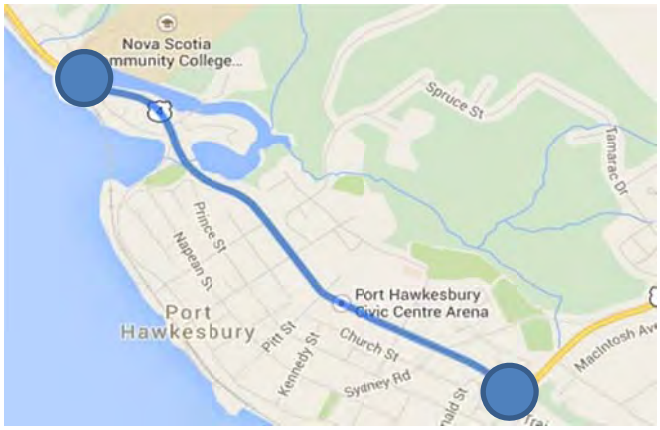

NOVA SCOTIA
Transportation and Infrastructure Renewal

DRAFT FINAL REPORT

WSP

Reeves Street Safety Study

Nova Scotia Transportation and Infrastructure Renewal

October 2014

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1.0 Introduction

1.1 Background

The Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) and the Town of Port Hawkesbury have commissioned WSP Canada Inc. to complete a study to identify safety concerns and to recommend cost effective safety improvements for the approximately 2.5 km long section of Reeves Street from the NSCC Nautical Institute to the east end of the street at the Trunk 4 (Industrial Park Road) intersection.

The Reeves Street study section is part of Trunk 4 that provides one of the two primary highway connections from the Canso Causeway to the Sydney area. Reeves Street is primarily a four lane undivided urban arterial street without access control with posted speed limits of 70 km/h at the west end and 50 km/h from east of Granville Street to the eastern end of the section.

1.2 Study Objectives

The primary objectives of the study include:

- Conduct a road safety study for Reeves Street from the Nautical Institute to the east end of the street to assess the deficiencies of the roadway and intersections. The study identifies cost effective short and long term improvement strategies that will provide acceptable levels of safety and service over the next 20 years.
- Review all the major intersections to determine if improvements can be made, including left turn lanes, signalization or construction of roundabouts.
- Review options to include AT corridor, bike lanes and sidewalks, including review of ROW plans to identify areas where additional ROW is required.
- Review all the infrastructure plans to determine potential impacts from any changes to the roadway characteristics and cross section.
- Prepare functional design plans, including access management plans and cost estimates, for recommended improvement strategies.
- Prepare recommendations regarding future land use controls in the corridor that will complement and support proposed improvement strategies.

1.3 Key Issues

The key issues to be aware of when completing the safety review include:

- NSTIR and Town officials, and the public, want both immediate and long term cost effective improvements that will provide acceptable levels of safety on Reeves Street with consideration to the high number of heavy trucks using the street.
- Since Trunk 4 is a primary highway connecting the Strait of Canso to Sydney, and since a by-pass highway is not expected to be built for many 20 years, maintaining a high mobility function on the street must be an important consideration when planning and evaluating infrastructure improvements.

2.0 Description of Study Area and Existing Concerns

2.1 The Study Section of Reeves Street

The Study Section of Reeves Street (Figure 2-1) is approximately 2.5 kilometers long, extending from the Nautical Institute Driveway / Embree Island Road intersection easterly to the end of the street at the signalized Trunk 4 intersection.

2.1.1 Rural Section of Street

The first kilometer of street from the Nautical Institute Driveway to just west of Philpott Street has a posted 70 km/h speed limit. The street has four travel lanes with mostly gravel shoulders and some curbed sections on the south side (Photo 2-1 and Photo 2-2). Access in the 70 km/h section is limited to street intersections with the Nautical Institute Driveway / Embree Island Road, Macmaster Road, Embree Island Road East and Granville Street. While sight distances are generally good throughout the first kilometer of the Study Section, sight distance to the west is restricted at the Embree Island Road east intersection as illustrated in Photo 2-3. There are no sidewalks on either side of the street between the Nautical Institute and Philpott Street.

Photo 2-1: Looking east on Reeves Street from Embree Island Road west intersection

Photo 2-2: Looking east on Reeves Street from Granville Street intersection

LEGEND

Study Area

Study Area Intersections

1. Reeves Street @ NSCC Nautical Institute / Embree Island Road (West)
2. Reeves Street @ Embrees Island Road (East) / MacMaster Street
3. Reeves Street @ Granville Street
4. Reeves Street @ Philpott Street
5. Reeves Street @ MacSween Street
6. Reeves Street @ Pitt Street
7. Reeves Street @ Reynolds Street
8. Reeves Street @ Sydney Road
9. Reeves Street @ Tim Hortons Driveways
10. Reeves Street @ Shopping Centre Driveways

Signalized Intersection

Drawn: MIC

Engineer: MIC

FIGURE 2-1: STUDY AREA

PORT HAWKESBURY, NS

NOVA SCOTIA
Transportation and Infrastructure Renewal

JULY 2014

SCALE: 1:7000 **NORTH**

WSP

Sheet:Figure 2-1 Study Area

FILE: K:\DARTMOUTH\2014\141-13284 NSTIR_REEVES ST_PORT HAWKESBURY\08_TRAFFIC\8.4_REPORT_FIGURES\141-13284-TRAFFIC FIGURES.DWG

Photo 2-3: Looking west on Reeves Street from Embree Island Road east intersection

2.1.2 Urban Section of Street

The approximately 1.5 kilometers of Reeves Street from Philpott Street to the Trunk 4 intersection has four travel lanes with curb and gutter on both sides and a 50 km/h speed limit. While there is a sidewalk on the south side of the street from Philpott Street to Trunk 4, the sidewalk on the north side which starts at MacSween Street has a section missing from Sydney Road to the KIA dealer (Photo 2-4) and from Tim Hortons to the Trunk 4 intersection. This section of street has STOP controlled intersections at Philpott Street and MacSween Street, traffic signals at Pitt Street and Reynolds Street, STOP at both Sydney Road off-set intersections, and traffic signals at the Trunk 4 intersection. There are numerous commercial driveways throughout this section of the street as illustrated in Photo 2-5 and Photo 2-6.

Photo 2-4: Looking east on Reeves Street towards Trunk 4 from Sydney Road

Photo 2-5: Looking east on Reeves Street from just east of Pitt Street

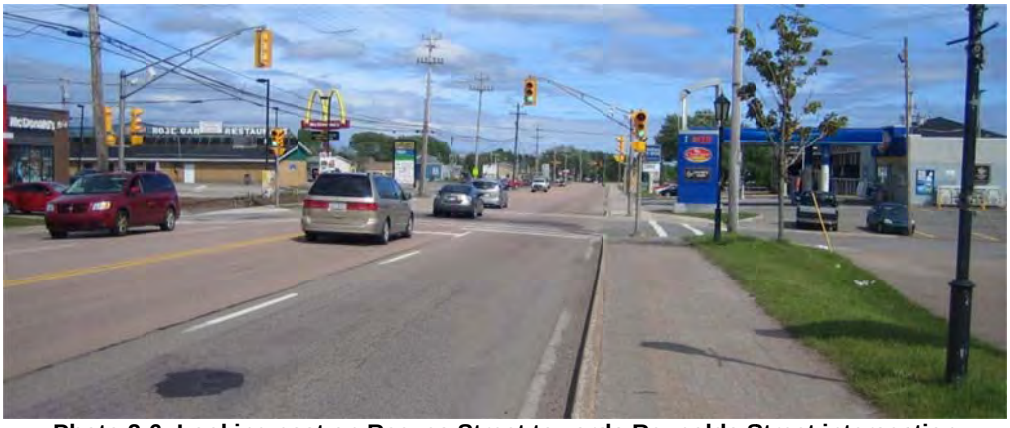


Photo 2-6: Looking east on Reeves Street towards Reynolds Street intersection

2.2 Existing Public Concerns in the Study Section

Many of the safety concerns raised by the public and discussed at the project initiation meeting are illustrated on Figure 2-2 and are summarized in the following paragraphs.

2.2.1 Visibility at intersections

Visibility at intersections was of concern at several locations. It was indicated that left turns from the Nautical Institute driveway were challenged by limited sight distance to the west. While there is adequate sight distance (Photo 2-7), vehicles many be traveling faster than the posted speed limit due to the rural nature of the road. Additional sight distance can possibly be achieved by removing a few trees and some of the embankment visible at the right of Photo 2-7.

As discussed in Section 2.1, sight distance to the west is restricted at the Embree Island Road east intersection as illustrated in Photo 2-2. Left turns are prohibited from Embree Island Road to Reeves Street and flashing warning lights are suspended over the street.

Sight Lines:
Left turns from NSCC Nautical Institute can be challenging due to limited sight lines.

Sidewalk Gaps:
Gaps in sidewalk connectivity.

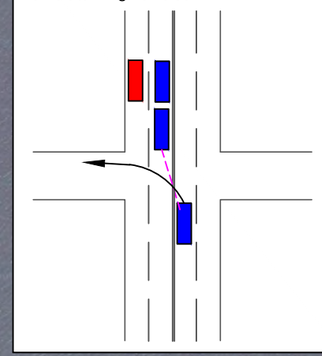
School Zone:
Many student crossings. School zone speed limit can create confusion near transition zone.

Sight Lines:
Left turns from MacSween Street can be challenging due to limited sight lines.

Access Management:
There are several driveway accesses to commercial developments. Rationalization of access into fewer driveways can improve access management and improve operation and safety.

Change in Street Character:
Increased speed limit and limited land uses west of Philpott Street result in a more rural street character relative to the more urban section in the east end of the Study Area.

Four-Lane Undivided Street (throughout):
Conflicts and sight visibility limintations for left turning vehicles



Truck Traffic:
High volume of trucks run along the corridor. Noise and size can impact pedestrian and cyclist traffic. Mixing with vehicular traffic (both local and through) can impact operational performance.

Driveway Grade Differential:
Several driveways along the corridor have more grade differential between the street and driveway than is desirable. Movements in and out can be less comfortable for drivers.

Sidewalk Gaps:
Gaps in sidewalk connectivity.

NAUTICAL INST DRIVEWAY
EMBREE ISLAND RD (WEST)
MACMASTER RD
EMBREE ISLAND RD (EAST)
GRANVILLE ST
SPEED LIMIT 70
SPEED LIMIT 50
PHILPOTT ST
MACSWEEN ST
MACSWEEN ST
CIVIC CENTRE DRIVEWAY
PITT ST
REEVES STREET
REYNOLDS ST
REYNOLDS ST
SYDNEY RD
SYDNEY RD
HIGHWAY 4

Study Area

Drawn: MIC
Engineer: MIC

NOVA SCOTIA
Transportation and Infrastructure Renewal

JULY 2014

N

WSP

Photo 2-7: Looking west on Reeves Street from the Nautical Institute driveway. Visibility to the west could be improved by removing small trees and a part of the embankment.

The approach grade and crest on Reeves Street from the east reduces visibility and makes left turns difficult from both Philpott Street (Photo 2-8) and MacSween Street (Photo 2-9) intersections.

Photo 2-8: Looking east on Reeves Street from the Philpott Street intersection. Visibility is reduced by the crest on Reeves Street

Photo 2-9: Looking east from the north side of Reeves Street at the MacSween Street intersection. Visibility is reduced by power poles and the crest on Reeves Street

2.2.2 Sidewalk Gaps

While there is a continuous sidewalk on the south side of the street from the Trunk 4 intersection to Philpott Street, there is no sidewalk for the remaining kilometer west to the Nautical Institute. Also, there is a gap in the sidewalk on the north side from Trunk 4 to Tim Hortons as well as between KIA and Sydney Road (Photo 2-4).

2.2.3 Access Management

There are many commercial driveways in the urban section that reduce performance for through traffic, create potential safety problems especially for left turning vehicles, and also for pedestrians walking on the sidewalk. Some driveway cuts are very long (Photo 2-10) and other locations have multiple driveways (Photo 2-11). Another concern at driveway curb cuts is that the grade difference between the street and parking lot caused by the bump at the edge of the curb cut and the short ramp at the narrow boulevard (Photo 2-11) causes slow turns by entering drivers which can expose left turning vehicles to potential collision situations.

Photo 2-10: Looking east on Reeves Street at the very long curb cut by Legion Branch 43 and A1 Pizza

Photo 2-11: Looking east on Reeves Street at Gateway Plaza which has three driveways

2.2.4 Heavy Truck Traffic

Gypsum trucks, as well as heavy trucks that haul wood fiber to the Pulp Mill and the Bio-Mass Plant, create traffic congestion and noise which is undesirable in an urban area.

3.0 Demographics and Land Use

3.1 History

By 1860, when 'Ship Harbour' became Port Hawkesbury, the town had become an established seafaring town with both fishing and shipbuilding industries. 1955 is perhaps the most significant year in the developmental history of Port Hawkesbury. It is the year the Canso Causeway was completed, which not only allowed uninterrupted thoroughfare between the Mainland and Cape Breton, but also created a year-round ice free port. Several major industries soon situated themselves on land in neighboring Point Tupper, which would provide the economic engine to the town for the next half-century.

3.2 Population Trends

Today Port Hawkesbury remains the commercial, industrial, and social center of the Strait of Canso area. However, the recent statistics suggest that the Town of Port Hawkesbury experienced a rapid decline in population between 2001 and 2011 (Table 3-1). Between the 2001 and 2011 census, population decline reached 9.3 percent in a 10 year period. This population decline is mostly due to the lack of employment opportunities for the local residents. Most importantly, Port Hawkesbury Paper Mill (formally New Page Mill) has employed far fewer people in recent years than before.

Table 3-1: Population Trends

	2001	2006	2011	10-Year Change
Total Population	3701	3517	3366	-
Population Change (persons)	-	-184	-151	-335
Population Change (%)	-	-5.0	-4.3	-9.3

3.3 New Dwelling Starts

Despite the decline in population, there has been a slight increase of 5% in the total number of dwellings for the same 10 year period (Table 3-2). Over half of these new dwellings are constructed by those that are not permanent residences of the Town. This suggests investment in the real estate market for recreational and seasonal purposes.

Table 3-2: Private Dwelling Trends

	2006	2011	5 Year Change	5-Year Change (%)
Total Private Dwellings	1492	1562	70	5%
Private Dwellings Occupied by Usual Residents	1391	1415	24	2%

3.4 Land Use Planning

From a planning perspective, Port Hawkesbury is regulated by Eastern District Planning Commission through a Town specific Municipal Planning Strategy and a Land Use By-Law. As shown on Figure 3-1 (Property Ownership and Zoning), most of the properties along Reeves Street are identified for commercial uses. Residential uses are located behind commercial uses along Reeves Street. Industrial uses are mostly concentrated along the Water's edge, in an industrial park east of Trunk 4, and in the Point Tupper area.

3.5 Future Development

As part of this project, potential future development sites were identified with the help of Town Staff. The most notable future development site is part of property number 200 which is located on the north side of Reeves Street between the Civic Centre and MacSween Street and has been identified as an assisted living complex opportunity. Another site considered for future development is property 194 along Macquarrie Drive Extension near Reynolds Street that is considered for senior housing. The Town is also undertaking a study for façade improvements along Reeves Street.

LEGEND

- Study Area
- Property Boundaries

Zoning

- Residential 2 Unit (R2)
- Residential Multiple Unit (R3)
- Mobil Home Park (R4)
- Commercial Highway (C-3)
- Institutional (I)
- Open Space (O-1)
- Industrial Waterfront (M2)

NOTES:

- Please refer to Table C-1 (Appendix C) for corresponding property details
- Property lines approximate only

SOURCES:

- Service Nova Scotia and Municipal Affairs Property Online database
- Nova Scotia 1:10,000 digital topographic map series
- The Town of Port Hawkesbury Zoning Map Index

Designer: Iain Grant
Planner: Kourosh Rad
Engineer: Greg O'Brein

VERSION 100

FIGURE 3-1: PROPERTY OWNERSHIP AND ZONING

PORT HAWKESBURY, NOVA SCOTIA

NOVA SCOTIA
CANADA

NOVA SCOTIA TRANSPORTATION & INFRASTRUCTURE RENEWAL

May 26, 2014 141-13284-100

SCALE 100 75 50 25 0 150 m
1 : 7,000

NORTH

WSP
1 SPECTACLE LAKE DRIVE
DARTMOUTH, NOVA SCOTIA CANADA, B3B 1X7
PHONE: 902 835-9955 - FAX: 902 835-1645 - WWW.WSPGROUP.COM

FILE: K:\DARTMOUTH\2014\141-13284 NSTIR_REEVES ST_PORT HAWKESBURY\11_DWG\11.1_CONCEPT_PLANS\141-13284-100.DWG Sheet Figure 3-1 Zone SM

4.0 Traffic Volume Data

4.1 Historical Count Data

Historical traffic volumes on the Canso Causeway, Trunk 4 west of the Nautical Institute, Reeves Street east of Pitt Street, and Highway 104 east of Port Hawkesbury were obtained from NSTIR to use in determining traffic volume growth trends. The results of regression analysis completed using the historical volumes are recorded in Figures B-1 to B-4, Appendix B and are summarized in Table 4-1. While volume variations did not provide a growth rate for Reeves Street (Figure B-3); a growth rate of 1.5% per year was assumed to be reasonable for use in volume projections based on growth rates of 1.1% to 1.6% determined for the other locations.

Table 4-1: Review of Historical Volumes and Growth Rates

Road Section	Figure	Growth Rate	AADT Volume Projections		
			2014	2024	2034
Canso Causeway	B-1	1.1	9000	10000	11000
Trunk 4 West of Nautical Institute	B-2	1.3	9400	10800	11800
Reeves Street East of Pitt Street	B-3	1.5	12000	13800	15600
Highway 104 East of Trunk 4	B-4	1.6	4250	4950	5650

NOTES: 1. Figures are from Appendix B
2. AADT is Annual Average Daily Traffic Volume

4.2 Manual Turning Movement Counts

Manual turning movement counts were obtained at Study Area intersections and key commercial driveways during peak periods on a typical weekday. Table 4-2 summarizes the turning movement data collected including count date and time periods. Summarize count data are provided in Appendix B with peak hours indicated by shaded areas.

Table 4-2: Manual Turning Movement Counts

Intersection		Count Date	Count Period(s)	Appendix B Table
1.	Reeves Street @ Nautical Institute Driveway / Embree Island Road (West)	Thursday, June 5, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-1
2.	Reeves Street @ Embree Island Road (East) / Macmaster Road	Thursday, June 5, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-2
3.	Reeves Street @ Granville Street	Wednesday, May 7, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-3
4.	Reeves Street @ Philpott Street	Tuesday, May 6, 2014	7:00-9:00 AM 11:30AM-1:30 PM 3:30-5:30 PM	Table B-4
5.	Reeves Street @ MacSween Street	Tuesday, April 22, 2014	7:00-9:00 AM 11:30AM-1:30 PM 3:30-5:30 PM	Table B-5
6.	Reeves Street @ Pitt Street	Tuesday, April 22, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-6
7.	Reeves Street @ Reynolds Street	Tuesday, April 15, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-7
8.	Reeves Street @ Sydney Road	Friday, April 11, 2014	7:00-9:00 AM 3:30-5:30 PM	Table B-8
9.	Reeves Street @ Tim Hortons Driveways	Wednesday, April 16, 2014	7:00-9:00 AM	Table B-9
10.	Reeves Street @ Canadian Tire and Sobeys Shopping Centre Driveways	Friday April 25, 2014 (PM Peak Period Only)	3:30-5:30 PM	Table B-10

4.3 Heavy Trucks

There are generally three types of heavy trucks that use the Study Section of Reeves Street:

- Semi-trailer trucks that are making local deliveries or traveling through Port Hawkesbury to points east or west;
- Wood fiber trucks form the Mainland or western Cape Breton hauling wood to Port Hawkesbury Paper and the NSPI Bio-Plant, and then returning empty;
- Gypsum trucks from Highway 105 to Point Tupper and then returning empty.

While there are currently a limited number of gypsum trucks using Reeves Street, the wood fiber trucks are the most numerous, and as such the most noticeable trucks, on the street. Information provided by officials from Port Hawkesbury Paper (Table 4-3) indicate that on a typical 24 hour weekday in June 2014 there were 250 loaded trucks traveling eastbound and 250 empty trucks traveling westbound on Reeves Street. While wood is hauled 24 hours per day, the higher truck volumes generally occur between 9:00 AM and 4:00 PM with up to 20 trucks per hour travelling in each direction.

Table 4-3: Truck Traffic to Point Tupper: Fibre Deliveries through Port Hawkesbury Paper Scales

Day of Week	Loaded Wood Fiber Trucks on Reeves Street - Midnight to Noon												
	1	2	3	4	5	6	7	8	9	10	11	12	
Sunday	0	0	0	0	0	1	1	2	3	3	3	3	
Monday	1	1	1	2	3	6	10	15	16	17	19	19	
Tuesday	1	1	2	3	5	8	13	16	19	20	20	19	
Wednesday	1	1	2	3	5	8	12	16	18	19	19	18	
Thursday	1	1	2	3	5	9	12	16	18	19	20	18	
Friday	2	1	1	3	5	9	13	16	18	19	19	18	
Saturday	0	0	0	1	1	2	4	6	7	8	7	7	

Day of Week	Loaded Wood Fiber Trucks on Reeves Street - Noon to Midnight												Daily Total
	13	14	15	16	17	18	19	20	21	22	23	24	
Sunday	2	2	2	2	1	1	0	0	0	1	1	1	31
Monday	18	18	18	17	15	12	8	6	4	2	2	1	230
Tuesday	19	19	19	19	17	13	9	5	3	3	2	1	258
Wednesday	17	17	17	17	16	12	8	5	3	2	2	1	239
Thursday	18	19	18	18	17	13	9	6	3	3	2	1	249
Friday	17	16	16	14	12	8	5	3	2	1	1	1	219
Saturday	6	6	5	4	3	2	1	1	1	0	0	1	74

NOTES: 1. Data for a typical week in June 2014 were provided by officials from Port Hawkesbury Paper.

2. The data include all loaded wood fiber trucks traveling eastbound on Reeves Street to both the Pulp Mill and the Bio-Mass Plant. It can be assumed that empty trucks will return westbound in the following hour.

4.4 Design Hourly Volume Projections

Since it is not feasible to design roads to accommodate the maximum projected traffic volumes up to the study horizon year, transportation engineers use a design hourly volume (DHV) that typically represents the 30th or 50th highest hourly volume of the year. Since volumes of that magnitude are usually experienced during mid-summer, seasonal adjustment factors were used to estimate 2014 DHVs from the manual counts obtained at Reeves Street intersections during April and May. AM peak hourly volumes have been increased by 5% and PM peak hourly volumes by 10% to provide the estimated 2014 AM and PM DHVs which are shown diagrammatically in Figure B-6, Appendix B.

4.4.1 2024 Design Hourly Volumes

The 2014 DHVs have been increased by 15% (1.5% per year) to provide projected 2024 DHVs which are shown diagrammatically in Figure B-7, Appendix B.

4.4.2 2034 Design Hourly Volumes

The 2014 DHVs have been increased by 30% (1.5% per year) to provide projected 2034 DHVs which are shown diagrammatically in Figure B-8, Appendix B.

5.0 Collision Data and Safety Review

NSTIR provided summary sheets for 170 collisions that have been reported throughout the Study Section of Reeves Street during the six years 2007 to 2012. Each collision report was reviewed and where possible collision locations and types were identified. The tabulated data which are included in Table B-11, Appendix B, include 102 collisions identified at intersections or driveways, and 68 collisions that occurred in parking lots or at unidentified locations.

5.1 Type of Collisions

The numbers of collisions by year and by type are included in Table 5-1. There are about 20 collisions per year on Reeves Street. While type was not identified for 38 collisions, there were 21 rear end collisions, 11 T-bone collisions and 15 sideswipe collisions.

