0
Denied Entry After	0

650: Holy Cross Ped & Lake Avenue Performance by movement

Movement	NBT	SBT	All
Total Delay (hr)	1.5	1.1	2.6
Delay / Veh (s)	5.7	4.7	5.2
Stop Delay (hr)	0.6	0.6	1.1
St Del/Veh (s)	2.2	2.4	2.3
Total Stops	142	145	287
Stop/Veh	0.15	0.17	0.16
Travel Dist (mi)	98.4	75.7	174.1
Travel Time (hr)	4.3	3.2	7.4
Avg Speed (mph)	23	24	23
Vehicles Entered	935	828	1763
Vehicles Exited	944	831	1775
Hourly Exit Rate	944	831	1775
Input Volume	895	846	1741
% of Volume	105	98	102
Denied Entry Before	0	0	0
Denied Entry After	0	0	0



661: Latta Road & Lake Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	1.0	0.0	0.4	0.3	0.1	0.0	0.3	2.6	0.0	0.0	1.2	0.1
Delay / Veh (s)	45.7	21.4	28.8	36.9	9.8	4.5	22.2	11.0	6.2	1.8	5.8	4.0
Stop Delay (hr)	1.0	0.0	0.3	0.3	0.0	0.0	0.2	1.2	0.0	0.0	0.7	0.0
St Del/Veh (s)	43.0	20.2	27.8	34.9	7.8	4.2	16.7	5.1	2.6	0.0	3.2	2.6
Total Stops	77	2	39	23	6	5	45	345	7	0	137	13
Stop/Veh	0.94	0.50	0.89	0.72	0.30	0.71	1.02	0.41	0.33	0.00	0.18	0.24
Travel Dist (mi)	5.4	0.2	2.9	4.0	2.3	0.9	6.5	125.7	3.1	0.2	76.7	5.3
Travel Time (hr)	1.3	0.0	0.5	0.5	0.1	0.0	0.5	6.5	0.2	0.0	3.3	0.3
Avg Speed (mph)	4	7	6	8	15	18	13	19	20	26	23	20
Vehicles Entered	81	3	44	32	21	7	44	850	21	2	775	54
Vehicles Exited	82	4	44	32	20	7	44	847	21	2	774	55
Hourly Exit Rate	82	4	44	32	20	7	44	847	21	2	774	55
Input Volume	76	9	40	32	17	5	43	815	21	5	777	65
% of Volume	108	44	110	100	118	140	102	104	100	40	100	85
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

661: Latta Road & Lake Avenue Performance by movement

Movement	All
Total Delay (hr)	6.0
Delay / Veh (s)	11.2
Stop Delay (hr)	3.8
St Del/Veh (s)	7.2
Total Stops	699
Stop/Veh	0.36
Travel Dist (mi)	233.4
Travel Time (hr)	13.3
Avg Speed (mph)	18
Vehicles Entered	1934
Vehicles Exited	1932
Hourly Exit Rate	1932
Input Volume	1905
% of Volume	101
Denied Entry Before	0
Denied Entry After	0

662: Portside Drive & Lake Avenue Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.3	0.1	2.2	0.7	0.1	1.7	6.1
Delay / Veh (s)	27.0	13.8	17.9	5.5	14.7	9.6	12.5
Stop Delay (hr)	1.3	0.1	1.5	0.2	0.1	0.8	3.9
St Del/Veh (s)	25.6	13.0	12.1	1.5	11.2	4.7	8.1
Total Stops	150	18	246	172	16	229	831
Stop/Veh	0.84	0.90	0.55	0.37	0.80	0.37	0.47
Travel Dist (mi)	6.0	0.7	53.6	55.5	2.4	75.2	193.5
Travel Time (hr)	1.7	0.1	3.7	2.7	0.2	4.0	12.4
Avg Speed (mph)	4	5	15	20	14	19	16
Vehicles Entered	177	20	447	462	20	623	1749
Vehicles Exited	180	20	445	464	20	625	1754
Hourly Exit Rate	180	20	445	464	20	625	1754
Input Volume	201	21	406	453	22	620	1723
% of Volume	90	95	110	102	91	101	102
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

Total Network Performance

Total Delay (hr)	82.3
Delay / Veh (s)	58.3
Stop Delay (hr)	59.1
St Del/Veh (s)	41.9
Total Stops	9815
Stop/Veh	1.93
Travel Dist (mi)	3334.9
Travel Time (hr)	191.1
Avg Speed (mph)	18
Vehicles Entered	5087
Vehicles Exited	5077
Hourly Exit Rate	5077
Input Volume	25381
% of Volume	20
Denied Entry Before	2
Denied Entry After	1