Table 5-1: Summary of Intersection and Driveway Collisions (2007 – 2012)

Year	Number of Collisions by Type								
	Single	Not Defined	Rear End	T-Bone	Sideswipe	Left Turn In	Left Turn Out	Pedestrian	Totals
2007	0	8	1	3	0	2	2	0	16
2008	1	7	7	3	1	1	1	0	21
2009	0	12	3	1	2	0	1	0	19
2010	1	0	1	0	4	1	1	0	8
2011	0	6	2	3	4	0	3	0	18
2012	2	5	7	1	4	0	0	1	20
TOTALS	4	38	21	11	15	4	8	1	102

NOTES:
1. Data are for collisions in the Study Section of Reeves Street where sufficient information was provided on collision report forms to determine locations and collision types.
2. This is a Summary obtained from data included in Table B-11, Appendix B

5.2 Collision Locations

The numbers of collisions by identified locations are included in Table 5-2. Since three locations – MacSween Street (11), Reynolds Street (19), and Trunk 4 (15) – accounted for 44% of all collisions on Reeves Street during the six year period, collision data for each intersection have been examined in more detail utilizing data recorded in Table B-11.

Table 5-2: Reeves Street Collision Locations (2007 - 2012)

Location	Number of Collisions
Embree Island Road	4
Macmaster Road	1
Granville Street	3
Philpott Street	2
TDBank Access	5
Subway Access	2
McSween Street	11
Pitt Street	8
Tim Hortons	4
Canadian Tire	6
Sobeys	1
Causeway Centre	2
KFC	2
Reynolds Street	19
Gateway Centre	1
McDonalds	4
Maritime Inn	2
Sydney Road	8
Carriage House Lounge	2
Trunk 4	15
Total	**102**

NOTES:
1. Data are for collisions in the Study Section of Reeves Street where sufficient information was provided on collision report forms to detemine locations and collision
2. This is a Summary obtained from data included in Table B-11, Appendix B.

5.2.1 MacSween Street Intersection

While three collisions had no defined collision type, there were three rear-end, three T-bone, one side-swipe, and one left turn in collisions reported. While the T-bone collisions may have involved left turning vehicles, there were no collisions specifically noted as having involved a vehicle turning left out of the intersection. A connection to the signalized intersection at Pitt Street would reduce turning movements at the MacSween Street intersection with the potential to reduce collisions at that location.

5.2.2 Reynolds Street Intersection

While nine (47%) of the 19 collisions did not have defined collision types, there were three rear end, four T-bone and three sideswipe collisions. While the intersection is controlled by traffic signals, there are businesses with driveways on Reeves Street or Reynolds Street near the intersection which may have been the location or contributing factor in collisions attributed to the Reynolds Street intersection.

5.2.3 Trunk 4 Intersection

While two collisions involved only single vehicles and four did not have defined collision types, there were two rear end, four sideswipe and three left turn out collisions reported. This is a signalized T-intersection between two four lane streets where Reeves Street,

which is the stem of the 'T', has a dual left turn towards Trunk 4 eastbound. The intersection also has a right turn channel where the right hand lane of Trunk 4 from the east turns to become the right hand lane of Reeves Street west of the intersection. It is suspected that lack of pavement markings to separate the dual left turn lanes, as well as a dividing line on Reeves Street immediately west of Trunk 4 to separate right and left turning vehicles from Trunk 4, was a contributing factor to the sideswipe and left turn collisions. (See Figure 9-7).

5.3 Collision Rates

The significance of collision experience on a section of street is qualified by comparing the collision rate on the section being studied to the average collision rate for many other sections of road with similar deign and roadside development. The standard of comparison is the number of collisions per year per 100 million vehicle kilometers (HMVK), obtained by multiplying the section length in kilometers by the annual average daily traffic volume by 365 days in a year and dividing by 100 million. Collision rates for each year and the overall average rate for 2007 to 2012 are included in Table 5-3. The annual rates varied from 76 to 219 and the average rate is 163 collisions per 100 million vehicle kilometers.

Table 5-3: Reeves Street Collision Rates (2007 - 2012)

Year	Length	AADT[1]	HMVK[2]	Collisions	Collision Rate (per HMVK)[3]
2007	2.5	13,000	0.1186	16	134.9
2008	2.5	13,000	0.1190	21	176.5
2009	2.5	12,000	0.1095	19	173.5
2010	2.5	11,500	0.1049	8	76.2
2011	2.5	9,000	0.0821	18	219.2
2012	2.5	10,000	0.0915	20	218.6
Totals and Average Rate			0.6256	102	163.0

NOTES:
1. Estimated daily volume as Annual Average Daily Traffic
2. HMVK is '100 million vehicle kilometers which is the annual vehicle kilometes of travel in the section
3. Collision rates are expressed as 'collisions per 100 million vehicle kilometers'

Historically NSTIR published collision rates for each road section as well as average collision rates for various road classes from four lane divided freeways to two lane local roads, including a class for four lane undivided Trunk Highways, such as the Study Section of Reeves Street. While average rates have not been available since 2004, since there have not been significant changes in this road class in recent years, the last published average rate has been used in this evaluation. Since the average collision rate on Reeves Street of 163.0 collisions per HMVK is less than the 2004 published rate of 189.7 collisions per HMVK for all four lane undivided Trunk Highways in Nova Scotia, the collision experience on Reeves Street is considered to normal for that road class. While the collision rate is normal, recommended improvements included in Chapter 9.0 of this Report are expected to result in fewer collisions in future years.

6.0 Access Management

Serving as the primary route through Port Hawkesbury, Reeves Street has several driveways providing access to a wide range of developments from small businesses to restaurants to grocery stores. Access management is an important consideration for providing an effective balance between traffic flow and land access – both of which are critical to the corridor.

6.1 Background

Access management is the process of balancing the competing needs of traffic movement on a public road and land access to adjacent properties. The objective of access management is to provide safe and efficient access that meets the accessibility needs of adjacent land and is consistent with the functional and operational requirements of the roadway.

Roads often require upgrading or replacement because of functional obsolescence caused by high peak hour volumes and unacceptably high collision experience. Roadside development directly impacts this problem by reducing roadway capacity and increasing collision potential. Unregulated development results in strip commercial or residential development with numerous driveways. By adopting basic access management principles for all streets and roads, safety and capacity can be maintained, preventing or delaying the need for expensive major upgrading or reconstruction.

Some benefits of effective access management include:

1. Improved safety; access related collisions can be reduced by 50%;
2. Roadway capacity can be increased by 25% to almost 50%;
3. The life of the roadway section will be increased;
4. Travel times and unnecessary delays will be reduced;
5. Fuel consumption and vehicle emissions will be reduced.

6.1.1 Benefits of Access Management

Benefits of good access management are realized by many diverse groups. While Table 6-1 does not contain a complete list, it should be sufficient to illustrate the main beneficiaries (stakeholders) and the benefits realized by each group.

Table 6-1 - Beneficiaries and Benefits of Good Access Management

Beneficiary Group	Benefits
Governments of Towns & Cities	Lower cost of delivering a safe and efficient road system
Community	Safer streets
	Less need for street widening
	Aesthetically pleasing streets
Businesses	More efficient roadway system creates a broader market area
	More predictable and consistent development environment
Drivers	Safer streets
	Fewer decision points and traffic conflicts
	Less congestion and delay
Cyclists	Fewer decision points and traffic conflicts
	More predictable motorists' behaviour
Pedestrians	Fewer and less frequent vehicle access points

6.1.2 Safety Issues

Substantial research concerning the effects of access management has been conducted in the past few decades. However, much of the studies and research appear to have concentrated on high speed major collector and arterial roads and highways. A notable study was *NCHRP Report 420: Impacts of Access Management Techniques* (Transportation Research Board, 1999). The following points are largely drawn from this study.

Safety benefits of good access management are attributable to improved access design, fewer traffic conflict locations, and increased driver response time to potential conflicts. The number of collisions along a street section is related to the number of driveways and intersections.

6.1.3 Operational Issues

Studies of the effects of access management on roadway operations that addressed the effects of access spacing on travel time indicate that access management helps to maintain desired speeds and reduces delays; unsurprisingly, increasing the number of access points and signals along a roadway results in increased delay.

6.1.4 Environmental Effects

Fewer access connections increase the area for landscaping at the margin of the street. Proper landscaping also helps to provide a visual cue for driveway locations.

6.1.5 Summary Access Management Principles

Access management programs seek to limit and consolidate accesses along major roadways, while promoting supporting streets and on-site circulation systems. The result is a roadway system that functions safely and efficiently for its useful life, as well as providing a more attractive corridor. In summary, the basic principles of access management can be achieved by:

1. Limiting the number of conflict points - Drivers are more likely to make mistakes and have collisions when presented with the complex driving situations created by numerous accesses.
2. Separating conflict points - Drivers need sufficient time to address one potential set of conflicts before meeting another.
3. Reducing interference with through traffic - Turning lanes allow drivers to decelerate out of the through lane and wait in a protected area for an opportunity to complete a turn.
4. Providing adequate on-site traffic circulation and storage - Properly designed parking lot entrances provide sufficient clear throat space for vehicles to turn from the street without interference from vehicles attempting to enter or exit parking spaces.

6.2 Conflict Points

Conflict points occur at locations where vehicle paths cross or meet one another during merging and diverging maneuvers. Sometimes collisions occur when drivers are confronted with complex situations and are required to address too many decisions simultaneously. The separation of potential conflict points which permits a driver to handle one problem before facing another will improve both operation efficiency and safety. Separation of driveways from street intersections, minimum spacing of property access driveways, and control of unlimited paved road frontage are ways to reduce confusion and limit the number of conflicts a driver must face at one time.

Some methods to reduce the number of conflict points include:

1. ***Change intersection configuration.*** While a 4-way intersection has 32 conflict points, a 3-way intersection has only nine conflict points. Also, if a 3-way intersection is converted to permit only right turns in and out of a driveway the number of conflict points is reduced to two.

2. ***Reduce or limit the number of driveways.*** The number of site entrances can be limited by design, policy or by zoning ordinances. The Geometric Design Guide for Canadian Roads (Transportation Association of Canada (TAC), 1999) suggests that the number of driveways can be based on lot frontage (Table 3.2.9.2). Also, if there is sufficient existing or planned building set-back, combining exit with entrance driveways will reduce the number of driveways, improve intersection operations and reduce traffic conflicts.

3. ***Create cross connections between adjacent businesses.*** This will permit movement between adjacent sites without the need to enter and exit the street.

6.3 Access Management Applications in the Study Area

While there are few opportunities for a wide range of access management techniques, the following sections describe access management applications that have been considered for the Study Area.

6.3.1 Two-Way Left Turn Lane (Road Diet)

Conversion of the existing 4-lane, undivided lane configuration on Reeves Street to a single through lane in each direction and a center two-way left turn lane was considered as an option to improve road safety. An added benefit of this option is the addition of bicycle lanes using the surplus curb-to-curb width, which would improve cycling conditions considerably relative to the existing configuration. A major advantage of this option is its cost-effectiveness – existing curbs would remain in place, and only modifications to pavement markings would be required.

Traffic operational capacity is an important constraint to consider in assessing the feasibility of a 'road diet', as road and intersection capacity are reduced considerably. Research has indicated that an upper limit of approximately 1,500 to 1,750 vehicles per hour (2-way)[1] should be considered as a general guideline for feasibility assessment. This, in combination with consideration of intersection performance analysis and other case-specific factors, forms the basis for an effective determination of the appropriateness of a road for conversion.

Two-way left turn lanes within the Study Area on Reeves Street are discussed further in Section 9.1.

6.3.2 Change Intersection Configuration

Three locations where changes in intersection configuration may provide safer and more efficient traffic flow are:

1. Combine the Embree Island Road (east), Macmaster Road, and two Granville Street intersections to form a roundabout. This would eliminate the sight distance problem at the Embree Island Road intersection, combine four closely spaced intersections, and provide a gateway to the more urban section of Reeves Street for eastbound traffic.
2. Divert existing and future MacSween Street traffic exiting to Reeves Street to the signalized Pitt Street intersection.
3. Reconstruct the off-set Sydney Road intersection to provide a single 4-leg intersection.

[1] *Guidelines for the Conversion of Urban Four-lane Undivided Roadways To Three-Lane Two-way Left-Turn Lane Facilities* (Iowa State University Center for Transportation Research and Education (2001).

6.3.3 Reduce or Change Existing and Future Driveway Accesses

Many locations between the street section west of Philpott Street and Trunk 4 have the potential to reduce the number of existing driveways and provide better access controls for future developments. The number of site entrances can be limited by design, policy or by zoning ordinances. If there is sufficient existing or planned building set-back, combining exit with entrance driveways will reduce the number of driveways, improve intersection operations and reduce traffic conflicts as illustrated in Figure 6-1. Another effective way to reduce the number of driveways is to create cross connections between adjacent businesses to permit movement without the need to enter and exit the street.

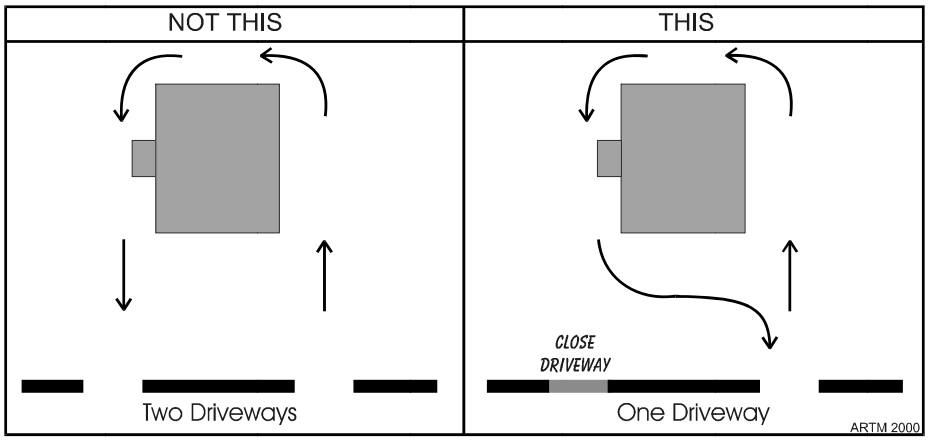


Figure 6-1: Two Driveway Vs. One Driveway Access

Several locations where driveway changes can be considered include the following (See Figure 6-2):

1. While the building at 308 Philpott Street has two driveways to Philpott Street, the site also has a gravel driveway on Reeves Street just east of the Philpott Street intersection. The driveway access to Reeves Street should be closed.

2. The Legion, A-1 Pizza and Kwik-Way have approximately 50 meters of curb cut on Reeves Street just east of MacSween Street. The driveway width should be narrowed to reduce confusion for drivers and improve pedestrian safety.

3. Local 972 CEO has two driveways on the south side of the street between MacSween Street and Pitt Street. The building is set back well from the street so that one driveway could be closed without affecting site access.

4. While the Reeves Street driveway for the Anglican Church at the corner of Pitt Street is closed with a chain, the driveway could be restricted to right-in / right-out only with full site access provided at the Pitt Street driveway.

5. The Reeves Street driveway for Tim Horton's is close to the Pitt Street intersection. That driveway should be restricted to right-in / right-out movements.

6. Consider to potential to construct a one block section of Bain Street between Reeves Street and Church Street to provide a secondary street access for Canadian Tire and KFC which now has two driveways in Reeves Street.
7. SCC Auto Sales has a driveway on Reeves Street and two driveways on Reynolds Street. The Reeves Street driveway could be closed.

8. The Ultramar site has two driveways on Reeves Street and one on Reynolds Street. The westerly driveway is very close to the signalized Reynolds Street intersection. That driveway can be closed and there will still be adequate site access from the remaining wide driveway of Reeves Street and the other driveway on Reynolds Street.

9. The Maritime Inn has two driveways on Reeves Street and one on Sydney Road. The east driveway on Reeves Street could be closed.

10. Gateway Plaza has three driveways. One driveway could be closed.

11. Town Centre at 811 Reeves Street has two driveways on Reeves Street and one on Sydney Road. The west driveway on Reeves Street could be closed.

12. Shopping Centre driveways should be designed with clear throat areas to separate entering and exiting traffic from vehicles attempting to enter or exit parking spaces.

13. As future development occurs on Reeves Street ensure that site access is managed to limit the number on driveways on the street.

FIGURE TO BE PROVIDED AT OCTOBER 21 PROJECT MEETING

Figure 6-2: Access Management Considerations

7.0 Active Transportation

Active transportation (AT) refers to transportation by non-motorized means, which in an urban environment primarily consists of walking and cycling. Active transportation is becoming an increasingly important priority in communities throughout the region as people seek to reduce their reliance on personal vehicles, promote a healthier, more active lifestyle, and reduce the impacts of transportation on the environment.

Active transportation is an important element to consider in a road safety assessment. Pedestrians and cyclists are considered to be 'vulnerable road users', as they are less physically protected and more exposed to injury risk than motor vehicle occupants.

As the primary arterial roadway in Port Hawkesbury, Reeves Street serves both as a key thoroughfare and access route in the area. It connects residential areas to the north and south with commercial areas, recreational facilities, and institutional uses. Key destinations include the Strait Area Education and Recreation Centre (SAERC), Nova Scotia Community College (NSCC) Strait Area Campus, and the various commercial, industrial, and administrative land uses that serve as employment centres for the region.

7.1 Existing Challenges

Walking and cycling can be a challenge along the Reeves Street corridor due to several factors:

- Gaps in sidewalk connectivity: As discussed in Section 2.2.2, there are multiple gaps in the connectivity of sidewalks on Reeves Street. Pedestrians are often forced to walk on gravel shoulders alongside traffic.
- Lack of dedicated cycling infrastructure: There are presently no dedicated bicycle lanes or multi-use paths on or adjacent to Reeves Street. As a result, cyclists are forced to ride on-street in mixed traffic, which can be intimidating and potentially dangerous. This can often result in cyclists illegally riding on the sidewalk, which puts pedestrians at risk.
- Existing Traffic Conditions: In the absence of appropriate AT infrastructure, walking adjacent to and cycling on a busy corridor with a high percentage of heavy vehicles can be uncomfortable experience that deters many potential AT users.
- Physical Constraints: There are considerable grades on Reeves Street, particularly between Granville Street and MacSween Street, which can be a challenge for AT users.

7.2 Potential Opportunities

Recognizing the potential for improving AT in the area, there have been multiple recent attempts to enhance the comfort and perceived safety of AT users in the Port Hawkesbury area.

7.2.1 Port Hawkesbury Pathways Project

The *Port Hawkesbury Pathways Project* (Ekistics, 2014) assesses options for connecting the NSCC Strait Area Campus and the Reeves Street commercial core with an enhanced AT corridor. Public consultation completed as part of the plan indicated that the primary concern of users was safety. The plan assessed several alternatives for connecting a pathway between the key destinations. Of the two pathway concepts taken to the conceptual design level (illustrated in Figure 7-1), one ran parallel to Reeves Street along the north side and comprised a combination of sidewalk and multi-use trail.

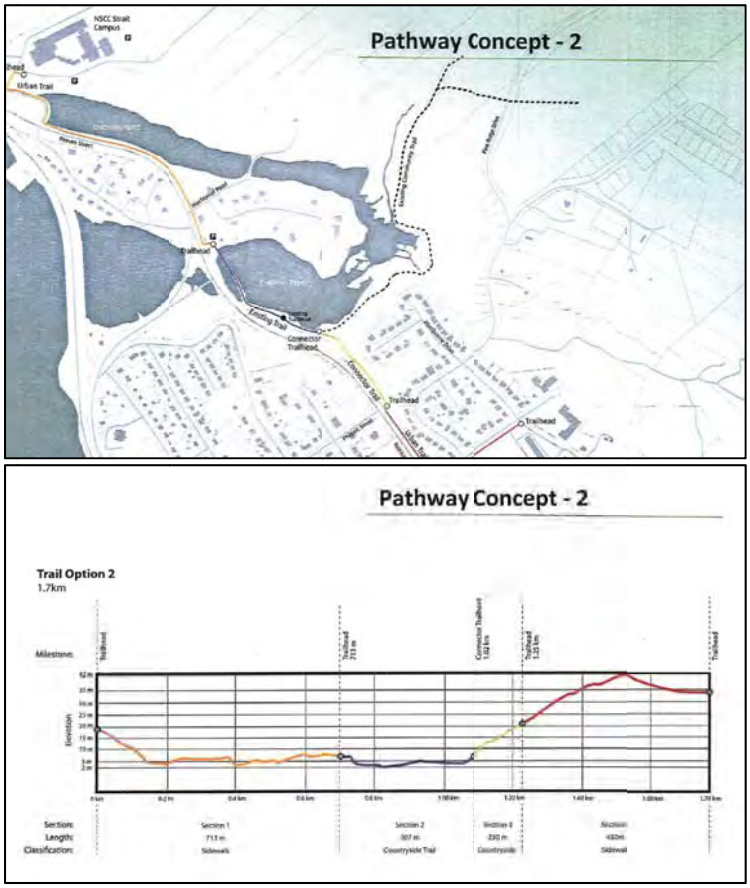


Figure 7-1: Pathway Concept on Reeves Street (Concept Plan / Preliminary Profile)
[Source: *Port Hawkesbury Pathways Project Council Presentation* (Ekistics Planning & Design, 2014)]

7.2.2 Port Hawkesbury Active Transportation Plan

The Town of Port Hawkesbury is currently in the process of completing an Active Transportation Plan that will guide the development of AT infrastructure and programming for the Town as a whole. It is assumed that Reeves Street will form a key component of this Plan. It is understood that the Plan was to be submitted in 2014.

8.0 Traffic Operational Review

Assessment of traffic operations is an important step in reviewing existing road safety performance and determining what countermeasures may be feasible to implement to enhance safety. It is necessary to develop an understanding of the performance of roads and intersections under current and projected future traffic conditions in order to identify opportunities and constraints that may influence upgrade options.

8.1 Intersection Level of Service (LOS)

The level or quality of performance of an intersection in terms of traffic movement is determined by a level of service (LOS) analysis. LOS for intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and increased travel time.

LOS criteria (Table 8-1) are stated in terms of average control delay per vehicle which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. While drivers judge the quality of intersection performance by how long they must wait at a red light or a Stop sign, traffic engineers also use volume / capacity (v/c) ratio and 95% queue to evaluate performance of an intersection approach.

A v/c ratio is a measure of how the peak hour volume on an approach to an intersection compares to the capacity of that intersection approach. While the capacity of an intersection approach at a signalized intersection depends on the number of lanes and the amount of green time, the capacity of a Stop sign approach is determined by the volume on the through street. Approaches with volumes less than 50% of capacity (v/c ratios less than 0.50) usually have low or no congestion, and a v/c ratio up to 0.75 is usually associated with moderate congestion. While a v/c ratio of less than 0.85 suggests that the approach has residual capacity available, it is also an indication that mitigative measures must be considered if higher volumes are to be accommodated in future years.

Table 8-1: Intersection Performance Analysis Criteria

LOS	Signalized Intersections Control Delay (Seconds per Vehicle)	LOS Description	Two Way Stop Controlled (TWSC) Intersections Control Delay (Seconds per Vehicle)
A	Less than 10.0	Very low delay; most vehicles do not stop **(Excellent)**	Less than 10.0
B	Between 10.0 and 20.0	Higher delay; most vehicles stop **(Very Good)**	Between 10.0 and 15.0
C	Between 20.0 and 35.0	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping **(Good)**	Between 15.0 and 25.0
D	Between 35.0 and 55.0	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop **(Satisfactory)**	Between 25.0 and 35.0
E	Between 55.0 and 80.0	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of **acceptable** delay	Between 35.0 and 50.0
F	Greater than 80.0	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection **(Unacceptable)**	Greater than 50.0

Synchro 8.0 software has been used for performance evaluation of Study Area intersections for the following scenarios:

1. 2014 Baseline AM and PM peak hour volumes ***with existing lane configuration / signal timing***

2. Projected 2024 AM and PM peak hour volumes ***with existing lane configuration / signal timing***

3. Projected 2034 AM and PM peak hour volumes ***with existing lane configuration / signal timing***

Level of service (LOS) analysis results and summary tables are included in Appendix D. Table 8-2 provides an overview of the LOS analysis for each intersection.

Table 8-2: Intersection LOS Analysis Overview: Background Scenarios

Intersection		Summary Table (Appendix D)	LOS Analysis Summary
1.	Reeves Street @ Nautical Institute Driveway / Embree Island Road (West)	Table D-1	• Good levels of performance are expected for all movements during the AM peak hour for all horizon year scenarios. • Delays on the side street movements, most notably the Nautical Institute driveway, may increase beyond desired levels during the PM peak hour for future scenarios. However, v/c ratios remain well within acceptable limits. • Overall intersection performance is expected to remain very good for all scenarios, with very low average delays.
2.	Reeves Street @ Embree Island Road (East) / Macmaster Road	Table D-2	
3.	Reeves Street @ Granville Street	Table D-3	
4.	Reeves Street @ Philpott Street	Table D-4	
5.	Reeves Street @ MacSween Street	Table D-5	
6.	Reeves Street @ Pitt Street	Table D-6	• Good levels of performance are expected for all movements during the AM and PM peak hours for all horizon year scenaorios. • Overall intersection performance during the PM peak hour (LOS B) is slightly worse than during the AM peak hour (LOS A).
7.	Reeves Street @ Reynolds Street	Table D-7	
8.	Reeves Street @ Sydney Road	Table D-8	• Good levels of performance are expected for all movements during the AM peak hour for all horizon year scenarios. • Delays on the side street movements may increase beyond desired levels during the PM peak hour for future scenarios. However, v/c ratios remain well within acceptable limits. • Overall intersection performance is expected to remain very good for all scenarios, with very low average delays.

9.0 Identification and Evaluation of Improvement Options

Based on a review of all aspects of the Study Area and application of engineering principles for improving safety, operational performance, and functionality for all road users, several options were identified and evaluated. The following sections introduce each concept, discuss the potential advantages and disadvantages of each, and provide functional sketches for illustrative purposes. Where applicable, intersection performance analysis has been completed in accordance with the principles laid out in Section 8.1 – Level of service (LOS) analysis results and summary tables are included in Appendix E. LOS analyses for improvement scenarios were based on projected 2034 DHVs.

9.1 Road Diet

The concept of a road diet, introduced in Section 6.3.1, involves reduction in lane capacity to improve safety and afford the opportunity to reallocate underutilized street space for non-traffic uses (i.e. AT facilities, on-street parking, streetscaping treatments).

Two options for application of a road diet were considered on Reeves Street – conversion of the existing 4-lane, undivided lane configuration to:

(i) A single through lane in each direction and a center two-way left turn lane, as well as dedicated bicycle lanes in each direction (See layout in Figure 9-1). This option is more applicable to an urban environment that would benefit from flexible left turn storage lanes, and that would provide a more comfortable on-street cycling environment.

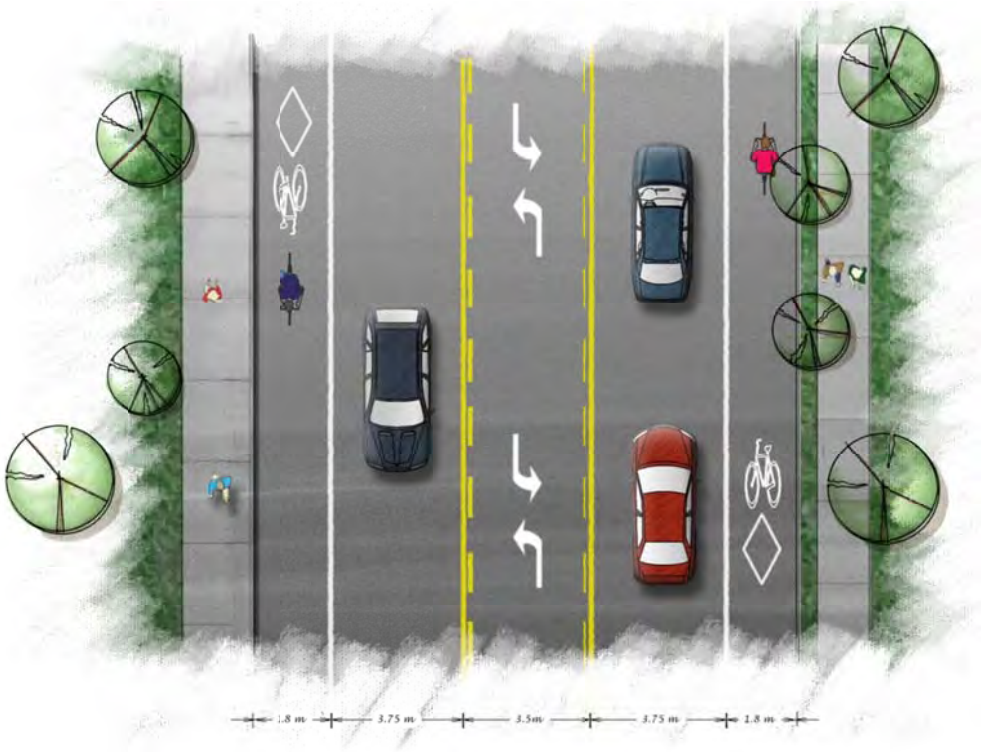


Figure 9-1: Conceptual Lane Layout – Road Diet (Two-way Left Turn Lane)

(ii) A single through lane in each direction, or two lanes on uphill sections and one lane downhill, and a multi-use pathway on one side of the street (Figure 9-2). This option is more applicable to a more rural environment that has reduced turning demand and that would benefit in particular from an off-street AT environment. It is also beneficial in that provision of an exceptional multi-use pathway can eliminate the need to a pedestrian facility (i.e. sidewalks) on both sides of the street, and where existing street space is used, property acquisition requirements can be minimal if at all.

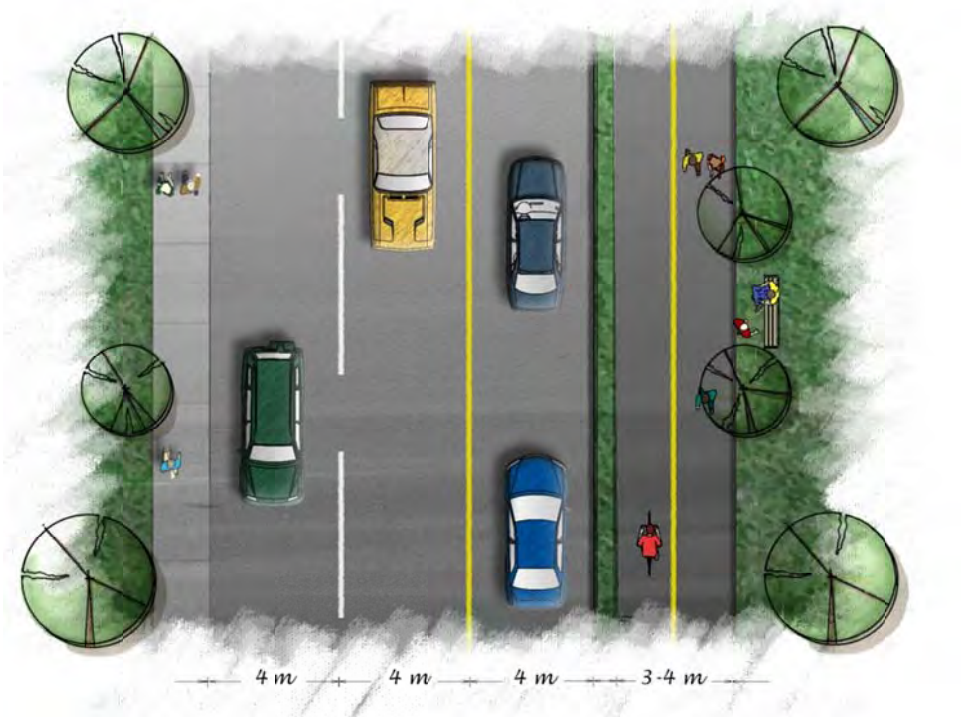


Figure 9-2: Conceptual Lane Layout - Road Diet (Multi-Use Pathway)

Traffic operational capacity was a key part of the assessment of each road diet option in the Study Area. Based on the background traffic analysis completed in Section 8.0, it was evident that there is excess capacity available and that introduction of a road diet in some form may be an option.

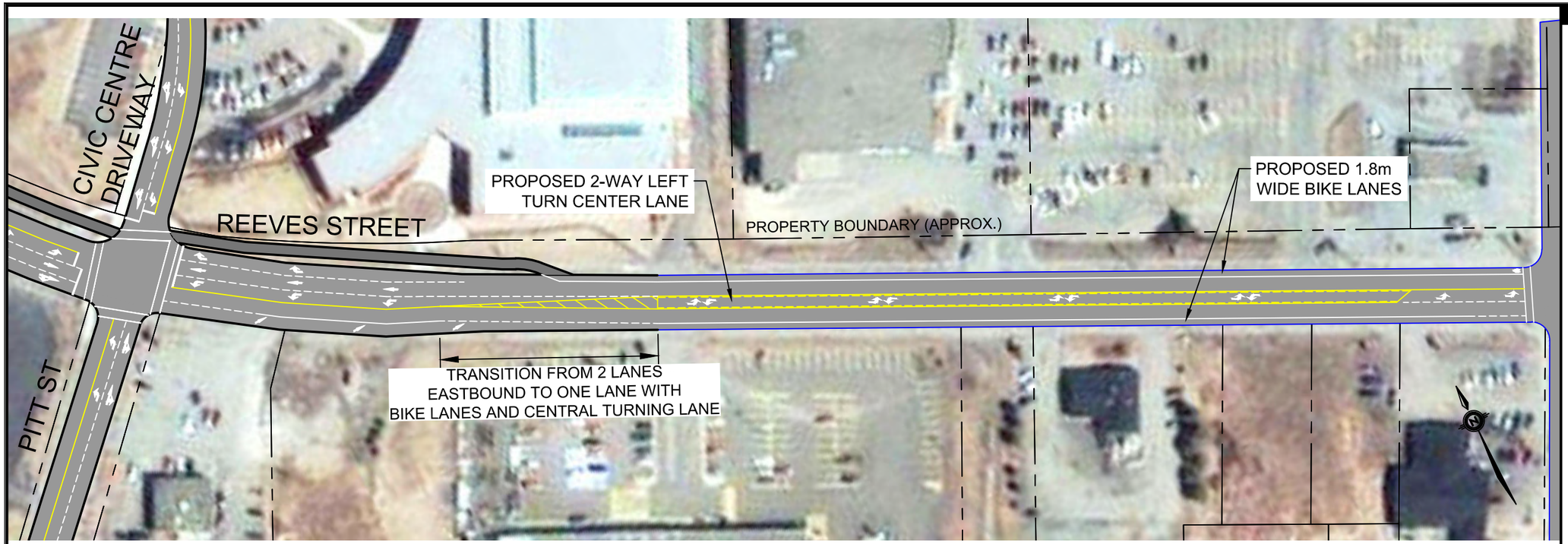
Given the fairly distinct sections of urban and rural roadway on Reeves Street, consideration was given to what type of application may be suitable both functionally as well as based on the ability of the roadway and intersections to accommodate the required loss in lane capacity. For example, on the section of Reeves Street west of Pitt Street, a more rural street character is present. East of Pitt Street there is an obviously urban character, with increased development density and access demands.

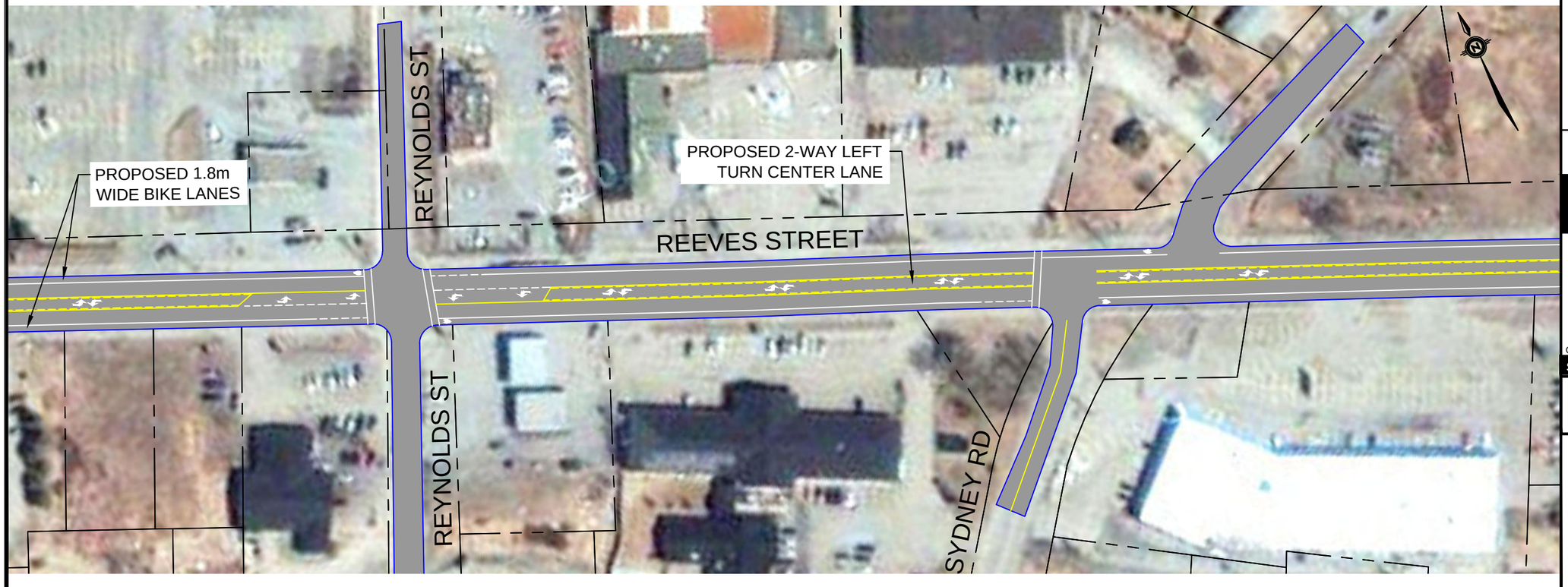
The following two sections describe the concepts that were developed, tested, and conceptually laid out for the sections of Reeves Street west and east of Pitt Street.

9.1.1 Pitt Street to Trunk 4

The section of Reeves Street between Pitt Street and Trunk 4 was considered for application of the road diet option that includes conversion of the existing 4-lane cross section to a single through lane in each direction and a center two-way left turn lane (See Concept Layout in Figure 9-3). It was felt that the introduction of bicycle lanes using the surplus curb-to-curb width would provide a valuable piece of AT infrastructure that would enhance cycling considerably in the area.

Intersection performance analyses were completed to assess expected intersection performance based on the proposed lane configurations. Results indicate that the signalized intersections at Pitt Street and Reynolds Street are expected to operate within acceptable limits, however, westbound queues (particularly during the PM peak hour) may become relatively long (>200m). Results also indicate that the stop-controlled intersection at Sydney Road may continue to experience relatively long delays and approach operational capacity on the side street movements during the PM peak hours. It can also be assumed that operational performance similar to the Sydney Road intersection is probable at key commercial driveways along the corridor.





Notes:

1. All property boundaries shown are approximate only and do not reflect changes made since 2007.
2. Proposed road layouts and pavement markings are conceptual and representative only. Detailed design required prior to finalizing layout.
3. Background aerial photography is for information purposes only and does not necessarily reflect the current existing condition.

Drawn: MIC, PSN

Engineer: MIC, GRO

FIGURE 9-3: CONCEPTUAL LANE LAYOUT PITT STREET TO SYDNEY ROAD PORT HAWKESBURY, NS

NOVA SCOTIA
Transportation and Infrastructure Renewal

OCTOBER 15, 2014

SCALE: NTS

WSP

9.1.2 NSCC to Pitt Street

West of Pitt Street, Reeves Street was considered for application of a road diet including removal of the outside westbound lane and conversion to a multi-use pathway on the north side of the street. The multi-use pathway would provide a valuable and much desired AT connection between the NSCC and the commercial centre of Reeves Street, a section that is notably a considerable gap in the sidewalk network.

The proposed lane configurations would include one westbound lane (tapering from two just west of Pitt Street) and two eastbound lanes. Intersection performance analyses were completed to assess expected intersection performance based on the proposed lane configurations. Results indicate that the intersctions – all stop-controlled – are expected to operate within acceptable limits during the AM peak hour. However, during the PM peak hour side street movements experience long delays and approach operational capacity.

Although there appear to be some capacity constraints for these intersection based on lane reduction scenarios, it is recognized that LOS modeling using Synchro at unsignalized intersections is known to provide unreasonably poor levels of service in many cases due to the limitations of the software in terms of its ability to adequately model gap acceptance and arrivals at STOP controlled approaches.

FIGURE TO BE PROVIDED AT OCTOBER 21 PROJECT MEETING

Figure 9-4: Conceptual Lane Layout – NSCC to Pitt Street

9.2 Intersection Upgrades

9.2.1 Reeves Street @ Granville Street

The Reeves Street – Granville Street intersection, as well as adjacent intersections at Embree Island Road (East) and Macmaster Road, were considered for conversion to a modern roundabout. A roundabout at this location is not considered a necessity based on any one particular aspect, but rather a potentially worthwhile improvement that provides a number of benefits to the street and area as a whole.

- Safety Benefits: The safety benefits include elimination of the sight distance problem to the west on Reeves Street at the Embree Island Road intersection, as well as the usual safety benefits attributed to roundabout intersections as compared to the STOP controlled intersections at Granville Street and Macmaster Road.
- Traffic Operational Performance: While not required based on operation, a roundabout can be added without adversely affecting intersection performance as illustrated in the LOS analysis results (Arcady) in Appendix E.
- Gateway Feature: Provides a break in road character that effectively communicates to the driver that they are entering a new area. This will divide the rural section to the west from the urban section to the east.

The proposed Roundabout Concept (Figure 9-59-5) includes a two-lane roundabout with two approach lanes on both Reeves Street approaches and one approach lane for each side street approach. The concept includes relocating the Macmaster Road access to MacLean Crescent, and restricting Embree Island Road to right-in / right-out only.

LEGEND

Notes:

1. All property boundaries shown are approximate only and do not reflect changes made since 2007.
2. Proposed road layouts and pavement markings are conceptual and representative only. Detailed design required prior to finalizing layout.
3. Background aerial photography is for information purposes only and does not necessarily reflect the current existing condition.

Drawn: PSN

Engineer: GRO, MIC

FIGURE 9-5: CONCEPTUAL LANE LAYOUT - ROUNDABOUT

PORT HAWKESBURY, NS

NOVA SCOTIA
Transportation and Infrastructure Renewal

OCTOBER 15, 2014

SCALE: 1:1000 **NORTH**

15 10 5 0 25 m

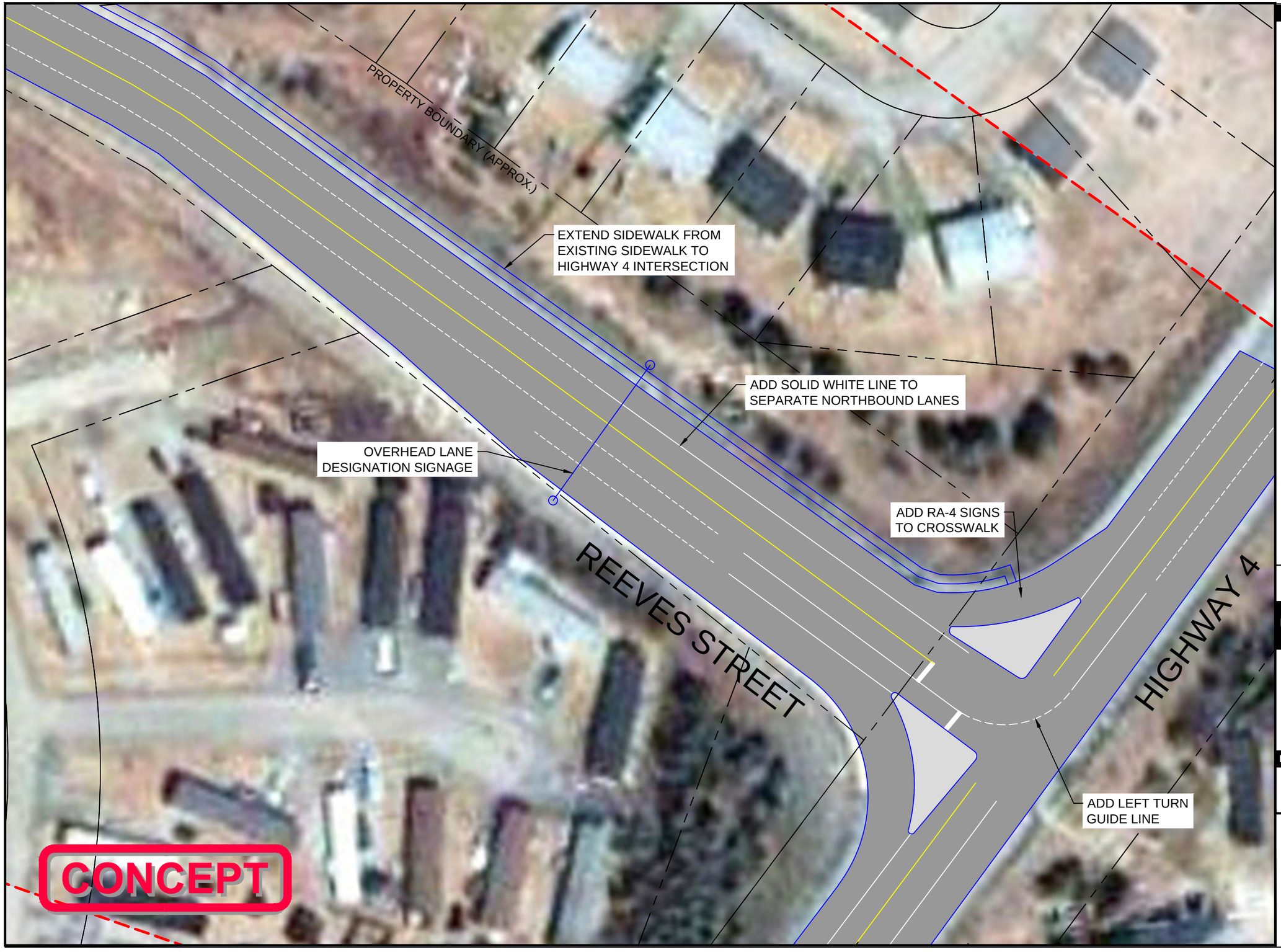
1 : 1,000

WSP

9.2.2 Pitt Street Extension

This improvement illustrated in Figure 9-6 includes creating a cul-de-sac on MacSween Street to close the north side approach to Reeves Street and diverting all MacSween Street north side traffic to the Pitt Street intersection. The Pitt Street Extension will also provide efficient access to Reeves Street for the proposed assisted living development between the Pitt Street extension and Reeves Street.

The closure of the north side of MacSween Street at Reeves Street will remove one of the problem areas of concern and can be expected to improve future safety in the area as additional vehicle trips are generated by the proposed development. While the proposed change will add more traffic to the Pitt Street intersection, the proposed lane configurations (see Figure 9-6), complete with signalized left turn phases, is expected to provide efficient traffic flow.



Notes:

1. All property boundaries shown are approximate only and do not reflect changes made since 2007.
2. Proposed road layouts and pavement markings are conceptual and representative only. Detailed design required prior to finalizing layout.
3. Background aerial photography is for information purposes only and does not necessarily reflect the current existing condition.

Drawn: PSN

Engineer: GRO, MIC

FIGURE 9-7: REEVES ST. @ TRUNK 4 INTERSECTION PROPOSED UPGRADES

PORT HAWKESBURY, NS

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Transportation and Infrastructure Renewal

OCTOBER 15, 2014

NOT TO SCALE **NORTH**

WSP

9.2.3 Reeves Street @ Trunk 4

This is a signalized T-intersection between two four lane streets where Reeves Street, which is the stem of the 'T', has a dual left turn towards Trunk 4 eastbound (See Figure 9-7). The intersection also has a right turn channel where the right hand lane of Trunk 4 from the east turns to become the right hand lane of Reeves Street west of the intersection. Since it is suspected that lack of pavement markings to separate the dual left turn lanes – as well as a dividing line on Reeves Street immediately west of Trunk 4 to separate right and left turning vehicles from Trunk 4 – may have been contributing factors to several sideswipe and left turn collisions in recent years, additional pavement marking and signing is advisable.