Intersection: 1: Corrigan Street & North River Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	119	78	116	148
Average Queue (ft)	56	42	58	55
95th Queue (ft)	94	64	92	94
Link Distance (ft)	239	276	591	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portside Drive & North River Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	135	74	76
Average Queue (ft)	88	38	35
95th Queue (ft)	126	58	59
Link Distance (ft)	131	944	591
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	1		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Latta Road & River Street

Movement	EB	NB	SB
Directions Served	L	LT	R
Maximum Queue (ft)	42	31	54
Average Queue (ft)	20	13	23
95th Queue (ft)	37	38	51
Link Distance (ft)	623	209	741
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Corrigan Street & Beach Access

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	80	55	55	56
Average Queue (ft)	35	36	32	23
95th Queue (ft)	53	54	42	48
Link Distance (ft)	276	115	198	188
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 365: Charlotte River Homes & Lake Avenue

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	72	206	118	162	130
Average Queue (ft)	30	74	38	45	33
95th Queue (ft)	58	153	99	112	86
Link Distance (ft)	406	427	427	580	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					400
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 557: LOSP & Lake Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	T	TR	L	T
Maximum Queue (ft)	224	176	157	74	205	296	415	199	242	291	373	202
Average Queue (ft)	115	97	104	34	110	131	225	96	145	153	224	116
95th Queue (ft)	197	153	151	62	177	220	352	170	235	245	356	191
Link Distance (ft)		615	615			1706	1706		1603	1603		708
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			200	450			400			400	
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 557: LOSP & Lake Avenue

Movement	SB
Directions Served	TR
Maximum Queue (ft)	206
Average Queue (ft)	132
95th Queue (ft)	204
Link Distance (ft)	708
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 581: River Street & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	216	151	204	74	126
Average Queue (ft)	52	61	69	17	22
95th Queue (ft)	118	145	169	55	72
Link Distance (ft)	201	471	471	573	573
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

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Intersection: 582: Charlotte MS Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	200	179	182	201
Average Queue (ft)	73	78	25	42
95th Queue (ft)	177	186	89	119
Link Distance (ft)	573	573	1603	1603
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 595: Beach Avenue & Lake Avenue

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	222	135
Average Queue (ft)	99	75
95th Queue (ft)	175	132
Link Distance (ft)	692	418
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 596: Pattonwood & Thomas

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	R	L	T	T	L	R
Maximum Queue (ft)	223	244	105	174	292	289	475	553
Average Queue (ft)	131	141	54	42	177	175	315	37
95th Queue (ft)	199	211	82	108	281	266	458	197
Link Distance (ft)	1706	1706			280	280		662
Upstream Blk Time (%)					1	0		
Queuing Penalty (veh)					0	0		
Storage Bay Dist (ft)			445	150			450	
Storage Blk Time (%)					9		1	
Queuing Penalty (veh)					5		1	

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Intersection: 611: Corrigan Street & Lake Avenue

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	74	251	182	275	48	110
Average Queue (ft)	25	139	29	150	18	38
95th Queue (ft)	58	216	81	245	46	78
Link Distance (ft)	318	239		582		418
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		2				
Storage Bay Dist (ft)			140		175	
Storage Blk Time (%)		8				
Queuing Penalty (veh)		5				

Intersection: 650: Holy Cross Ped & Lake Avenue

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	186	184	162	116
Average Queue (ft)	61	48	57	51
95th Queue (ft)	150	121	128	102
Link Distance (ft)	484	484	427	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 661: Latta Road & Lake Avenue

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	207	94	52	269	269	113	94
Average Queue (ft)	91	22	10	128	93	46	46
95th Queue (ft)	174	58	36	218	201	101	92
Link Distance (ft)	352		623	708	708	484	484
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		300					
Storage Blk Time (%)							
Queuing Penalty (veh)							

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Intersection: 662: Portside Drive & Lake Avenue

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	147	246	143	53	291
Average Queue (ft)	92	143	69	13	145
95th Queue (ft)	140	218	122	40	250
Link Distance (ft)	131	580	580		582
Upstream Blk Time (%)	4				
Queuing Penalty (veh)	9				
Storage Bay Dist (ft)				175	
Storage Blk Time (%)					2
Queuing Penalty (veh)					0

Network Summary

Network wide Queuing Penalty: 23