The proposed improvements (Figure 9-7) include the following:

1. Erect overhead lane designation signage on the eastbound approach to show the exclusive right turn lane and the dual left turn lanes.
2. Install a wide thermal plastic white line on Reeves Street west of the intersection to separate the right turning traffic from Trunk 4 westbound and the left turning traffic from the Point Tupper area to Reeves Street westbound.
3. Install wide thermal plastic left turn guide lines to separate the two left turning lanes from Reeves Street to Trunk 4 eastbound.
4. Construct a section of sidewalk from Trunk 4 westerly to Tim Hortons to fill in the sidewalk gap on the north side of Reeves Street;
5. Mark the pedestrian crosswalk on the right turn channel with appropriate RA-4 signs.

The proposed signs, pavement markings and sidewalk can be expected to improve the safety of this intersection for both motorists and pedestrians.

CONCEPT

PROPOSED CONTROLLED INTERSECTION

EDUCATION RECREATION CENTRE

CIVIC CENTRE

PITT ST. EXTENSION

CRANDALL DR.

MACSWEEN ST.

PROPERTY BOUNDARY (APPROX.)

PROPOSED CUL-DE-SAC

CLOSE SOUTHBOUND INTERSECTION APPROACH

REEVES STREET

POSSIBLE MULTI-USE TRAIL TO REPLACE OUTSIDE WESTBOUND LANE

WIDEN ROAD TO ADD LEFT-TURN LANE

START OF EASTBOUND BIKE LANE

BIKE LANE EXIT

WIDEN ROAD TO ADD RIGHT-TURN LANE

TRANSITION FROM 2 LANES EASTBOUND TO ONE LANE WITH BIKE LANES AND CENTRAL TURNING LANE

CONVERT CENTER WESTBOUND LANE TO EASTBOUND LEFT-TURN LANE

MACSWEEN ST.

PITT ST.

WIDEN ROAD TO ADD LEFT-TURN LANE

Notes:

1. All property boundaries shown are approximate only and do not reflect changes made since 2007.
2. Proposed road layouts and pavement markings are conceptual and representative only. Detailed design required prior to finalizing layout.
3. Background aerial photography is for information purposes only and does not necessarily reflect the current existing condition.

Drawn: PSN

Engineer: GRO, MIC

FIGURE 9-6: CONCEPTUAL LANE LAYOUT - PITT STREET EXTENSION

PORT HAWKESBURY, NS

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10.0 Summary and Recommendations

10.1 Summary

Key Issues - The key issues considered when completing the Reeves Street Safety Review included:

- NSTIR and Town officials, and the public, want both immediate and long term cost effective improvements that will provide acceptable levels of safety on Reeves Street with consideration to the high number of heavy trucks using the street.
- Since Trunk 4 is a primary highway connecting the Strait of Canso to Sydney, and since a by-pass highway is not expected to be built for many 20 years, maintaining a high mobility function on the street must be an important consideration when planning and evaluating infrastructure improvements.

Traffic Volumes – Traffic counts from 2008 to 2011 indicated Annual Average Daily Traffic (AADT) volumes were declining significantly with a 2011 AADT volume of 8,800 vehicles per day (vpd), possibly because of the pulp mill closer and lack of gypsum trucks during at least part of that time. However, a count on Reeves Street during June, 2014, indicated an estimated AADT of 12,000 vehicles per day. Volumes have been increased using a 1.5% per year growth factor to provide projected 2024 AADT of 13,800 and 2034 AADT of 15,600 vpd.

Population Trends - Today Port Hawkesbury remains the commercial, industrial, and social center of the Strait of Canso area. However, the recent statistics suggest that the Town of Port Hawkesbury experienced a rapid decline in population between 2001 and 2011. Between the 2001 and 2011 census, population decline has reach 9.3 percent in a 10 year period.

Collision Rates - Since the average collision rate on Reeves Street of 163.0 collisions per HMVK is less than the last NSTIR published rate of 189.7 collisions per HMVK for all four lane undivided Trunk Highways in Nova Scotia, the collision experience on Reeves Street is considered to be normal for that road class.

Access Management - Access management is the process of balancing the competing needs of traffic movement on a public road and land access to adjacent properties. the basic principles of access management can be achieved by:

- Limiting the number of conflict points - Drivers are more likely to make mistakes and have collisions when presented with the complex driving situations created by numerous accesses.
- Separating conflict points - Drivers need sufficient time to address one potential set of conflicts before meeting another.
- Reducing interference with through traffic - Turning lanes allow drivers to decelerate out of the through lane and wait in a protected area for an opportunity to complete a turn.
- Providing adequate on-site traffic circulation and storage - Properly designed parking lot entrances provide sufficient clear throat space for vehicles to turn

from the street without interference from vehicles attempting to enter or exit parking spaces.

Active Transportation - Active transportation (AT) refers to transportation by non-motorized means, which in an urban environment primarily consists of walking and cycling. Active transportation is an important element to consider in a road safety assessment. Pedestrians and cyclists are considered to be 'vulnerable road users', as they are less physically protected and more exposed to injury risk than motor vehicle occupants. Walking and cycling can be a challenge along the Reeves Street corridor due to several factors:

- Gaps in sidewalk connectivity: As discussed in Section 2.2.2, there are multiple gaps in the connectivity of sidewalks on Reeves Street. Pedestrians
- Lack of dedicated cycling infrastructure: There are presently no dedicated bicycle lanes or multi-use paths on or adjacent to Reeves Street. As a result, cyclists are forced to ride on-street in mixed traffic, which can be intimidating and potentially dangerous. This can often result in cyclists illegally riding on the sidewalk, which puts pedestrians at risk.
- Existing Traffic Conditions: In the absence of appropriate AT infrastructure, walking adjacent to and cycling on a busy corridor with a high percentage of heavy vehicles can be uncomfortable experience that deters many potential AT users.
- Physical Constraints: There are considerable grades on Reeves Street, particularly between Granville Street and MacSween Street, which can be a challenge for AT users.

Traffic Operational Review - Synchro 8.0 software has been used for performance evaluation of Study Area intersections for background scenarios including 2014 baseline AM / PM peak hour volumes, as well as projected 2024 (10-year horizon) and 2034 (20-year horizon) AM / PM peak hour volumes.

- Level of Service Analysis Results: Overall, intersection performance is expected to be adequate throughout the Reeves Street corridor over the 20-year study horizon. The following key points summarize the intersection performance analysis:
    - Overall intersection performance during the PM peak hour (LOS B) is slightly worse than during the AM peak hour (LOS A).
    - At unsignalized intersections in the Study Area, particularly during the PM peak hour, delays on the side street movements may increase beyond desired levels. However, v/c ratios remain well within acceptable limits, indicating that there is excess capacity. Overall intersection performance is expected to remain very good for all scenarios, with very low average delays.
    - At signalized intersections in the Study Area, good levels of performance are expected for all movements during the AM peak hour for all horizon year background scenarios. Existing signal timing plans appear to adequately serve demand on both Reeves Street and the side streets.

- Summary of Results: Given the excess capacity at Study Area intersections on Reeves Street, it is not expected that typical background growth along the corridor will require any significant upgrades.

10.2 Study Recommendations

Study recommendations are summarized in Table 10-1 and illustrated on Figure 10-1.

Table 10-1: Study Recommendations

	Recommendation	
Intersection Safety	**1.**	**Install Gateway Roundabout:** It is recommended that a roundabout be installed in the vicinity of the Granville Street / Embree Island Road / Macmaster Road intersections (See concept sketch in Figure 9-5). The proposed roundabout will improve traffic control, at the intersections, eliminate the existing sight distance concerns to the west at Embree Island Road, and create a gateway for Port Hawkesbury to separate the rural approach area from the urban area to the east.
	2.	**Road Diet and Two-Way Left Turn Lane:** It is recommended that the following cross section changes be made for Reeves Street from Granville Street to Trunk 4: a) Change from a four lane cross section to two eastbound lanes and one westbound lane between Granville Street and just west of Pitt Street and consider reducing the posted speed limit from 70km/h to 50km/h (See Figure 9-2); b) Change from a four lane cross section to one through lane in each direction and a two-way left turn lane from east of Pitt Street to just west of Trunk 4 (See Figure 9-1).
	3.	**Pitt Street Intersection Upgrades:** Coinciding with Recommendation 2, it is recommended that the following upgrades be made at the Reeves Street - Pitt Street intersection (See concept sketch in Figure 9-6): • The westbound approach to Pitt Street should include a left turn lane, a through lane, and a right turn lane; • The east bound approach to Pitt Street should include a left turn lane, a through lane, and a through / right lane.
	4.	**Pitt Street Extension**: It is recommended MacSween Street end at a cul-de-sac on the southbound approach to Reeves Street and that traffic be redirected to a proposed Pitt Street Extension north from Reeves Street as illustrated on Figure 9-6.

Active Transportation	**5.**	**Sidewalk Upgrades:** It is recommended that the following sections of sidewalk be constructed to fill in existing gaps on the north side of Reeves Street: • KIA dealer to Sydney Road (approximately 120m) • Tim Hortons to Trunk 4 (approximately 190m)
	6.	**Multi-Use Trails:** It is recommended that the following sections of multi-use trail be added to provide key AT connections in the Study Area (See Figure 9-2): • Construct a multi-use trail on the north side of Reeves Street adjacent to the Civic Centre and through the Pitt Street intersection to MacSween Street; • Construct a multi-use trail on the north side of Reeves Street between MacSween Street and Granville Street using the street width that will be available when the cross section is changed from four lanes to three lanes (Refer to Recommendation #2); • Construct a multi-use trail on the north side of the Reeves Street from Granville Street to the Nautical Institute.
Access Management	**7.**	**Access Management**: The following access management changes are recommended: • Driveway closures and access restrictions as discussed in Access Management, Section 6.3.3 (See Figure 6-2); • Reconstruct the entrances to shopping plaza parking lots to provide a clear throat separation between vehicles entering and exiting the parking lot and the actual parking spaces. • Restrict future developments on Reeves Street to one driveway.
Signing and Marking	**8.**	**Pedestrian Crosswalks:** Sign and mark all pedestrian crosswalks in accordance with standard signing practices.
	9.	**Trunk 4 Intersection**: It is recommended that thermal plastic pavement marking be used at the Reeves Street / Trunk 4 intersection to clearly identify the dual left turn lanes from Reeves Street to Trunk 4 eastbound, as well as to clearly mark the dividing line between the two westbound lanes on Reeves Street westerly from the Trunk 4 right turn channel (See Figure 9-7).
	10.	**Speed Control:** Install radar controlled speed feedback signs on Reeves Street at the following locations to provide information to drivers to assist in speed control: • Eastbound just west of Philpott Street; • Westbound just west of Trunk 4.

Notes:

1. All property boundaries shown are approximate only and do not reflect changes made since 2007.
2. Proposed road layouts and pavement markings are conceptual and representative only. Detailed design required prior to finalizing layout.
3. Background aerial photography is for information purposes only and does not necessarily reflect the current existing condition.

Drawn: PSN

Engineer: MIC

FIGURE 10-1: SUMMARY OF KEY RECOMMENDATIONS

PORT HAWKESBURY, NS

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Appendix A

Terms of Reference

Appendix B

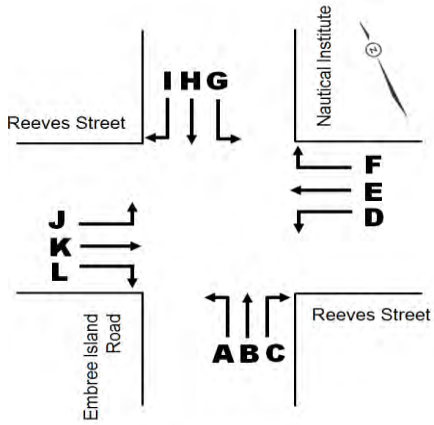
Traffic Volume Data

Table B-1

Reeves Street
@
Embree Island Road / Nautical Institute

Port Hawkesbury, NS

Friday, May, 02, 2014



AM Peak Period Volume Data

Time		Embree Island Road Northbound Approach			Reeves Street Westbound Approach			Nautical Institute Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	0	0	1	0	50	3	0	0	0	0	42	0	96
07:15	07:30	0	0	1	0	53	5	2	0	0	0	59	0	120
07:30	07:45	0	1	0	0	82	3	1	0	0	1	93	0	181
07:45	08:00	1	0	2	2	67	13	3	0	0	1	123	0	212
08:00	08:15	0	0	0	0	69	18	2	0	0	2	99	0	190
08:15	08:30	0	2	2	0	88	25	6	0	1	4	112	0	240
08:30	08:45	0	0	0	0	111	22	1	0	0	0	119	0	253
08:45	09:00	1	0	0	1	87	21	4	0	1	0	96	1	212
AM Peak Hour Data														
AM Peak Total		**1**	**2**	**4**	**2**	**335**	**78**	**12**	**0**	**1**	**7**	**453**	**0**	**895**
Heavy Vehicles		**0**	**0**	**1**	1	24	0	**1**	**0**	**1**	**0**	**28**	**0**	**-**
% Heavy		**14%**			**6%**			**15%**			**6%**			**-**

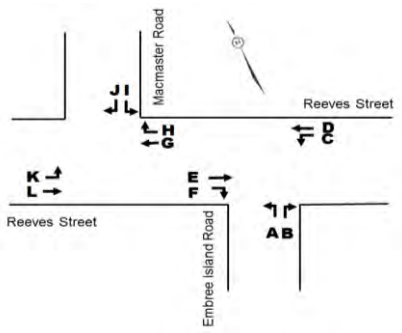
PM Peak Period Volume Data

Time		Embree Island Road Northbound Approach			Reeves Street Westbound Approach			Nautical Institute Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
03:30	03:45	1	3	1	0	156	2	10	2	4	0	101	0	280
03:45	04:00	0	0	0	2	125	1	5	0	6	1	85	0	225
04:00	04:15	1	0	2	2	176	0	7	2	3	0	100	0	293
04:15	04:30	1	0	1	0	161	1	9	0	0	0	99	0	272
04:30	04:45	1	0	1	0	185	2	7	0	1	0	108	2	307
04:45	05:00	1	0	0	0	177	0	0	0	1	0	104	1	284
05:00	05:15	0	0	0	1	218	1	1	0	0	0	92	1	314
05:15	05:30	1	0	2	0	173	2	1	0	0	0	109	1	289
PM Peak Hour Data														
PM Peak Hour		**3**	**0**	**3**	**1**	**753**	**5**	**9**	**0**	**2**	**0**	**413**	**5**	**1194**
Heavy Vehicles		**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**-**
% Heavy		**0%**			**2%**			**0%**			**3%**			**-**

Table B-2

Reeves Street
@
Embree Island Road (East)

Port Hawkesbury, NS
Thursday, June 5, 2014



AM Peak Period Volume Data

Time		Embree Island Road Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Reeves Street Westbound Approach		Macmaster Road Southbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	B	C	D*	E*	F	G*	H	I	J	K	L*	
07:00	07:15	0	1	2	-	-	2	-	2	0	0	0	-	7
07:15	07:30	0	1	1	-	-	0	-	0	0	0	0	-	2
07:30	07:45	0	2	1	-	-	0	-	0	3	1	0	-	7
07:45	08:00	0	2	0	-	-	0	-	2	1	2	0	-	7
08:00	08:15	0	0	0	-	-	0	-	0	4	1	0	-	5
08:15	08:30	0	3	2	-	-	0	-	2	2	1	0	-	10
08:30	08:45	2	0	0	-	-	0	-	0	0	2	1	-	5
08:45	09:00	2	1	0	-	-	0	-	0	0	1	1	-	5
AM Peak Hour Data														
AM Peak Total		**2**	**5**	**2**	**441**	**745**	**0**	**409**	**4**	**7**	**6**	**1**	**468**	**27**
Heavy Vehicles		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**-**
% Heavy		**0%**		**0%**		**0%**		**0%**		**8%**		**0%**		**-**

PM Peak Period Volume Data

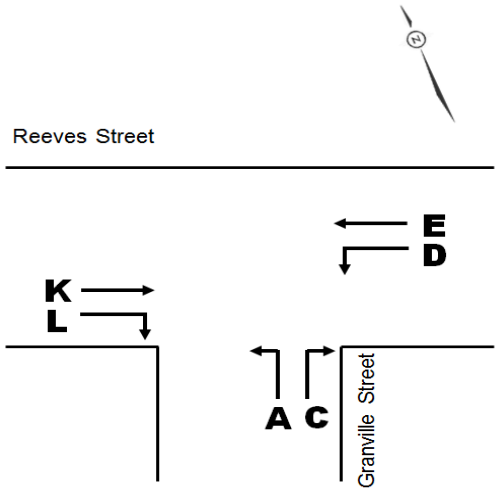
Time		Embree Island Road Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Reeves Street Westbound Approach		Macmaster Road Southbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	B	C	D*	E*	F	G*	H	I	J	K	L*	
03:30	03:45	0	0	1	-	-	2	-	2	0	0	3	-	8
03:45	04:00	0	0	0	-	-	1	-	3	0	0	1	-	5
04:00	04:15	0	0	0	-	-	3	-	3	0	0	0	-	6
04:15	04:30	0	0	0	-	-	3	-	5	0	0	0	-	8
04:30	04:45	0	0	0	-	-	3	-	7	0	0	0	-	10
04:45	05:00	0	0	0	-	-	1	-	5	0	0	0	-	6
05:00	05:15	0	0	0	-	-	7	-	13	0	0	0	-	20
05:15	05:30	0	0	0	-	-	9	-	12	0	0	0	-	21
PM Peak Hour Data														
PM Peak Total		**0**	**0**	**0**	**796**	**394**	**20**	**759**	**37**	**0**	**0**	**0**	**425**	**57**
Heavy Vehicles		**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**-**
% Heavy		**0%**		**0%**		**0%**		**0%**		**0%**		**0%**		**-**

* Movement not counted. Estimated from adjacent intersection.

Table B-3

Reeves Street
@
Granville Street

Port Hawkesbury, NS
Wednesday, May, 07, 2014



AM Peak Period Volume Data

Time		Granville Street Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	C	D	E*	K*	L	
07:00	07:15	3	1	0	-	-	17	21
07:15	07:30	4	0	1	-	-	13	18
07:30	07:45	8	0	0	-	-	11	19
07:45	08:00	6	1	1	-	-	20	28
08:00	08:15	13	2	2	-	-	18	35
08:15	08:30	6	3	1	-	-	9	19
08:30	08:45	7	0	0	-	-	12	19
08:45	09:00	6	0	1	-	-	10	17
AM Peak Hour Data								
AM Peak Total		**32**	**6**	**4**	383	410	**59**	**101**
Heavy Vehicles		**0**	**0**	**0**	-	-	**1**	**-**
% Heavy		**0%**		**0%**		**0%**		**-**

PM Peak Period Volume Data

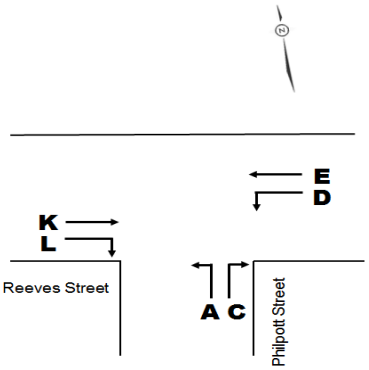
Time		Granville Street Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	C	D	E*	K*	L	
03:30	03:45	15	10	0	-	-	68	93
03:45	04:00	55	33	0	-	-	72	160
04:00	04:15	25	6	3	-	-	71	105
04:15	04:30	37	25	0	-	-	83	145
04:30	04:45	15	5	2	-	-	30	52
04:45	05:00	28	3	3	-	-	0	34
05:00	05:15	6	1	1	-	-	0	8
05:15	05:30	20	1	3	-	-	26	50
PM Peak Hour Data								
PM Peak Total		**69**	**10**	**9**	-	**-**	**56**	**144**
Heavy Vehicles		**0**	**0**	**0**	**0**	**-**	**2**	**-**
% Heavy		**0%**		**0%**		**4%**		**-**

* Movement not counted. Estimated from adjacent intersection.

Table B-4

Reeves Street
@
Philpott Street

Port Hawkesbury, NS
Tuesday, May, 06, 2014



AM Peak Period Volume Data

Time		Philpott Street Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	C	D	E	K	L	
07:00	07:15	2	1	3	32	53	0	91
07:15	07:30	2	5	1	39	58	0	105
07:30	07:45	0	2	2	42	162	0	208
07:45	08:00	1	11	9	62	147	1	231
08:00	08:15	1	1	8	61	139	3	213
08:15	08:30	2	7	5	92	158	3	267
08:30	08:45	0	5	6	63	146	6	226
08:45	09:00	1	2	3	64	96	1	167
AM Peak Hour Data								
AM Peak Total		**4**	**24**	**28**	**278**	**590**	**13**	**937**
Heavy Vehicles		**0**	**0**	**1**	**22**	**49**	**0**	**-**
% Heavy		**0%**		**8%**		**8%**		**-**

Noon Peak Period Volume Data

Time		Philpott Street Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	C	D	E	K	L	
11:30	11:45	3	10	2	90	105	3	213
11:45	12:00	3	45	6	113	89	13	269
12:00	12:15	83	14	11	138	131	11	388
12:15	12:30	4	8	10	132	128	116	398
12:30	12:45	2	8	6	143	156	18	333
12:45	13:00	80	7	12	130	152	0	381
13:00	13:15	4	10	21	42	242	0	319
13:15	13:30	2	3	10	147	156	0	318
Noon Peak Hour Data								
Noon Peak Hour		**90**	**33**	**49**	**447**	**678**	**134**	**1431**
Heavy Vehicles		**0**	**0**	**0**	**46**	**51**	**0**	**-**
% Heavy		**0%**		**9%**		**6%**		**-**

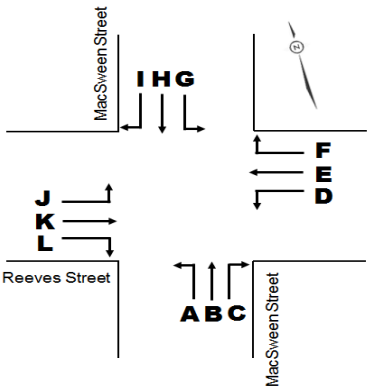
PM Peak Period Volume Data

Time		Philpott Street Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	C	D	E	K	L	
03:30	03:45	7	10	4	115	105	3	244
03:45	04:00	5	90	5	144	134	2	380
04:00	04:15	4	14	3	98	126	3	248
04:15	04:30	8	15	7	127	100	0	257
04:30	04:45	4	5	8	131	113	2	263
04:45	05:00	2	8	10	98	100	0	218
05:00	05:15	9	4	0	125	123	4	265
05:15	05:30	4	3	5	114	95	0	221
PM Peak Hour Data								
PM Peak Hour		**21**	**124**	**23**	**500**	**473**	**7**	**1148**
Heavy Vehicles		**0**	**0**	**0**	**31**	**21**	**0**	**-**
% Heavy		**0%**		**6%**		**4%**		**-**

Table B-5

Reeves Street
@
MacSween Street

Port Hawkesbury, NS
Tuesday, April, 22, 2014



AM Peak Period Volume Data

Time		MacSween Street Northbound Approach			Reeves Street Westbound Approach			MacSween Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	4	0	8	0	34	0	0	0	3	0	43	4	96
07:15	07:30	6	1	9	1	43	0	1	0	1	0	50	5	117
07:30	07:45	7	0	7	0	54	0	0	0	3	0	92	9	172
07:45	08:00	9	2	16	0	69	0	0	1	0	0	105	3	205
08:00	08:15	16	1	30	0	65	0	1	1	1	0	135	6	256
08:15	08:30	1	2	18	0	71	0	1	1	1	0	123	4	222
08:30	08:45	17	2	31	0	66	0	0	0	2	0	112	6	236
08:45	09:00	1	0	39	0	70	0	1	0	0	0	68	4	183
AM Peak Hour Data														
AM Peak Total		**43**	**7**	**95**	**0**	**271**	**0**	**2**	**3**	**4**	**0**	**475**	**19**	**919**
Heavy Vehicles		**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**-**
% Heavy		**11%**			**0%**			**0%**			**4%**			**-**

Noon Peak Period Volume Data

Time		MacSween Street Northbound Approach			Reeves Street Westbound Approach			MacSween Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
11:30	11:45	3	0	18	1	97	32	8	1	3	3	75	0	241
11:45	12:00	3	1	12	5	115	12	11	4	11	5	81	0	260
12:00	12:15	3	2	3	11	121	21	9	2	11	7	94	3	287
12:15	12:30	6	5	15	17	153	20	8	3	8	7	95	2	339
12:30	12:45	3	2	12	8	121	11	3	1	11	8	112	0	292
12:45	13:00	3	6	12	7	112	27	4	6	6	6	82	0	271
13:00	13:15	3	3	7	12	114	18	8	2	8	7	92	0	274
13:15	13:30	1	3	8	3	92	7	5	1	6	10	77	2	215
Noon Peak Hour Data														
Noon Peak Total		**15**	**15**	**42**	**43**	**507**	**79**	**24**	**12**	**36**	**28**	**383**	**5**	**1189**
Heavy Vehicles		**0**	**0**	**0**	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**-**
% Heavy		**0%**			**5%**			**0%**			**4%**			**-**

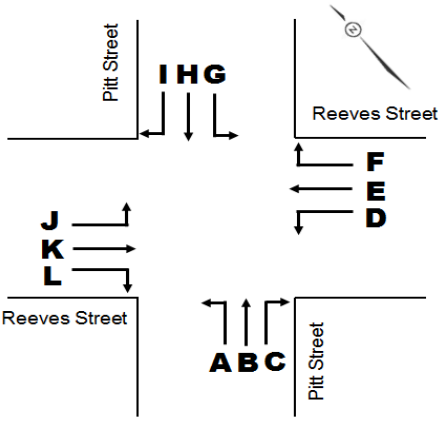
PM Peak Period Volume Data

Time		MacSween Street Northbound Approach			Reeves Street Westbound Approach			MacSween Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
03:30	03:45	5	2	8	6	112	6	5	1	15	6	82	0	248
03:45	04:00	3	6	7	7	115	16	1	0	5	7	88	0	255
04:00	04:15	5	3	2	1	143	11	5	4	13	9	100	3	299
04:15	04:30	0	7	11	10	146	6	5	2	9	3	80	0	279
04:30	04:45	5	2	6	0	175	12	3	3	18	5	86	1	316
04:45	05:00	1	2	8	11	126	12	7	1	12	12	85	2	279
05:00	05:15	6	3	3	11	170	16	5	2	7	4	85	1	313
05:15	05:30	1	3	5	5	136	15	6	1	10	7	74	0	263
PM Peak Hour Data														
PM Peak Total		**12**	**14**	**28**	**32**	**617**	**46**	**20**	**8**	**46**	**24**	**336**	**4**	**1187**
Heavy Vehicles		**0**	**0**	**0**	**0**	**23**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**-**
% Heavy		**0%**			**3%**			**24%**			**0%**			**-**

Table B-6

Reeves Street
@
Pitt Street

Port Hawkesbury, NS
Tuesday, April 22, 2014



AM Peak Period Volume Data

Time		Pitt Street Northbound Approach			Reeves Street Westbound Approach			Pitt Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	4	0	5	6	25	4	3	2	7	0	38	6	100
07:15	07:30	5	1	4	11	39	1	0	2	1	5	48	18	135
07:30	07:45	5	1	2	6	44	2	3	5	3	5	87	17	180
07:45	08:00	5	1	13	14	72	8	7	2	0	3	85	30	240
08:00	08:15	13	8	12	4	68	12	7	7	4	4	116	33	288
08:15	08:30	19	15	8	11	66	14	13	16	10	22	83	41	318
08:30	08:45	14	8	13	22	62	14	26	10	17	7	71	30	294
08:45	09:00	10	3	12	15	73	10	13	5	12	11	77	25	266
AM Peak Hour Data														
AM Peak Total		**56**	**34**	**45**	**52**	**269**	**50**	**59**	**38**	**43**	**44**	**347**	**129**	**1166**
Heavy Vehicles		**0**	**0**	**0**	**0**	**25**	**3**	**1**	**1**	**1**	**6**	**9**	**0**	**-**
% Heavy		**0%**			**8%**			**2%**			**3%**			**-**

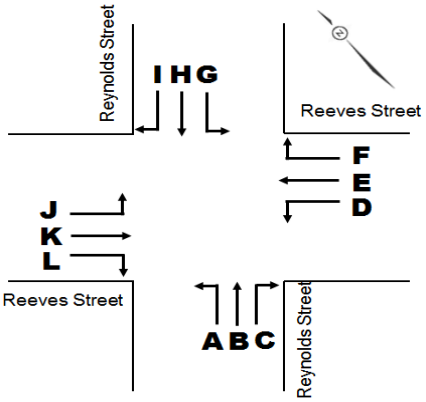
PM Peak Period Volume Data

Time		Pitt Street Northbound Approach			Reeves Street Westbound Approach			Pitt Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
03:30	03:45	18	6	13	15	84	9	11	10	8	21	76	22	293
03:45	04:00	10	4	13	16	86	13	18	17	35	19	73	27	331
04:00	04:15	15	2	17	22	124	14	18	12	22	10	93	32	381
04:15	04:30	18	4	27	11	150	5	11	18	20	12	67	27	370
04:30	04:45	18	4	13	20	115	9	30	8	13	25	96	16	367
04:45	05:00	12	1	9	14	120	7	23	18	10	28	99	17	358
05:00	05:15	13	7	15	20	133	6	12	11	5	32	107	17	378
05:15	05:30	11	6	8	10	133	9	15	10	22	26	78	21	349
PM Peak Hour Data														
PM Peak Total		**63**	**11**	**66**	**67**	**509**	**35**	**82**	**56**	**65**	**75**	**355**	**92**	**1476**
Heavy Vehicles		**2**	**1**	**0**	**0**	**27**	**0**	**1**	**0**	**0**	**2**	**18**	**0**	**-**
% Heavy		**2%**			**4%**			**0%**			**4%**			**-**

Table B-7

Reeves Street
@
Reymonds Street

Port Hawkesbury, NS
Tuesday, April, 15, 2014



AM Peak Period Volume Data

Time		Reynolds Street Northbound Approach			Reeves Street Westbound Approach			Reynolds Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	2	2	1	0	43	0	3	0	3	1	53	0	108
07:15	07:30	6	0	3	1	51	3	2	0	1	1	47	0	115
07:30	07:45	11	1	4	1	63	1	3	4	1	1	56	9	155
07:45	08:00	8	1	10	0	133	2	5	4	2	1	97	4	267
08:00	08:15	8	2	6	0	91	0	7	1	1	1	92	6	215
08:15	08:30	4	6	18	2	56	2	4	0	0	2	102	9	205
08:30	08:45	7	0	4	6	77	3	2	1	1	5	109	9	224
08:45	09:00	12	3	9	1	100	3	6	1	3	5	107	9	259
AM Peak Hour Data														
AM Peak Total		**31**	**11**	**37**	**9**	**324**	**8**	**19**	**3**	**5**	**13**	**410**	**33**	**903**
Heavy Vehicles		**3**	**0**	**2**	**1**	**33**	**0**	**0**	**0**	**0**	**0**	**20**	**2**	**-**
% Heavy		**6%**			**10%**			**0%**			**5%**			**-**

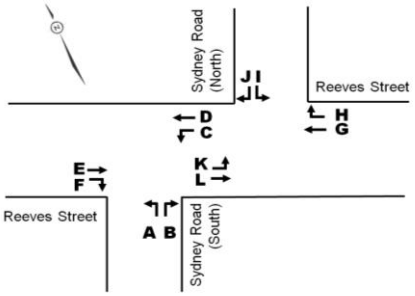
PM Peak Period Volume Data

Time		Reynolds Street Northbound Approach			Reeves Street Westbound Approach			Reynolds Street Southbound Approach			Reeves Street Eastbound Approach			Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
03:30	03:45	7	5	7	6	111	17	17	7	6	1	104	4	292
03:45	04:00	13	8	2	0	133	8	19	2	8	2	98	5	298
04:00	04:15	6	7	2	0	156	17	29	4	8	0	117	4	350
04:15	04:30	5	7	6	0	132	13	26	5	7	3	89	7	300
04:30	04:45	10	5	6	2	168	22	30	1	12	3	101	9	369
04:45	05:00	6	6	1	1	104	15	23	4	7	1	103	7	278
05:00	05:15	7	6	8	0	203	16	28	7	10	0	101	4	390
05:15	05:30	2	7	3	1	200	7	12	6	6	2	87	4	337
PM Peak Hour Data														
PM Peak Total		**27**	**25**	**15**	**3**	**560**	**67**	**108**	**14**	**34**	**7**	**410**	**27**	**1297**
Heavy Vehicles		**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**1**	**16**	**0**	**-**
% Heavy		**0%**			**3%**			**0%**			**4%**			**-**

Table B-8

Reeves Street
@
Sydney Road

Port Hawkesbury, NS
Friday, April, 11, 2014



AM Peak Period Volume Data

Time		Sydney Road (South) Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Reeves Street Westbound Approach		Sydney Road (North) Southbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
07:00	07:15	0	0	3	38	55	1	40	0	3	1	0	55	196
07:15	07:30	1	2	14	61	46	1	66	9	3	9	0	48	260
07:30	07:45	2	2	12	72	67	0	77	6	3	7	0	69	317
07:45	08:00	3	2	9	84	74	0	88	2	2	5	1	75	345
08:00	08:15	3	3	5	82	96	4	79	3	3	8	2	97	385
08:15	08:30	2	2	23	82	126	0	95	7	1	10	5	123	476
08:30	08:45	3	4	16	92	118	2	96	6	6	12	7	115	477
08:45	09:00	4	4	20	87	111	2	96	7	4	11	3	112	461
AM Peak Hour Data														
AM Peak Total		**12**	**13**	**64**	**343**	**451**	**8**	**366**	**23**	**14**	**41**	**17**	**447**	**1799**
Heavy Vehicles		**0**	**0**	**0**	**0**	**17**	**0**	**21**	**1**	**1**	**1**	**0**	**0**	**-**
% Heavy		**0%**		**0%**		**4%**		**6%**		**4%**		**0%**		**-**

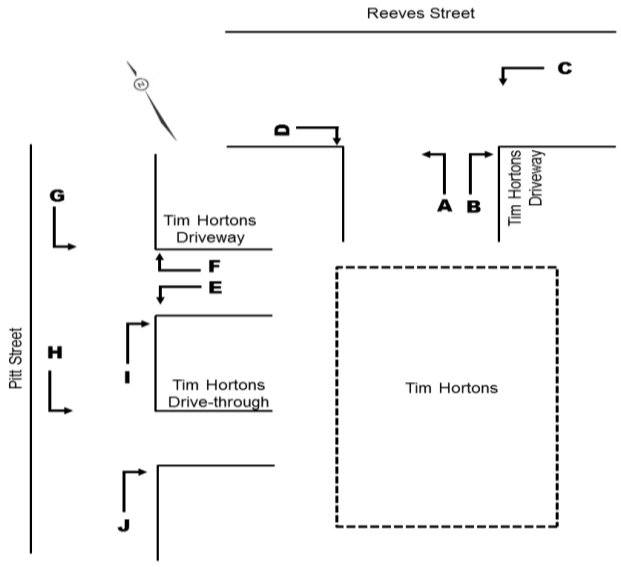
PM Peak Period Volume Data

Time		Sydney Road (South) Northbound Approach		Reeves Street Westbound Approach		Reeves Street Eastbound Approach		Reeves Street Westbound Approach		Sydney Road (North) Southbound Approach		Reeves Street Eastbound Approach		Total Vehicles
		A	B	C	D	E	F	G	H	I	J	K	L	
03:30	03:45	4	4	26	105	114	3	122	8	10	9	3	115	523
03:45	04:00	4	3	20	125	116	4	138	6	6	7	4	115	548
04:00	04:15	2	2	10	163	146	4	162	10	6	11	9	139	664
04:15	04:30	1	7	11	162	110	6	160	9	7	13	4	113	603
04:30	04:45	3	11	28	135	144	5	156	6	11	7	6	149	661
04:45	05:00	0	8	21	134	118	6	145	11	11	10	4	122	590
05:00	05:15	4	9	18	148	145	0	160	5	6	6	14	140	655
05:15	05:30	1	1	20	69	100	0	82	4	3	7	3	98	388
PM Peak Hour Data														
PM Peak Total		**6**	**28**	**70**	**594**	**518**	**21**	**623**	**36**	**35**	**41**	**23**	**523**	**2518**
Heavy Vehicles		**0**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**-**
% Heavy		**0%**		**0%**		**0%**		**4%**		**0%**		**0%**		**-**

Table B-9

Reeves Street
@
Pitt Street / Tim Hortons Driveway

Port Hawkesbury, NS
Wednesday, April, 16, 2014



AM Peak Period Volume Data

Time		Tim Hortons Driveway NB Approach		Reeves St WB Approach	Reeves St EB Approach	Tim Hortons Driveway WB Approach		Pitt Street SB Approach		Pitt Street NB Approach		Total Vehicles
		A	B	C	D	E	F	G	H	I	J	
07:00	07:15	3	7	6	0	2	2	1	8	1	0	30
07:15	07:30	8	26	0	5	5	3	3	17	0	11	78
07:30	07:45	2	21	0	7	2	2	0	21	2	7	64
07:45	08:00	10	27	1	10	3	11	7	21	0	14	104
08:00	08:15	3	7	0	12	11	11	1	27	3	11	86
08:15	08:30	6	6	1	5	6	16	8	16	0	17	81
08:30	08:45	3	26	0	6	12	13	8	20	1	8	97
08:45	09:00	0	13	0	7	11	8	1	26	1	5	72
AM Peak Hour		**22**	**66**	**2**	**33**	**32**	**51**	**24**	**84**	**4**	**50**	**368**

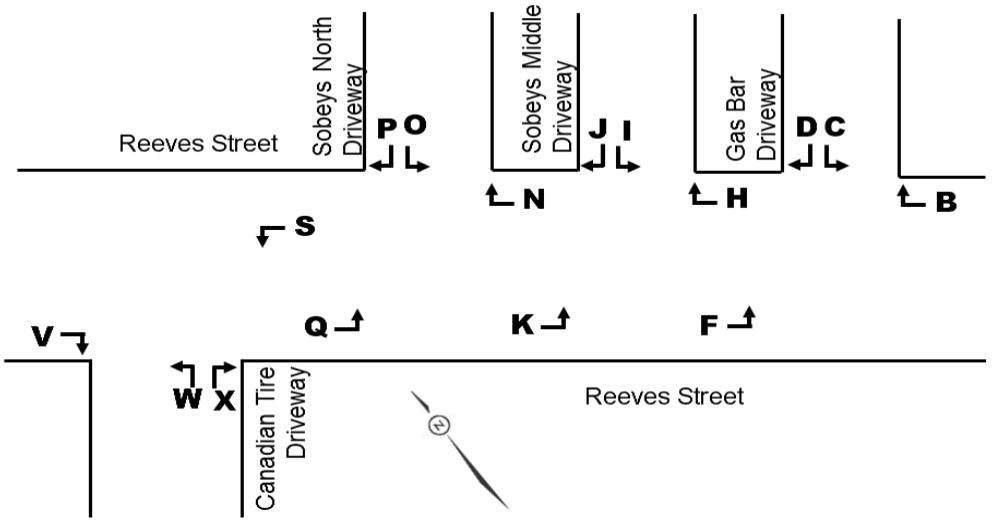
PM Peak Tim Hortons Trip Generation

Time		Entering		Exiting		Total Entering	Total Exiting	Total Enering & Exiting	% Using Drive Thru	Vehicles Using Drive Throu
		Reeves St	Pitt St	Reeves St	Pitt St					
07:00	07:15	6	10	10	4	16	14	30	60%	10
07:15	07:30	5	31	34	8	36	42	78	60%	22
07:30	07:45	7	30	23	4	37	27	64	60%	22
07:45	08:00	11	42	37	14	53	51	104	60%	32
08:00	08:15	12	42	10	22	54	32	86	60%	32
08:15	08:30	6	41	12	22	47	34	81	60%	28
08:30	08:45	6	37	29	25	43	54	97	60%	26
08:45	09:00	7	33	13	19	40	32	72	60%	24
AM Peak Hour		35	162	88	83	197	171	368		118

Table B-10

Reeves Street
@
Sobeys, Gas Bar, and Canadian Tire Driveway

Port Hawkesbury, NS
Friday, April, 25, 2014



PM Peak Period Volume Data

Time		Reeves Street WB Approach	Gas Bar Driveway SB Approach		Reeves Street EB Approach	Reeves Street WB Approach	Sobeys Middle Driveway SB Approach		Reeves Street EB Approach	Reeves Street WB Approach	Sobeys North Driveway SB Approach		Reeves Street EB Approach	Reeves Street WB Approach	Reeves Street EB Approach	Canadian Tire Driveway NB Approach		Total Vehicles
		B	C	D	F	H	I	J	K	N	O	P	Q	S	V	W	X	
03:30	03:45	1	0	1	1	23	7	11	6	15	16	21		2	10	10	5	129
03:45	04:00	3	3	5	3	30	8	18	4	61	20	20		23	5	12	20	235
04:00	04:15	3	4	5	4	23	12	22	7	40	26	37		21	9	25	23	261
04:15	04:30	3	3	5	2	26	13	11	3	52	31	40		15	18	16	40	278
04:30	04:45	5	3	5	2	24	12	11	8	50	41	51	Column C	18	15	25	16	286
04:45	05:00	4	5	7	7	21	9	14	4	41	43	46		16	26	11	15	269
05:00	05:15	2	0	4	2	30	8	13	5	28	27	30		16	12	27	22	226
05:15	05:30	1	1	3	3	13	12	18	4	27	11	22		11	11	5	11	153
PM Peak Hour		**15**	**15**	**22**	**15**	**94**	**46**	**58**	**22**	**183**	**141**	**174**	**0**	**70**	**68**	**77**	**94**	**1094**

Table B-11E - Eastbound Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	13	24	20	14	20	41	30	23	18
2	17	16	15	7	16	33	20	18	14
3	18	20	9	21	16	17	9	16	17
4	16	17	27	11	29	24	7	19	20
5	44	45	22	32	33	22	15	30	35
6	97	96	82	111	91	52	43	82	95
7	216	258	238	203	210	92	48	181	225
8	365	360	354	352	344	158	72	286	355
9	449	476	410	423	418	245	82	358	435
10	397	417	397	430	421	310	168	363	412
11	461	473	464	503	543	389	228	437	489
12	478	505	501	507	526	413	342	467	503
13	561	597	540	580	645	442	376	534	585
14	500	537	494	545	574	412	430	499	530
15	517	536	477	551	579	401	424	498	532
16	508	555	501	586	593	346	421	501	549
17	532	542	543	615	653	346	401	519	577
18	385	524	464	578	534	338	362	455	497
19	346	353	331	402	440	286	305	352	374
20	313	296	338	370	398	243	269	318	343
21	250	214	274	250	246	194	175	229	247
22	165	177	139	184	259	170	159	179	185
23	111	87	109	110	210	108	78	116	125
24	54	41	35	41	63	57	32	46	47
TOTALS	6813	7166	6784	7426	7861	5139	4496	6526	7210

Table B-11 - Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	27	52	50	34	47	86	59	51	42
2	23	26	25	20	28	52	62	34	24
3	24	34	13	28	29	36	22	27	26
4	30	43	36	27	45	43	19	35	36
5	72	62	42	52	61	37	26	50	58
6	188	192	163	217	173	109	79	160	187
7	365	392	377	354	366	167	110	304	371
8	603	649	619	611	589	298	148	502	614
9	840	890	794	846	812	473	209	695	836
10	766	800	747	822	800	585	331	693	787
11	928	888	882	944	1008	766	455	839	930
12	979	1002	1035	1003	1107	800	660	941	1025
13	1102	1202	1140	1191	1312	900	752	1086	1189
14	986	1084	1009	1074	1180	872	834	1006	1067
15	1023	1029	1006	1080	1165	767	857	990	1061
16	1037	1124	1019	1184	1256	755	808	1026	1124
17	1111	1156	1156	1278	1337	762	804	1086	1208
18	940	1162	1082	1191	1169	729	715	998	1109
19	704	755	700	805	948	607	588	730	782
20	594	617	637	728	793	478	507	622	674
21	497	419	541	542	527	459	340	475	505
22	344	345	313	399	461	373	257	356	372
23	216	170	198	204	339	239	138	215	225
24	104	69	68	76	118	111	61	87	87
TOTALS	13503	14162	13652	14710	15670	10504	8841	13006	14339

Source: NSTIR Estimated 2014 AADT is 12,000 vpd

NOTE: Counts were obtained by directional road tubes. Recorded volumes are counted axles and divided by two

Table B-11W - Westbound Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	14	28	30	20	27	45	29	28	24
2	6	10	10	13	12	19	42	16	10
3	6	14	4	7	13	19	13	11	9
4	14	26	9	16	16	19	12	16	16
5	28	17	20	20	28	15	11	20	23
6	91	96	81	106	82	57	36	78	91
7	149	134	139	151	156	75	62	124	146
8	238	289	265	259	245	140	76	216	259
9	391	414	384	423	394	228	127	337	401
10	369	383	350	392	379	275	163	330	375
11	467	415	418	441	465	377	227	401	441
12	501	497	534	496	581	387	318	473	522
13	541	605	600	611	667	458	376	551	605
14	486	547	515	529	606	460	404	507	537
15	506	493	529	529	586	366	433	492	529
16	529	569	518	598	663	409	387	525	575
17	579	614	613	663	684	416	403	567	631
18	555	638	618	613	635	391	353	543	612
19	358	402	369	403	508	321	283	378	408
20	281	321	299	358	395	235	238	304	331
21	247	205	267	292	281	265	165	246	258
22	179	168	174	215	202	203	98	177	188
23	105	83	89	94	129	131	60	99	100
24	50	28	33	35	55	54	29	41	40
TOTALS	6690	6996	6868	7284	7809	5365	4345	6480	7129

Figure B-5 - Reeves Street, Port Hawkesbury
Average Weekday Hourly Volumes - June 2014

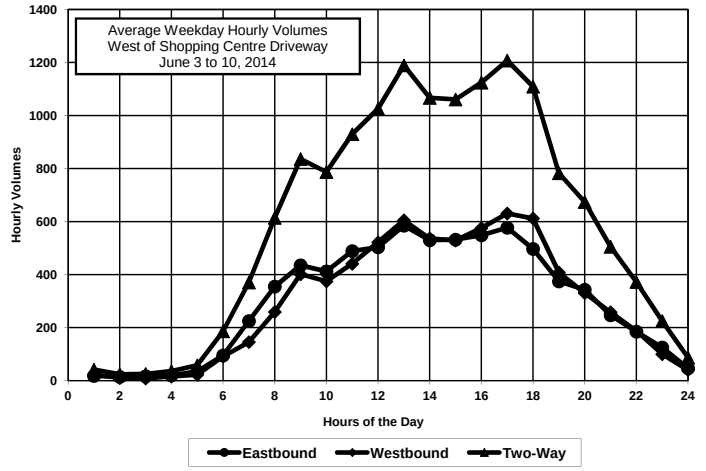


Table B-11E - Eastbound Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	13	24	20	14	20	41	30	23	18
2	17	16	15	7	16	33	20	18	14
3	18	20	9	21	16	17	9	16	17
4	16	17	27	11	29	24	7	19	20
5	44	45	22	32	33	22	15	30	35
6	97	96	82	111	91	52	43	82	95
7	216	258	238	203	210	92	48	181	225
8	365	360	354	352	344	158	72	286	355
9	449	476	410	423	418	245	82	358	435
10	397	417	397	430	421	310	168	363	412
11	461	473	464	503	543	389	228	437	489
12	478	505	501	507	526	413	342	467	503
13	561	597	540	580	645	442	376	534	585
14	500	537	494	545	574	412	430	499	530
15	517	536	477	551	579	401	424	498	532
16	508	555	501	586	593	346	421	501	549
17	532	542	543	615	653	346	401	519	577
18	385	524	464	578	534	338	362	455	497
19	346	353	331	402	440	286	305	352	374
20	313	296	338	370	398	243	269	318	343
21	250	214	274	250	246	194	175	229	247
22	165	177	139	184	259	170	159	179	185
23	111	87	109	110	210	108	78	116	125
24	54	41	35	41	63	57	32	46	47
TOTALS	6813	7166	6784	7426	7861	5139	4496	6526	7210

Table B-11 - Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	27	52	50	34	47	86	59	51	42
2	23	26	25	20	28	52	62	34	24
3	24	34	13	28	29	36	22	27	26
4	30	43	36	27	45	43	19	35	36
5	72	62	42	52	61	37	26	50	58
6	188	192	163	217	173	109	79	160	187
7	365	392	377	354	366	167	110	304	371
8	603	649	619	611	589	298	148	502	614
9	840	890	794	846	812	473	209	695	836
10	766	800	747	822	800	585	331	693	787
11	928	888	882	944	1008	766	455	839	930
12	979	1002	1035	1003	1107	800	660	941	1025
13	1102	1202	1140	1191	1312	900	752	1086	1189
14	986	1084	1009	1074	1180	872	834	1006	1067
15	1023	1029	1006	1080	1165	767	857	990	1061
16	1037	1124	1019	1184	1256	755	808	1026	1124
17	1111	1156	1156	1278	1337	762	804	1086	1208
18	940	1162	1082	1191	1169	729	715	998	1109
19	704	755	700	805	948	607	588	730	782
20	594	617	637	728	793	478	507	622	674
21	497	419	541	542	527	459	340	475	505
22	344	345	313	399	461	373	257	356	372
23	216	170	198	204	339	239	138	215	225
24	104	69	68	76	118	111	61	87	87
TOTALS	13503	14162	13652	14710	15670	10504	8841	13006	14339

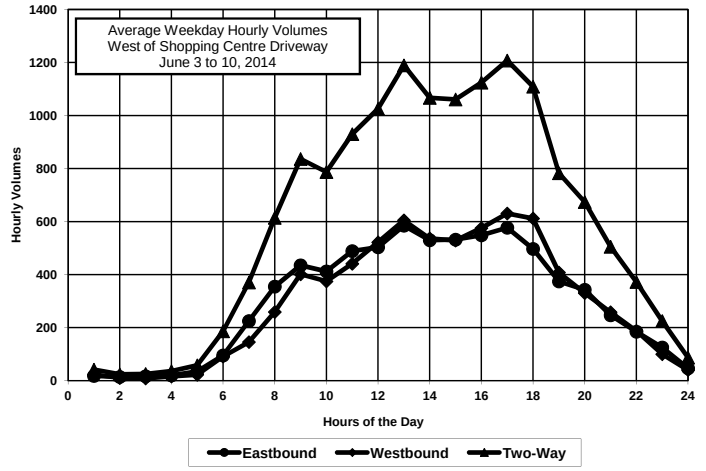
Source: NSTIR Estimated 2007 AADT is 1980 vpd

NOTE: Counts were obtained by directional road tubes. Recorded volumes are counted axles and divide by two

Table B-11W - Westbound Hourly Volumes - Reeves Street, Port Hawkesbury - June 3 to 10, 2014
(West of Shopping Centre Driveway)

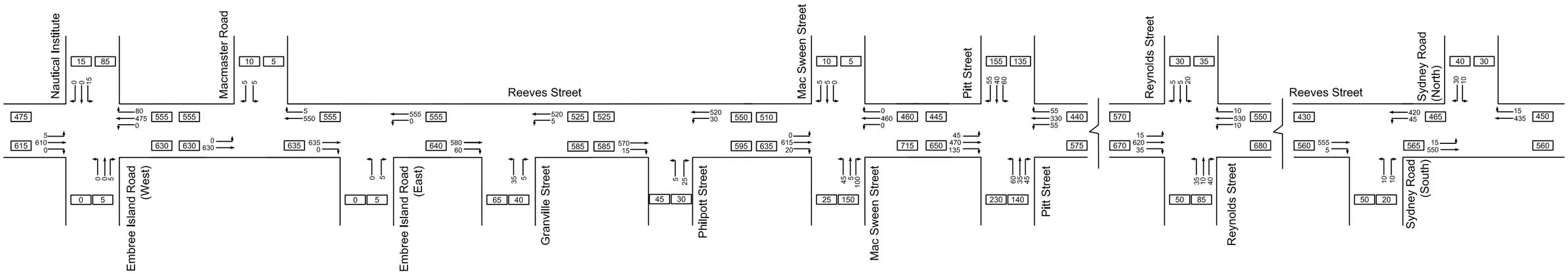
Hour	Days of the Week							Hourly Averages	
	Mon-09	Tue-03	Wed-04	Thu-05	Fri-06	Sat-07	Sun-08	Week	Weekday
0									
1	14	28	30	20	27	45	29	28	24
2	6	10	10	13	12	19	42	16	10
3	6	14	4	7	13	19	13	11	9
4	14	26	9	16	16	19	12	16	16
5	28	17	20	20	28	15	11	20	23
6	91	96	81	106	82	57	36	78	91
7	149	134	139	151	156	75	62	124	146
8	238	289	265	259	245	140	76	216	259
9	391	414	384	423	394	228	127	337	401
10	369	383	350	392	379	275	163	330	375
11	467	415	418	441	465	377	227	401	441
12	501	497	534	496	581	387	318	473	522
13	541	605	600	611	667	458	376	551	605
14	486	547	515	529	606	460	404	507	537
15	506	493	529	529	586	366	433	492	529
16	529	569	518	598	663	409	387	525	575
17	579	614	613	663	684	416	403	567	631
18	555	638	618	613	635	391	353	543	612
19	358	402	369	403	508	321	283	378	408
20	281	321	299	358	395	235	238	304	331
21	247	205	267	292	281	265	165	246	258
22	179	168	174	215	202	203	98	177	188
23	105	83	89	94	129	131	60	99	100
24	50	28	33	35	55	54	29	41	40
TOTALS	6690	6996	6868	7284	7809	5365	4345	6480	7129

Figure B-5 - Reeves Street, Port Hawkesbury
Average Weekday Hourly Volumes - June 2014



A

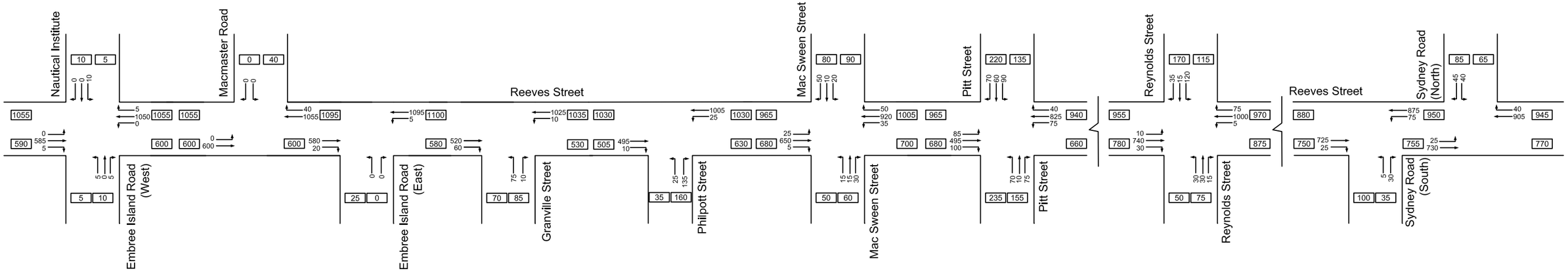
AM Peak Hour



NOT TO SCALE

B

PM Peak Hour



NOT TO SCALE

WSP
1 SPECTACLE LAKE DRIVE
DARTMOUTH, NOVA SCOTIA
CANADA, B3B 1X7
PHONE: 902 835-9955 ~ FAX: 902 835-1645
WWW.WSPGROUP.COM

Reeves Street Safety Study
Port Hawkesbury, NS

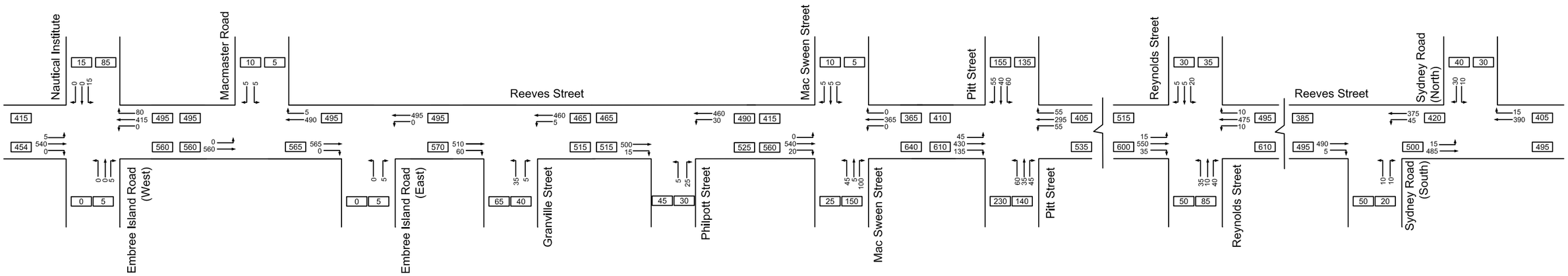
Figure B-8

Projected 2034 AM and PM Peak Design Hourly Volumes

July 2014

A

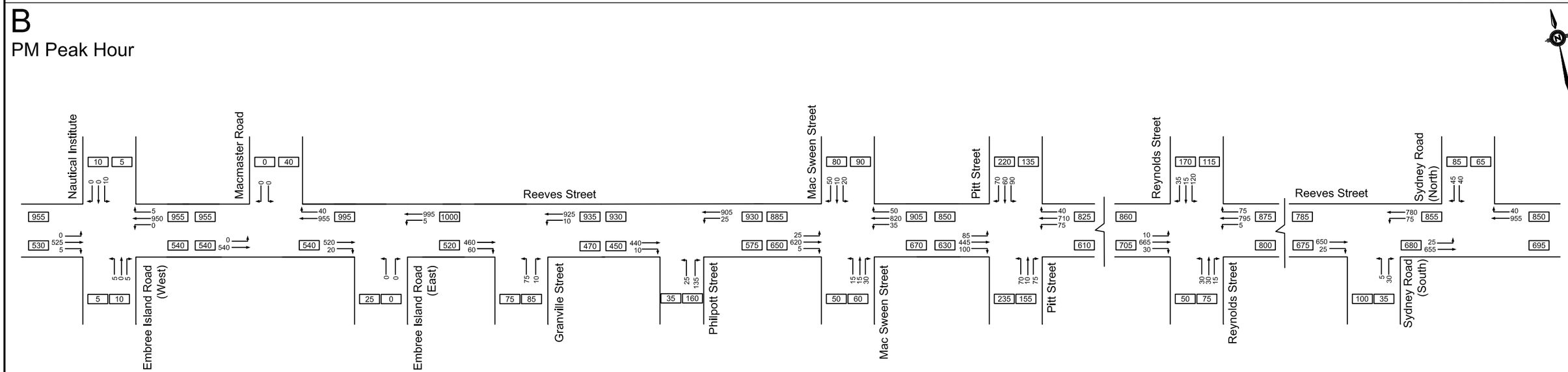
AM Peak Hour



NOT TO SCALE

B

PM Peak Hour



NOT TO SCALE

WSP
1 SPECTACLE LAKE DRIVE
DARTMOUTH, NOVA SCOTIA
CANADA, B3B 1X7
PHONE: 902 835-9955 ~ FAX: 902 835-1645
WWW.WSPGROUP.COM

Reeves Street Safety Study
Port Hawkesbury, NS

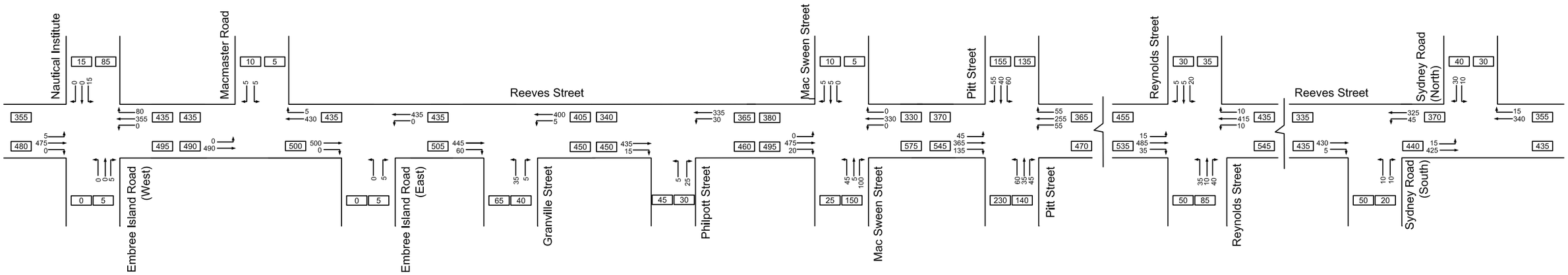
Figure B-7

Projected 2024 AM and PM Peak Design Hourly Volumes

July 2014

A

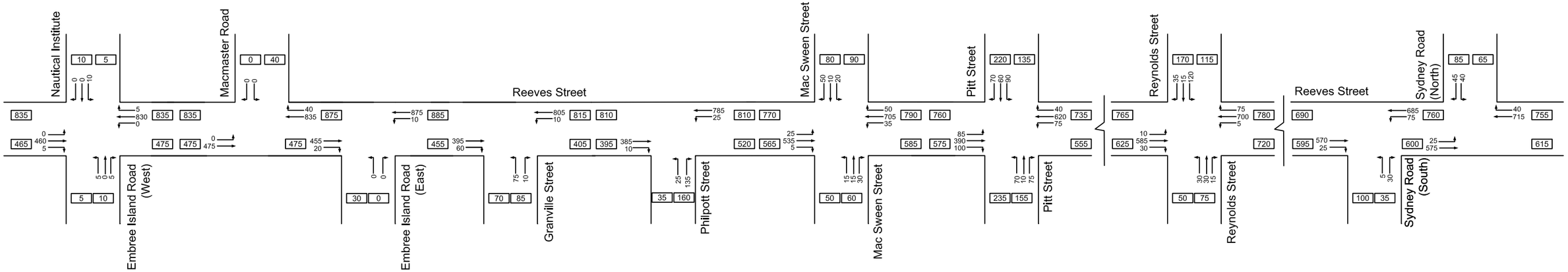
AM Peak Hour



NOT TO SCALE

B

PM Peak Hour



NOT TO SCALE

WSP
1 SPECTACLE LAKE DRIVE
DARTMOUTH, NOVA SCOTIA
CANADA, B3B 1X7
PHONE: 902 835-9955 ~ FAX: 902 835-1645
WWW.WSPGROUP.COM

Reeves Street Safety Study
Port Hawkesbury, NS

Figure B-6

Projected 2014 AM and PM Peak Design Hourly Volumes

July 2014

Appendix C

Property Ownership Information

Table C-1 - Property Ownership (See Figure 3-1)

Map Reference	Property Number	Registered Owners
1	50156512	NS SUPPLY & SERVICE
2	50175439	LEO ROBERTS
3	50064617	NSTIR
4	50153709	NSTIR
5	50201805	KIMBERLY MACDONALD
6	50153576	BRIAN & KIMBERLY MACDONALD
7	50153543	PHONSIE MACEACHERN WHOLESALE LTD
8	50153600	ALPHONSUS & RITA MACEACHERN
9	50153303	IRVING OIL COMPANY LTD
10	50299577	IRVING OIL COMPANY LTD
11	50153329	WAYNE HUGHES
12	50156843	WAYNE HUGHES
13	50175207	TRACY & SHANE SCOTT
14	50297548	WILLIAM & LESLIE FRACHE
15	50313584	NEIL & SARALYNN BRYANT
16	50313592	NEIL & SARALYNN BRYANT
17	50154343	ERNEST LANGLEY
18	50154301	JEANNETTE RIZZUTO
19	50154269	MICHAEL RIZZUTO
20	50154236	MAURINA BERT LEWIS
21	50154228	RALSTON & PATRICIA MOORING
22	50154194	MICHEL & RHODENA FOURNIER
23	50154152	DIANE &GORDON SNOOK
24	50154111	MARY ANN & GARRY LIVELY
25	50154053	NATASHA KEEFE, JOHN MACKENZIE
26	50308162	CAPE BRETON AND CENTRAL NOVA SCOTIA RAILWAY LTD
27	50155514	TOWN OF PORT HAWKESBURY
28	50154822	TRUSTEES PORT HAWKESBURY UNITED BAPTIST CHURCH
29	50154749	ALLAN & DUNCAN CAMERON, ALEEN MACDONALD
30	50154707	MICHAEL FORBRIGGER
31	50154731	MICHAEL FORBRIGGER
32	50175140	JEREMY & FLORA GILLIS
33	50154699	JEREMY & FLORA GILLIS
34	50154665	JEREMY & FLORA GILLIS
35	50154657	SUSAN & WILLIAM BUTTS
36	50154632	RODERICK & SANDY MACKENZIE
37	50154590	JAMES SANDERSON
38	50154582	JAMES SANDERSON
39	50201797	RODGER & KATHLEEN GOODICK
40	50154491	GERARD HEARN, KIMBERLY RICHARDS
41	50154442	LYNN & CYRIL GILLIS
42	50154434	RONNIE & CATHERINE WARNER
43	50154418	PAUL MACINNIS
44	50273705	MICHAEL & RENEE REPKO
45	50273713	EVAN RYAN
46	50155563	NJ MACLEAN
47	50157155	EMMA MCINTYRE, TD TRUST CO, BAYSHORE TRUST CO, G ORMOND FORSYTH
48	50115542	NOVA SCOTIA POWER INC
49	50113745	TOWN OF PORT HAWKESBURY
50	50305945	THE REGIONAL OCCUPATIONAL CENTRE SOCIETY
51	50156132	THE REGIONAL OCCUPATIONAL CENTRE SOCIETY
52	50112606	JAMES CODY
53	50148105	CAROLINE & SHANNON HENNESSEY
54	50116177	TOWN OF PORT HAWKESBURY
55	50029362	TOWN OF PORT HAWKESBURY
56	50119353	BRIDGET WHITE
57	50175405	KATHERINE JENKINS
58	50230689	DENIS HAVERSTOCK FUNERAL HOME LTD
59	50155951	3214452 NOVA SCOTIA LIMITED*
60	50148022	3214452 NOVA SCOTIA LIMITED*
61	50230697	DOUGLAS & WENDY BEATON
62	50275536	DONALD MACINNIS
63	50275510	KAITLYN HARB, FONATHAN NICHOLSON

Table C-1 - Property Ownership (See Figure 3-1)

Map Reference	Property Number	Registered Owners
64	50148139	JOANNE & ROBERT RYAN
65	50148527	BASSAM & BERNADETTE HAYDAR
66	50036987	BASSAM & BERNADETTE HAYDAR
67	50115666	DONALD & MARLENE WAECHITER
68	50148600	DONALD & MARLENE WAECHITER
69	50148576	MARGARET & PAUL MOREAU
70	50124270	WILLIAM MACINNIS
71	50118488	ANDREW & JANE PALMER
72	50116557	DAVID & MARY JOHNSTON
73	50054659	BERNADETTE KENNEDY
74	50054626	JOHN & EDITH CLUETT
75	50054584	JOSEPH & CARMEL BENOIT
76	50049626	KELLY & NATALIE MACISAAC
77	50048800	EDMUND & DORIS MACLEAN
78	50116300	JOHN GILLIS, VIRGINIA POIRIER
79	50221829	AUDREY MCNAMARA
80	50221837	SYLVIA MCNAMARA, GEORGE BREWER
81	50124205	DIRK ROSE
82	50124080	TRACEY FOX, DARREN CUMMINGS
83	50155621	SAMUEL & JUNE STIRLING
84	50123884	SAMUEL & JUNE STIRLING
85	50124064	GLENDA & WILLIAM CH
86	50219286	TOWN OF PORT HAWKESBURY
87	50219278	JEFFERY & DEBORAH VOSSEN
88	50156165	BROWNE & HEISLER HOLDINGS, BARBARA CORKUM, PAULA NEMEC
89	50155472	WOODY CHEDIAC
90	50155068	3074889 NOVA SCOTIA LTD
91	50221811	EAST COAST CREDIT UNION LTD
92	50124288	RICHARD MACDONALD, ROBERT DIGOUT, GEORGE MALCOLM
93	50147313	EDWARD & MARY MARSHALL
94	50154061	LINDA LITTLE
95	50155746	TOWN OF PORT HAWKESBURY
96	50050467	LLOYD & SHIRLEY GRANT
97	50175009	LLOYD & SHIRLEY GRANT
98	50052711	LLOYD & IMELDA MACDONALD
99	50054535	PENTECOSTAL ASSEMBLIES OF CANADA
100	50054667	CHARLES & KATHLEEN GREEN
101	50174515	TOWN OF PORT HAWKESBURY
102	50121813	BOUDROT RODGERS LAW INC
103	50230812	DAVID CANDOW, CAROLL BOONE
104	50275015	JAMES DUNN
105	50291707	STEPHEN & TRACEY SAMPSON
106	50174564	MARIE & TROY DAVIS
107	50097724	VALERIE POTTIE
108	50097740	ALLAN MACKAY
109	50097864	ALLAN MACKAY
110	50015924	BASSAM INVESTMENTS LTD
111	50117597	J-CAT ENTERPRISES LTD
112	50275049	COMMUNICATIONS & PAERWORKERS UNION
113	50156090	HOLY TRINITY ANGLICAN CHURCH
114	50156579	TIM DONUT (NS) LTD
115	50151414	3235789 NOVA SCOTIA LTD
116	50151547	BARRIE SABDHAM
117	50151034	JOB STRATEGY LTD
118	50151091	HUGH & CONNIE MACEACHEN
119	50151133	ANGUS & ANGELA MACKINNON
120	50151539	CANADIAN TIRE PROPERTIES LTD
121	50151570	ALLAN MACKAY
122	50156611	KINGMAC PROPERTIES LTD
123	50155886	KINGMAC PROPERTIES LTD
124	50166768	ISLAND PROPERTIES LTD
125	50151893	WILLIAM & WENDY MACRAE
126	50163633	WILLIAM & WENDY MACRAE

Table C-1 - Property Ownership (See Figure 3-1)

Map Reference	Property Number	Registered Owners
127	50154772	MONIER & JOEY CHEDIAC
128	50151646	WADAIH & WOODY CHEDIAC
129	50151679	JOHN LANDRY
130	50151695	LOWELL RONALDS
131	50151752	GERARD & JEAN DEVEAUX
132	50151505	DAVID RYAN
133	50151513	WILLIAM & MARILYN TURNER
134	50233444	CAR-MAC HOLDINGS LTD
135	50155217	SCOTT'S TRUSTEE CORP
136	50151448	WAYNE RANKIN
137	50166859	WAYNE RANKIN
138	50151497	LEGEND INVESTMENTS LTD
139	50153402	CST CANADA CORP
140	50153345	CAPE BRETON REALTY INC
141	50153410	MARITIMES INNS & RESORTS INC
142	50153055	EDDY MACKAY BUILDING CO LTD
143	50153089	MICHAEL & MARGARET TRAINOR
144	50153113	MICHAEL & MARGARET TRAINOR
145	50153196	ANTHONY NEWMAN AMANDA ETTINGER
146	50153147	MICHAEL PAULA NEMAC
147	50097716	TOWN OF PORT HAWKESBURY
148	50155464	3272907 NOVA SCOTIA LTD
149	50186923	TERRENCE CASHIN
150	50152073	TOWN OF PORT HAWKESBURY
151	50152107	MARGARET JOHNSON
152	50175660	KENNETH MACRAE, GWEN RUSSELL
153	50152123	JOHN MACDONALD
154	50152149	DONALD & MARION MACDONALD
155	50151935	PENTECOSTAL ASSEMBLIES OF CANADA
156	50151984	WILLIAM & GLENDA MACLEAN
157	50152024	DORIS REYNOLDS
158	50152507	DANIEL & MARGARET MACINTYRE
159	50154756	MARY WEBB-LEMBO
160	50017011	ACTION MANAGEMENT SERVICES INC
161	50054683	ACTION MANAGEMENT SERVICES INC
162	50155936	BLUENOSE ENTERPRISE LTD
163	50174382	TOWN OF PORT HAWKESBURY
164	50151901	GEORGE & LORRAINE STUBBARD
165	50151869	HUGH BEATON
166	50151786	JAMES & MELISSA CAHILL
167	50174390	KILLIAM INVESTMENTS INC
168	50272939	KILLIAM INVESTMENTS INC
169	50272947	TOWN OF PORT HAWKESBURY
170	50175686	KILLIAM INVESTMENTS INC
171	500447810	NS TRANSPORTATION & PUBLIC WORKS
172	50155084	NS HOUSING AND MUNICIPAL AFFAIRS
173	50155159	NS HOUSING AND MUNICIPAL AFFAIRS
174	50155050	NS HOUSING AND MUNICIPAL AFFAIRS
175	50131648	NS HOUSING AND MUNICIPAL AFFAIRS
176	50131655	NS HOUSING AND MUNICIPAL AFFAIRS
177	50131622	NS HOUSING AND MUNICIPAL AFFAIRS
178	50148360	TOWN OF PORT HAWKESBURY
179	50316678	NS HOUSING AND MUNICIPAL AFFAIRS
180	50316686	NS HOUSING AND MUNICIPAL AFFAIRS
181	50127885	NS HOUSING AND MUNICIPAL AFFAIRS
182	50229889	CAR-MAC HOLDINGS LTD
183	50174341	LRMCJ INVESTMENTS LTD
184	50174325	NOVA SCOTIA POWER INC
185	50007368	RE/MAX PARK PLACE INC
186	50054709	NIMA VANI ENTERPRISES LTD
187	50000942	NIMA VANI ENTERPRISES LTD
188	50054717	TOWN OF PORT HAWKESBURY
189	50156942	PEARL REALTY COMPANY LTD
190	50001049	MCDONALDS RESTAURANTS OF CANADA LTD

Table C-1 - Property Ownership (See Figure 3-1)

Map Reference	Property Number	Registered Owners
191	50315985	CAUSEWAY SHOPPING CENTRE LTD
192	50122852	CAUSEWAY SHOPPING CENTRE LTD
193	50221068	CAUSEWAY SHOPPING CENTRE LTD
194	50155795	TOWN OF PORT HAWKESBURY
195	50155985	TOWN OF PORT HAWKESBURY
196	50157486	TOWN OF PORT HAWKESBURY
197	50052729	TOWN OF PORT HAWKESBURY
198	50124445	TOWN OF PORT HAWKESBURY
199	50175330	REG OCCUPATIONAL CENTRE SOCIETY
200	50106368	HER MAJESTY THE QUEEN IN THE RIGHT OF THE PROVINCE OF NOVA SCOTIA
201	50321959	THE PORT HAWKESBURY VETERAN'S MEMORIAL PARK SOCIETY
202	50311166	THE PORT HAWKESBURY VETERAN'S MEMORIAL PARK SOCIETY
203	50083112	EDDY MACKAY BUILDING CO LTD
204	50083336	RAYMOND & KATHLEEN BRITTEN
205	50123132	BRIAN & CATHERINE BOWMAN
206	50119437	GERALD & JANE TREMBLAY
207	50084847	TAMMY & ALBERT BENNETT
208	50083385	JOHN & MARILYN MERCER
209	50083328	WAYNE MACMILLAN
210	50188127	DONALD MACKAY
211	50155696	EDDY MACKAY BUILDING CO LTD
212	50117316	JOHN MCKINNON
213	50155712	JOSEPH & ANNE GOSSE
214	50156470	MS HOUSING AND MUNICIPAL AFFAIRS

Appendix D

Intersection Performance Analysis Results and Summary Tables (Background Scenarios)

WSP

October 2014

Table D-1: LOS for Embree Island Road / Nautical Institute @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement						Overall Intersection	
	EB-LT	EB-TR	WB-LT	WB-TR	NB-LTR	SB-LTR	Delay	LOS
2014 AM Peak (Page D-13)								
Delay	0.2	0.0	0.0	0.0	9.9	16.8	0.40	A
LOS	A	A	A	A	A	C		
v/c	0.24	0.15	0.18	0.16	0.01	0.05		
Queue	0.1	0.0	0.0	0.0	0.2	1.2		
2024 AM Peak (Page D-33)								
Delay	0.2	0.0	0.0	0.0	10.2	19.1	0.4	A
LOS	A	A	A	A	B	C		
v/c	0.29	0.17	0.23	0.18	0.01	0.06		
Queue	0.1	0.0	0.0	0.0	0.2	1.5		
2034 AM Peak (Page D-53)								
Delay	0.2	0.0	0.0	0.0	10.5	22.0	0.4	A
LOS	A	A	A	A	B	C		
v/c	0.35	0.20	0.28	0.20	0.01	0.07		
Queue	0.1	0.0	0.0	0.0	0.2	1.7		
2014 PM Peak (Page D-23)								
Delay	0.0	0.0	0.0	0.0	16.1	30.8	0.4	A
LOS	A	A	A	A	C	D		
v/c	0.33	0.15	0.43	0.27	0.03	0.07		
Queue	0.0	0.0	0.0	0.0	0.8	1.8		
2024 PM Peak (Page D-43)								
Delay	0.0	0.0	0.0	0.0	18.7	40.3	0.4	A
LOS	A	A	A	A	C	E		
v/c	0.43	0.17	0.52	0.31	0.04	0.10		
Queue	0.00	0.00	0.00	0.00	0.9	2.4		
2034 PM Peak (Page D-63)								
Delay	0.0	0.0	0.0	0.0	21.6	52.1	0.4	A
LOS	A	A	A	A	C	F		
v/c	0.53	0.19	0.61	0.34	0.05	0.13		
Queue	0.0	0.0	0.0	0.0	1.1	3.1		

Table D-2a: LOS for Embree Island Road (East) @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-T	EB-TR	WB-TL	WB-T	NB-LR	Delay	LOS
2014 AM Peak (Page D-15)							
Delay	0.0	0.0	0.0	0.0	10.0	0.1	A
LOS	A	A	A	A	A		
v/c	0.21	0.11	0.15	0.19	0.01		
Queue	0.0	0.0	0.0	0.0	0.2		
2024 AM Peak (Page D-35)							
Delay	0.0	0.0	0.0	0.0	10.3	0.0	A
LOS	A	A	A	A	B		
v/c	0.24	0.12	0.19	0.21	0.01		
Queue	0.0	0.0	0.0	0.0	0.2		
2034 AM Peak (Page D-55)							
Delay	0.0	0.0	0.0	0.0	10.6	0.0	A
LOS	A	A	A	A	B		
v/c	0.27	0.14	0.22	0.24	0.01		
Queue	0.0	0.0	0.0	0.0	0.2		
2014 PM Peak (Page D-25)							
Delay	0.0	0.0	0.4	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.19	0.11	0.30	0.35	0.00		
Queue	0.0	0.0	0.2	0.0	0.0		
2024 PM Peak (Page D-45)							
Delay	0.0	0.0	0.2	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.22	0.12	0.37	0.42	0.00		
Queue	0.0	0.00	0.1	0.0	0.0		
2034 PM Peak (Page D-65)							
Delay	0.0	0.0	0.2	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.25	0.14	0.43	0.47	0.00		
Queue	0.0	0.0	0.1	0.0	0.0		

Table D-2b: LOS for Macmaster Road @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-TL	EB-T	WB-T	WB-TR	SB-LR	Delay	LOS
2014 AM Peak (Page D-14)							
Delay	0.0	0.0	0.0	0.0	12.6	0.1	A
LOS	A	A	A	A	B		
v/c	0.16	0.21	0.18	0.09	0.02		
Queue	0.0	0.0	0.0	0.0	0.5		
2024 AM Peak (Page D-34)							
Delay	0.0	0.0	0.0	0.0	13.6	0.1	A
LOS	A	A	A	A	B		
v/c	0.20	0.24	0.21	0.11	0.03		
Queue	0.0	0.0	0.0	0.0	0.6		
2034 AM Peak (Page D-54)							
Delay	0.0	0.0	0.0	0.0	14.2	0.1	A
LOS	A	A	A	A	B		
v/c	0.20	0.23	0.23	0.12	0.03		
Queue	0.0	0.0	0.0	0.0	0.6		
2014 PM Peak (Page D-24)							
Delay	0.0	0.0	0.0	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.24	0.20	0.36	0.20	0.00		
Queue	0.0	0.0	0.0	0.0	0.0		
2024 PM Peak (Page D-44)							
Delay	0.0	0.0	0.0	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.31	0.23	0.41	0.23	0.00		
Queue	0.0	0.00	0.0	0.0	0.0		
2034 PM Peak (Page D-64)							
Delay	0.0	0.0	0.0	0.0	0.0	0.0	A
LOS	A	A	A	A	A		
v/c	0.37	0.26	0.45	0.25	0.00		
Queue	0.0	0.0	0.0	0.0	0.0		

Table D-3 - LOS for Granville Street @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-T	EB-TR	WB-TL	WB-T	NB-LR	Delay	LOS
2014 AM Peak (Page B-16)							
Delay	0.0	0.0	0.4	0.0	15.9	0.7	A
LOS	A	A	A	A	C		
v/c	0.19	0.13	0.15	0.17	0.12		
Queue	0.0	0.0	0.1	0.0	3.0		
2024 AM Peak (Page D-36)							
Delay	0.0	0.0	0.3	0.0	17.9	0.7	A
LOS	A	A	A	A	C		
v/c	0.22	0.15	0.18	0.20	0.13		
Queue	0.0	0.0	0.1	0.0	3.5		
2034 AM Peak (Page D-56)							
Delay	0.0	0.0	0.3	0.0	20.5	0.7	A
LOS	A	A	A	A	C		
v/c	0.25	0.16	0.22	0.22	0.16		
Queue	0.0	0.0	0.1	0.0	4.2		
2014 PM Peak (Page D-26)							
Delay	0.0	0.0	0.4	0.0	23.2	1.5	A
LOS	A	A	A	A	C		
v/c	0.17	0.12	0.28	0.34	0.32		
Queue	0.0	0.0	0.2	0.0	10.2		
2024 PM Peak (Page D-46)							
Delay	0.0	0.0	0.4	0.0	29.5	1.7	A
LOS	A	A	A	A	D		
v/c	0.20	0.14	0.34	0.39	0.39		
Queue	0.0	0.00	0.2	0.0	13.3		
2034 PM Peak (Page D-66)							
Delay	0.0	0.0	0.4	0.0	37.8	2.0	A
LOS	A	A	A	A	E		
v/c	0.22	0.15	0.40	0.44	0.46		
Queue	0.0	0.0	0.3	0.0	16.9		

Table D-4: LOS for Philpott Street @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-T	EB-TR	WB-TL	WB-T	NB-LR	Delay	LOS
2014 AM Peak (Page D-17)							
Delay	0.0	0.0	2.0	0.0	11.0	0.7	A
LOS	A	A	A	A	B		
v/c	0.19	0.10	0.14	0.14	0.05		
Queue	0.0	0.0	0.7	0.0	1.2		
2024 AM Peak (Page D-37)							
Delay	0.0	0.0	2.0	0.0	11.7	0.6	A
LOS	A	A	A	A	B		
v/c	0.21	0.12	0.20	0.20	0.06		
Queue	0.0	0.0	0.8	0.0	1.4		
2034 AM Peak (Page D-57)							
Delay	0.0	0.0	2.0	0.0	12.4	0.6	A
LOS	A	A	A	A	B		
v/c	0.24	0.13	0.23	0.22	0.06		
Queue	0.0	0.0	0.8	0.0	1.5		
2014 PM Peak (Page D-27)							
Delay	0.0	0.0	0.9	0.0	13.3	1.8	A
LOS	A	A	A	A	B		
v/c	0.16	0.09	0.28	0.33	0.29		
Queue	0.0	0.0	0.6	0.0	9.0		
2024 PM Peak (Page D-47)							
Delay	0.0	0.0	0.9	0.0	14.5	1.7	B
LOS	A	A	A	A	B		
v/c	0.19	0.10	0.33	0.39	0.32		
Queue	0.0	0.0	0.6	0.0	10.2		
2034 PM Peak (Page D-67)							
Delay	0.0	0.0	0.9	0.0	16.0	1.7	B
LOS	A	A	A	A	C		
v/c	0.21	0.11	0.38	0.43	0.35		
Queue	0.0	0.0	0.6	0.0	11.7		

Table D-5: LOS for MacSween Street @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement						Overall Intersection	
	EB-TL	EB-TR	WB-TL	WB-TR	NB-LTR	SB-LTR	Delay	LOS
2014 AM Peak (Page D-18)								
Delay	0.0	0.0	0.0	0.0	15.6	13.9	2.5	A
LOS	A	A	A	A	C	B		
v/c	0.22	0.16	0.17	0.11	0.33	0.03		
Queue	0.0	0.0	0.0	0.0	10.6	0.6		
2024 AM Peak (Page D-38)								
Delay	0.0	0.0	0.0	0.0	17.5	15.0	2.6	A
LOS	A	A	A	A	C	C		
v/c	0.25	0.19	0.20	0.12	0.36	0.03		
Queue	0.0	0.0	0.0	0.0	12.4	0.7		
2034 AM Peak (Page D-58)								
Delay	0.0	0.0	0.0	0.0	21.2	17.5	2.7	A
LOS	A	A	A	A	C	C		
v/c	0.32	0.21	0.28	0.15	0.43	0.04		
Queue	0.0	0.0	0.0	0.0	15.7	0.9		
2014 PM Peak (Page D-28)								
Delay	1.2	0.0	1.2	0.0	31.8	31.5	3.0	A
LOS	A	A	A	A	D	D		
v/c	0.39	0.17	0.43	0.26	0.33	0.39		
Queue	0.8	0.0	0.9	0.0	10.3	13.4		
2024 PM Peak (Page D-48)								
Delay	1.1	0.0	1.2	0.0	41.6	41.1	3.4	B
LOS	A	A	A	A	E	E		
v/c	0.48	0.20	0.53	0.29	0.40	0.47		
Queue	0.8	0.00	1.0	0.0	13.4	17.3		
2034 PM Peak (Page D-68)								
Delay	1.2	0.0	1.2	0.0	48.3	49.6	3.8	B
LOS	A	A	A	A	E	E		
v/c	0.52	0.21	0.61	0.33	0.45	0.53		
Queue	0.9	0.0	1.0	0.0	15.4	20.2		

Table D-6: LOS for Pitt Street @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement				Overall Intersection	
	EB-LTR	WB-LTR	NB-LTR	SB-LTR	Delay	LOS
2014 AM Peak (Page D-11)						
Delay	7.2	7.2	12.3	12.4	8.5	A
LOS	A	A	B	B		
v/c	0.37	0.27	0.39	0.41		
Queue	21.5	15.3	17.3	18.7		
2024 AM Peak (Page D-31)						
Delay	7.6	7.3	13.0	13.1	8.7	A
LOS	A	A	B	B		
v/c	0.40	0.29	0.39	0.42		
Queue	25.5	17.4	18.2	19.5		
2034 AM Peak (Page D-51)						
Delay	7.7	7.3	13.7	13.9	8.9	A
LOS	A	A	B	B		
v/c	0.42	0.31	0.40	0.43		
Queue	28.4	19.4	19.2	20.7		
2014 PM Peak (Page D-21)						
Delay	10.4	12.0	13.0	19.5	12.5	B
LOS	B	B	B	B		
v/c	0.53	0.61	0.40	0.57		
Queue	33.8	46.1	22.5	38.0		
2024 PM Peak (Page D-41)						
Delay	10.8	12.4	14.3	21.0	13.1	B
LOS	B	B	B	C		
v/c	0.56	0.64	0.41	0.58		
Queue	40.3	56.20	24.6	41.3		
2034 PM Peak (Page D-61)						
Delay	11.4	13.2	15.7	22.9	13.9	B
LOS	B	B	B	C		
v/c	0.59	0.69	0.43	0.59		
Queue	46.6	69.0	26.0	43.9		

Table D-7: LOS for Reynolds Street @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement				Overall Intersection	
	EB-LTR	WB-LTR	NB-LTR	SB-LTR	Delay	LOS
2014 AM Peak (Page D-12)						
Delay	6.5	6.3	9.1	10.6	6.7	A
LOS	A	A	A	B		
v/c	0.31	0.25	0.26	0.11		
Queue	19.0	15.4	9.2	5.2		
2024 AM Peak (Page D-32)						
Delay	6.6	6.3	9.5	11.0	6.8	A
LOS	A	A	A	B		
v/c	0.34	0.28	0.26	0.11		
Queue	22.1	18.0	9.6	5.4		
2034 AM Peak (Page D-52)						
Delay	6.6	6.2	10.2	11.9	6.8	A
LOS	A	A	B	B		
v/c	0.36	0.30	0.27	0.11		
Queue	25.5	20.4	10.5	5.9		
2014 PM Peak (Page D-22)						
Delay	9.5	10.4	12.3	17.8	10.9	B
LOS	A	B	B	B		
v/c	0.44	0.54	0.21	0.50		
Queue	34.1	44.0	12.9	27.7		
2024 PM Peak (Page D-42)						
Delay	9.5	10.6	13.6	19.6	11.1	B
LOS	A	B	B	B		
v/c	0.47	0.57	0.21	0.52		
Queue	38.8	50.40	14.0	30.3		
2034 PM Peak (Page D-62)						
Delay	9.5	10.7	15.0	21.7	11.3	B
LOS	A	B	B	C		
v/c	0.49	0.60	0.22	0.54		
Queue	43.4	57.4	15.2	32.8		

Table D-8a: LOS for Sydney Road S @ Reeves Street

LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-T	EB-TR	WB-TL	WB-T	NB-LR	Delay	LOS
2014 AM Peak (Page D-19)							
Delay	0.0	0.0	2.8	0.0	13.1	0.8	A
LOS	A	A	A	A	B		
v/c	0.18	0.09	0.15	0.14	0.05		
Queue	0.0	0.0	1.1	0.0	1.1		
2024 AM Peak (Page D-39)							
Delay	0.0	0.0	2.8	0.0	14.1	0.8	A
LOS	A	A	A	A	B		
v/c	0.21	0.11	0.18	0.16	0.05		
Queue	0.0	0.0	1.1	0.0	1.3		
2034 AM Peak (Page D-59)							
Delay	0.0	0.0	2.9	0.0	15.4	0.7	A
LOS	A	A	A	A	C		
v/c	0.24	0.12	0.21	0.18	0.06		
Queue	0.0	0.0	1.2	0.0	1.4		
2014 PM Peak (Page D-29)							
Delay	0.0	0.0	3.0	0.0	13.3	1.0	A
LOS	A	A	A	A	B		
v/c	0.24	0.14	0.35	0.29	0.08		
Queue	0.0	0.0	2.2	0.0	2.0		
2024 PM Peak (Page D-49)							
Delay	0.0	0.0	2.9	0.0	14.0	0.9	B
LOS	A	A	A	A	B		
v/c	0.28	0.15	0.41	0.33	0.09		
Queue	0.0	0.00	2.3	0.0	2.2		
2034 PM Peak (Page D-69)							
Delay	0.0	0.0	2.9	0.0	14.6	0.0	B
LOS	A	A	A	A	B		
v/c	0.31	0.17	0.47	0.37	0.09		
Queue	0.0	0.0	2.4	0.0	2.3		

Table D-8b: LOS for Sydney Road N @ Reeves Street

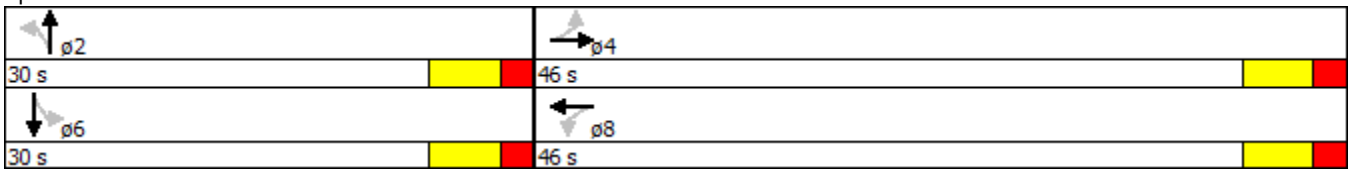
LOS Criteria	Control Delay (sec/veh), v/c Ratio, and 95% Queue (m) by Intersection Movement					Overall Intersection	
	EB-TL	EB-T	WB-T	WB-TR	SB-LR	Delay	LOS
2014 AM Peak (Page D-20)							
Delay	0.9	0.0	0.0	0.0	10.9	0.6	A
LOS	A	A	A	A	B		
v/c	0.15	0.18	0.14	0.08	0.07		
Queue	0.3	0.0	0.0	0.0	1.6		
2024 AM Peak (Page D-40)							
Delay	0.8	0.0	0.0	0.0	11.5	0.6	A
LOS	A	A	A	A	B		
v/c	0.17	0.21	0.17	0.09	0.07		
Queue	0.3	0.0	0.0	0.0	1.8		
2034 AM Peak (Page D-60)							
Delay	0.8	0.0	0.0	0.0	12.0	0.6	A
LOS	A	A	A	A	B		
v/c	0.20	0.23	0.19	0.10	0.08		
Queue	0.4	0.0	0.0	0.0	1.9		
2014 PM Peak (Page D-30)							
Delay	1.4	0.0	0.0	0.0	23.5	1.6	A
LOS	A	A	A	A	C		
v/c	0.29	0.25	0.30	0.18	0.32		
Queue	0.8	0.0	0.0	0.0	10.3		
2024 PM Peak (Page D-50)							
Delay	1.4	0.0	0.0	0.0	29.6	1.8	A
LOS	A	A	A	A	D		
v/c	0.36	0.28	0.35	0.20	0.39		
Queue	0.9	0.00	0.0	0.0	13.3		
2034 PM Peak (Page D-70)							
Delay	1.4	0.0	0.0	0.0	38.3	2.0	B
LOS	A	A	A	A	E		
v/c	0.43	0.31	0.39	0.22	0.46		
Queue	1.0	0.0	0.0	0.0	17.1		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	365	135	55	255	55	60	35	45	60	40	55
Satd. Flow (prot)	0	3432	0	0	3472	0	0	1763	0	0	1759	0
Flt Permitted		0.889			0.806			0.784			0.808	
Satd. Flow (perm)	0	3064	0	0	2818	0	0	1412	0	0	1449	0
Satd. Flow (RTOR)		89			40			33			38	
Lane Group Flow (vph)	0	593	0	0	397	0	0	152	0	0	168	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		17.1			17.1			8.9			8.9	
Actuated g/C Ratio		0.51			0.51			0.26			0.26	
v/c Ratio		0.37			0.27			0.39			0.41	
Control Delay		7.2			7.2			12.3			12.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.2			7.2			12.3			12.4	
LOS		A			A			B			B	
Approach Delay		7.2			7.2			12.3			12.4	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		9.6			6.4			4.8			5.3	
Queue Length 95th (m)		21.5			15.3			17.3			18.7	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		3022			2779			1033			1061	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.20			0.14			0.15			0.16	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 33.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 8.5 Intersection LOS: A
Intersection Capacity Utilization 52.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

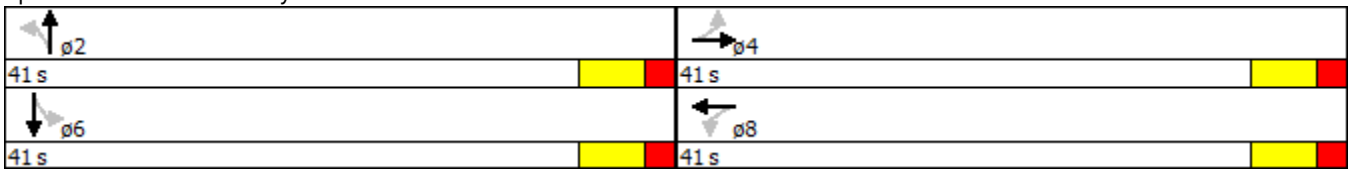


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	485	35	10	415	10	35	10	40	20	5	5
Satd. Flow (prot)	0	3539	0	0	3564	0	0	1729	0	0	1783	0
Flt Permitted		0.937			0.938			0.851			0.738	
Satd. Flow (perm)	0	3320	0	0	3347	0	0	1502	0	0	1361	0
Satd. Flow (RTOR)		11			4			43			5	
Lane Group Flow (vph)	0	581	0	0	473	0	0	92	0	0	32	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		20.2			20.2			7.6			7.6	
Actuated g/C Ratio		0.57			0.57			0.22			0.22	
v/c Ratio		0.31			0.25			0.26			0.11	
Control Delay		6.5			6.3			9.1			10.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.5			6.3			9.1			10.6	
LOS		A			A			A			B	
Approach Delay		6.5			6.3			9.1			10.6	
Approach LOS		A			A			A			B	
Queue Length 50th (m)		10.0			7.8			2.3			1.3	
Queue Length 95th (m)		19.0			15.4			9.2			5.2	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		3146			3172			1425			1290	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.18			0.15			0.06			0.02	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 35.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.31
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 41.3% ICU Level of Service A
Analysis Period (min) 15

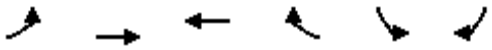
Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	475	0	0	355	80	0	0	5	15	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	516	0	0	386	87	0	0	5	16	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	473			516			720	1000	258	704	957	236
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	473			516			720	1000	258	704	957	236
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	95	100	100
cM capacity (veh/h)	1085			1046			314	240	741	320	255	765

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	264	258	193	280	5	16
Volume Left	5	0	0	0	0	16
Volume Right	0	0	0	87	5	0
cSH	1085	1700	1046	1700	741	320
Volume to Capacity	0.01	0.15	0.00	0.16	0.01	0.05
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	1.2
Control Delay (s)	0.2	0.0	0.0	0.0	9.9	16.8
Lane LOS	A				A	C
Approach Delay (s)	0.1		0.0		9.9	16.8
Approach LOS					A	C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	490	430	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	533	467	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	473				736	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	473				736	236
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1085				354	765

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	178	355	312	161	11
Volume Left	0	0	0	0	5
Volume Right	0	0	0	5	5
cSH	1085	1700	1700	1700	484
Volume to Capacity	0.00	0.21	0.18	0.09	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	12.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.6
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	500	0	0	435	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	543	0	0	473	0	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			543		780	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		780	272
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1022		332	726

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	362	181	158	315	5
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	5
cSH	1700	1700	1022	1700	726
Volume to Capacity	0.21	0.11	0.00	0.19	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		10.0
Approach LOS					A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	445	60	5	400	35	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	484	65	5	435	38	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			549		745	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			549		745	274
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	99
cM capacity (veh/h)			1017		348	723

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	322	226	150	290	43
Volume Left	0	0	5	0	38
Volume Right	0	65	0	0	5
cSH	1700	1700	1017	1700	372
Volume to Capacity	0.19	0.13	0.01	0.17	0.12
Queue Length 95th (m)	0.0	0.0	0.1	0.0	3.0
Control Delay (s)	0.0	0.0	0.4	0.0	15.9
Lane LOS			A		C
Approach Delay (s)	0.0		0.1		15.9
Approach LOS					C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	435	15	30	335	5	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	473	16	33	364	5	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			489		728	245
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			489		728	245
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		98	96
cM capacity (veh/h)			1070		347	756

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	315	174	154	243	33
Volume Left	0	0	33	0	5
Volume Right	0	16	0	0	27
cSH	1700	1700	1070	1700	632
Volume to Capacity	0.19	0.10	0.03	0.14	0.05
Queue Length 95th (m)	0.0	0.0	0.7	0.0	1.2
Control Delay (s)	0.0	0.0	2.0	0.0	11.0
Lane LOS			A		B
Approach Delay (s)	0.0		0.8		11.0
Approach LOS					B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	475	20	0	330	0	45	5	100	0	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	516	22	0	359	0	49	5	109	0	5	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked												
vC, conflicting volume	359			538			715	886	269	728	897	179
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359			538			715	886	269	728	897	179
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			84	98	85	100	98	99
cM capacity (veh/h)	1197			1026			311	282	729	261	278	833

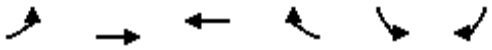
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	258	280	179	179	163	11
Volume Left	0	0	0	0	49	0
Volume Right	0	22	0	0	109	5
cSH	1197	1700	1026	1700	501	417
Volume to Capacity	0.00	0.16	0.00	0.11	0.33	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	10.6	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	15.6	13.9
Lane LOS					C	B
Approach Delay (s)	0.0		0.0		15.6	13.9
Approach LOS					C	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	36.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	430	5	45	325	10	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	467	5	49	353	11	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked						
vC, conflicting volume			473		745	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			473		745	236
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		97	99
cM capacity (veh/h)			1085		334	765

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	312	161	167	236	22
Volume Left	0	0	49	0	11
Volume Right	0	5	0	0	11
cSH	1700	1700	1085	1700	465
Volume to Capacity	0.18	0.09	0.05	0.14	0.05
Queue Length 95th (m)	0.0	0.0	1.1	0.0	1.1
Control Delay (s)	0.0	0.0	2.8	0.0	13.1
Lane LOS			A		B
Approach Delay (s)	0.0		1.2		13.1
Approach LOS					B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	15	425	340	15	10	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	462	370	16	11	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked						
vC, conflicting volume	386				641	193
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	386				641	193
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	96
cM capacity (veh/h)	1169				401	816

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	170	308	246	139	43
Volume Left	16	0	0	0	11
Volume Right	0	0	0	16	33
cSH	1169	1700	1700	1700	649
Volume to Capacity	0.01	0.18	0.14	0.08	0.07
Queue Length 95th (m)	0.3	0.0	0.0	0.0	1.6
Control Delay (s)	0.9	0.0	0.0	0.0	10.9
Lane LOS	A				B
Approach Delay (s)	0.3		0.0		10.9
Approach LOS					B

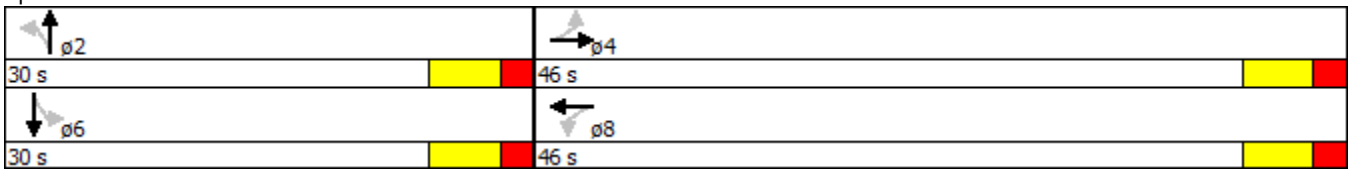
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	390	100	75	620	40	70	10	75	90	60	70
Satd. Flow (prot)	0	3461	0	0	3532	0	0	1720	0	0	1766	0
Flt Permitted		0.740			0.820			0.785			0.801	
Satd. Flow (perm)	0	2579	0	0	2911	0	0	1381	0	0	1444	0
Satd. Flow (RTOR)		50			11			65			32	
Lane Group Flow (vph)	0	625	0	0	799	0	0	169	0	0	239	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		20.2			20.2			12.3			12.3	
Actuated g/C Ratio		0.45			0.45			0.27			0.27	
v/c Ratio		0.53			0.61			0.40			0.57	
Control Delay		10.4			12.0			13.0			19.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.4			12.0			13.0			19.5	
LOS		B			B			B			B	
Approach Delay		10.4			12.0			13.0			19.5	
Approach LOS		B			B			B			B	
Queue Length 50th (m)		14.6			21.4			6.1			13.0	
Queue Length 95th (m)		33.8			46.1			22.5			38.0	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		2244			2526			806			827	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.32			0.21			0.29	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 45.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 67.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

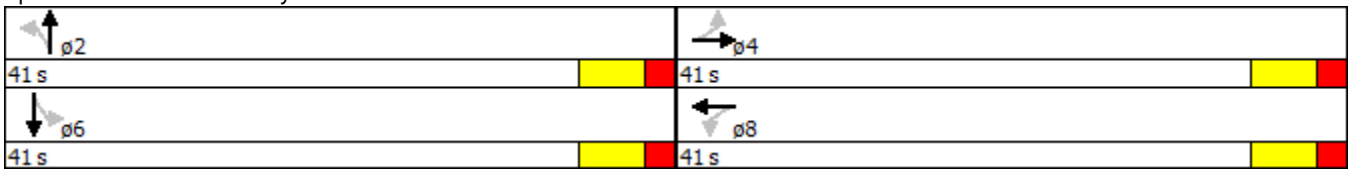


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	585	30	5	700	75	30	30	15	120	15	35
Satd. Flow (prot)	0	3550	0	0	3525	0	0	1798	0	0	1768	0
Flt Permitted		0.937			0.951			0.809			0.739	
Satd. Flow (perm)	0	3330	0	0	3352	0	0	1484	0	0	1353	0
Satd. Flow (RTOR)		8			17			16			20	
Lane Group Flow (vph)	0	680	0	0	848	0	0	82	0	0	184	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		21.0			21.0			11.7			11.7	
Actuated g/C Ratio		0.47			0.47			0.26			0.26	
v/c Ratio		0.44			0.54			0.21			0.50	
Control Delay		9.5			10.4			12.3			17.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.5			10.4			12.3			17.8	
LOS		A			B			B			B	
Approach Delay		9.5			10.4			12.3			17.8	
Approach LOS		A			B			B			B	
Queue Length 50th (m)		15.9			20.8			3.4			9.2	
Queue Length 95th (m)		34.1			44.0			12.9			27.7	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		2660			2680			1188			1084	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.32			0.07			0.17	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 10.9 Intersection LOS: B
Intersection Capacity Utilization 51.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	455	5	0	830	5	5	0	5	10	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	495	5	0	902	5	5	0	5	11	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	908			500			948	1405	250	1158	1405	454
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	908			500			948	1405	250	1158	1405	454
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	100	99	93	100	100
cM capacity (veh/h)	746			1060			215	138	750	150	138	553

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	247	253	451	457	11	11
Volume Left	0	0	0	0	5	11
Volume Right	0	5	0	5	5	0
cSH	746	1700	1060	1700	335	150
Volume to Capacity	0.00	0.15	0.00	0.27	0.03	0.07
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.8	1.8
Control Delay (s)	0.0	0.0	0.0	0.0	16.1	30.8
Lane LOS					C	D
Approach Delay (s)	0.0		0.0		16.1	30.8
Approach LOS					C	D

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	475	835	40	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	516	908	43	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	951				1188	476
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	951				1188	476
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	718				181	536

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	172	344	605	346	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	43	0
cSH	718	1700	1700	1700	1700
Volume to Capacity	0.00	0.20	0.36	0.20	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	455	20	10	825	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	495	22	11	897	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			516		976	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			516		976	258
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			1046		246	741

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	330	187	310	598	0
Volume Left	0	0	11	0	0
Volume Right	0	22	0	0	0
cSH	1700	1700	1046	1700	1700
Volume to Capacity	0.19	0.11	0.01	0.35	0.00
Queue Length 95th (m)	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	0.0	0.4	0.0	0.0
Lane LOS			A		A
Approach Delay (s)	0.0		0.1		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	395	60	10	805	75	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	429	65	11	875	82	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			495		921	247
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			495		921	247
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		69	99
cM capacity (veh/h)			1065		267	753

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	286	208	303	583	92
Volume Left	0	0	11	0	82
Volume Right	0	65	0	0	11
cSH	1700	1700	1065	1700	289
Volume to Capacity	0.17	0.12	0.01	0.34	0.32
Queue Length 95th (m)	0.0	0.0	0.2	0.0	10.2
Control Delay (s)	0.0	0.0	0.4	0.0	23.2
Lane LOS			A		C
Approach Delay (s)	0.0		0.1		23.2
Approach LOS					C

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	385	10	25	785	25	135
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	418	11	27	853	27	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			429		905	215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			429		905	215
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		90	81
cM capacity (veh/h)			1127		269	790

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	279	150	312	569	174
Volume Left	0	0	27	0	27
Volume Right	0	11	0	0	147
cSH	1700	1700	1127	1700	607
Volume to Capacity	0.16	0.09	0.02	0.33	0.29
Queue Length 95th (m)	0.0	0.0	0.6	0.0	9.0
Control Delay (s)	0.0	0.0	0.9	0.0	13.3
Lane LOS			A		B
Approach Delay (s)	0.0		0.3		13.3
Approach LOS					B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	535	5	35	705	50	15	15	30	20	10	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	582	5	38	766	54	16	16	33	22	11	54
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked	0.99						0.99	0.99		0.99	0.99	0.99
vC, conflicting volume	821			587			1158	1535	293	1255	1511	410
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	796			587			1136	1519	293	1235	1494	381
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			96			87	85	95	79	90	91
cM capacity (veh/h)	812			984			124	108	703	105	112	610

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	318	296	421	438	65	87
Volume Left	27	0	38	0	16	22
Volume Right	0	5	0	54	33	54
cSH	812	1700	984	1700	198	221
Volume to Capacity	0.03	0.17	0.04	0.26	0.33	0.39
Queue Length 95th (m)	0.8	0.0	0.9	0.0	10.3	13.4
Control Delay (s)	1.2	0.0	1.2	0.0	31.8	31.5
Lane LOS	A		A		D	D
Approach Delay (s)	0.6		0.6		31.8	31.5
Approach LOS					D	D

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	570	25	75	685	5	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	620	27	82	745	5	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked						
vC, conflicting volume			647		1168	323
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			647		1168	323
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		97	95
cM capacity (veh/h)			935		170	672

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	413	234	330	496	38
Volume Left	0	0	82	0	5
Volume Right	0	27	0	0	33
cSH	1700	1700	935	1700	473
Volume to Capacity	0.24	0.14	0.09	0.29	0.08
Queue Length 95th (m)	0.0	0.0	2.2	0.0	2.0
Control Delay (s)	0.0	0.0	3.0	0.0	13.3
Lane LOS			A		B
Approach Delay (s)	0.0		1.2		13.3
Approach LOS					B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	25	575	715	40	40	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	625	777	43	43	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked						
vC, conflicting volume	821				1166	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821				1166	410
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				76	92
cM capacity (veh/h)	804				181	590

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	236	417	518	303	92
Volume Left	27	0	0	0	43
Volume Right	0	0	0	43	49
cSH	804	1700	1700	1700	286
Volume to Capacity	0.03	0.25	0.30	0.18	0.32
Queue Length 95th (m)	0.8	0.0	0.0	0.0	10.3
Control Delay (s)	1.4	0.0	0.0	0.0	23.5
Lane LOS	A				C
Approach Delay (s)	0.5		0.0		23.5
Approach LOS					C

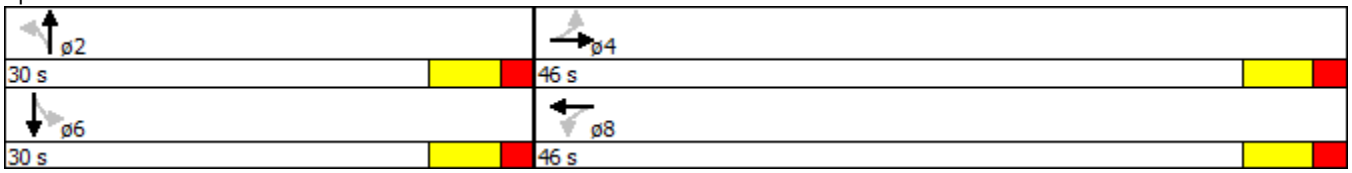
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	430	135	55	295	55	60	35	45	60	40	55
Satd. Flow (prot)	0	3447	0	0	3482	0	0	1763	0	0	1759	0
Flt Permitted		0.892			0.806			0.784			0.808	
Satd. Flow (perm)	0	3087	0	0	2827	0	0	1412	0	0	1449	0
Satd. Flow (RTOR)		73			35			33			38	
Lane Group Flow (vph)	0	663	0	0	441	0	0	152	0	0	168	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		18.5			18.5			9.1			9.1	
Actuated g/C Ratio		0.52			0.52			0.26			0.26	
v/c Ratio		0.40			0.29			0.39			0.42	
Control Delay		7.6			7.3			13.0			13.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.6			7.3			13.0			13.1	
LOS		A			A			B			B	
Approach Delay		7.6			7.3			13.0			13.1	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		11.8			7.7			5.4			5.9	
Queue Length 95th (m)		25.5			17.4			18.2			19.5	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		3019			2764			992			1019	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.22			0.16			0.15			0.16	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 35.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 54.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

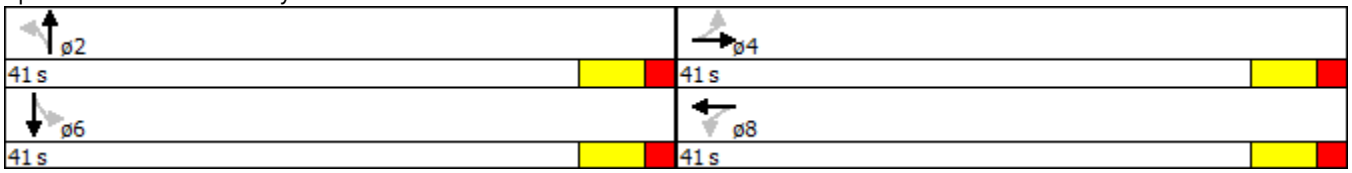


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	550	35	10	475	10	35	10	40	20	5	5
Satd. Flow (prot)	0	3543	0	0	3564	0	0	1729	0	0	1783	0
Flt Permitted		0.937			0.938			0.851			0.738	
Satd. Flow (perm)	0	3323	0	0	3347	0	0	1502	0	0	1361	0
Satd. Flow (RTOR)		10			3			43			5	
Lane Group Flow (vph)	0	652	0	0	538	0	0	92	0	0	32	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		21.0			21.0			7.7			7.7	
Actuated g/C Ratio		0.58			0.58			0.21			0.21	
v/c Ratio		0.34			0.28			0.26			0.11	
Control Delay		6.6			6.3			9.5			11.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.6			6.3			9.5			11.0	
LOS		A			A			A			B	
Approach Delay		6.6			6.3			9.5			11.0	
Approach LOS		A			A			A			B	
Queue Length 50th (m)		11.5			9.2			2.5			1.4	
Queue Length 95th (m)		22.1			18.0			9.6			5.4	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		3099			3120			1403			1269	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.21			0.17			0.07			0.03	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 36.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.34
Intersection Signal Delay: 6.8 Intersection LOS: A
Intersection Capacity Utilization 43.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	540	0	0	415	80	0	0	5	15	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	587	0	0	451	87	0	0	5	16	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	538			587			823	1136	293	804	1092	269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	538			587			823	1136	293	804	1092	269
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	94	100	100
cM capacity (veh/h)	1026			984			264	200	703	271	212	729

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	299	293	226	312	5	16
Volume Left	5	0	0	0	0	16
Volume Right	0	0	0	87	5	0
cSH	1026	1700	984	1700	703	271
Volume to Capacity	0.01	0.17	0.00	0.18	0.01	0.06
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	1.5
Control Delay (s)	0.2	0.0	0.0	0.0	10.2	19.1
Lane LOS	A				B	C
Approach Delay (s)	0.1		0.0		10.2	19.1
Approach LOS					B	C

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	560	490	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	609	533	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	538				840	269
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	538				840	269
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1026				304	729

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	203	406	355	183	11
Volume Left	0	0	0	0	5
Volume Right	0	0	0	5	5
cSH	1026	1700	1700	1700	429
Volume to Capacity	0.00	0.24	0.21	0.11	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	13.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		13.6
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	565	0	0	495	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	614	0	0	538	0	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			614		883	307
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			614		883	307
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			961		285	689

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	409	205	179	359	5
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	5
cSH	1700	1700	961	1700	689
Volume to Capacity	0.24	0.12	0.00	0.21	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.3
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.3
Approach LOS					B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	510	60	5	460	35	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	554	65	5	500	38	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			620		848	310
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			620		848	310
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		87	99
cM capacity (veh/h)			957		299	686

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	370	250	172	333	43
Volume Left	0	0	5	0	38
Volume Right	0	65	0	0	5
cSH	1700	1700	957	1700	321
Volume to Capacity	0.22	0.15	0.01	0.20	0.14
Queue Length 95th (m)	0.0	0.0	0.1	0.0	3.5
Control Delay (s)	0.0	0.0	0.3	0.0	17.9
Lane LOS			A		C
Approach Delay (s)	0.0		0.1		17.9
Approach LOS					C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	500	15	30	460	5	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	543	16	33	500	5	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			560		867	280
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			560		867	280
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		98	96
cM capacity (veh/h)			1007		283	717

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	362	197	199	333	33
Volume Left	0	0	33	0	5
Volume Right	0	16	0	0	27
cSH	1700	1700	1007	1700	571
Volume to Capacity	0.21	0.12	0.03	0.20	0.06
Queue Length 95th (m)	0.0	0.0	0.8	0.0	1.4
Control Delay (s)	0.0	0.0	1.7	0.0	11.7
Lane LOS			A		B
Approach Delay (s)	0.0		0.6		11.7
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	540	20	0	365	0	45	5	100	0	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	587	22	0	397	0	49	5	109	0	5	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked												
vC, conflicting volume	397			609			804	995	304	802	1005	198
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397			609			804	995	304	802	1005	198
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			82	98	84	100	98	99
cM capacity (veh/h)	1158			966			267	243	692	228	240	809

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	293	315	198	198	163	11
Volume Left	0	0	0	0	49	0
Volume Right	0	22	0	0	109	5
cSH	1158	1700	966	1700	450	370
Volume to Capacity	0.00	0.19	0.00	0.12	0.36	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	12.4	0.7
Control Delay (s)	0.0	0.0	0.0	0.0	17.5	15.0
Lane LOS					C	C
Approach Delay (s)	0.0		0.0		17.5	15.0
Approach LOS					C	C

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	490	5	45	375	10	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	533	5	49	408	11	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked						
vC, conflicting volume			538		837	269
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			538		837	269
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		96	99
cM capacity (veh/h)			1026		291	729

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	355	183	185	272	22
Volume Left	0	0	49	0	11
Volume Right	0	5	0	0	11
cSH	1700	1700	1026	1700	416
Volume to Capacity	0.21	0.11	0.05	0.16	0.05
Queue Length 95th (m)	0.0	0.0	1.1	0.0	1.3
Control Delay (s)	0.0	0.0	2.6	0.0	14.1
Lane LOS			A		B
Approach Delay (s)	0.0		1.1		14.1
Approach LOS					B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	15	485	390	15	10	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	527	424	16	11	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked						
vC, conflicting volume	440				728	220
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				728	220
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	96
cM capacity (veh/h)	1116				353	784

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	192	351	283	158	43
Volume Left	16	0	0	0	11
Volume Right	0	0	0	16	33
cSH	1116	1700	1700	1700	601
Volume to Capacity	0.01	0.21	0.17	0.09	0.07
Queue Length 95th (m)	0.3	0.0	0.0	0.0	1.8
Control Delay (s)	0.8	0.0	0.0	0.0	11.5
Lane LOS	A				B
Approach Delay (s)	0.3		0.0		11.5
Approach LOS					B

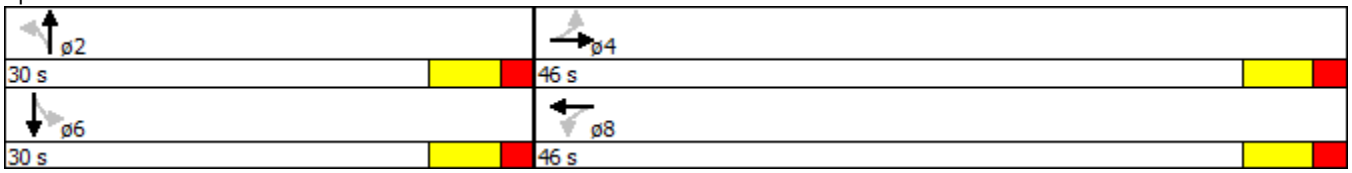
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	445	100	75	710	40	70	10	75	90	60	70
Satd. Flow (prot)	0	3468	0	0	3536	0	0	1720	0	0	1766	0
Flt Permitted		0.727			0.821			0.777			0.818	
Satd. Flow (perm)	0	2539	0	0	2917	0	0	1367	0	0	1474	0
Satd. Flow (RTOR)		43			10			65			32	
Lane Group Flow (vph)	0	685	0	0	897	0	0	169	0	0	239	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		23.4			23.4			13.0			13.0	
Actuated g/C Ratio		0.47			0.47			0.26			0.26	
v/c Ratio		0.56			0.64			0.41			0.58	
Control Delay		10.8			12.4			14.3			21.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.8			12.4			14.3			21.0	
LOS		B			B			B			C	
Approach Delay		10.8			12.4			14.3			21.0	
Approach LOS		B			B			B			C	
Queue Length 50th (m)		17.6			26.3			6.8			14.5	
Queue Length 95th (m)		40.3			56.2			24.6			41.3	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		2109			2416			741			781	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.37			0.23			0.31	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 49.3
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

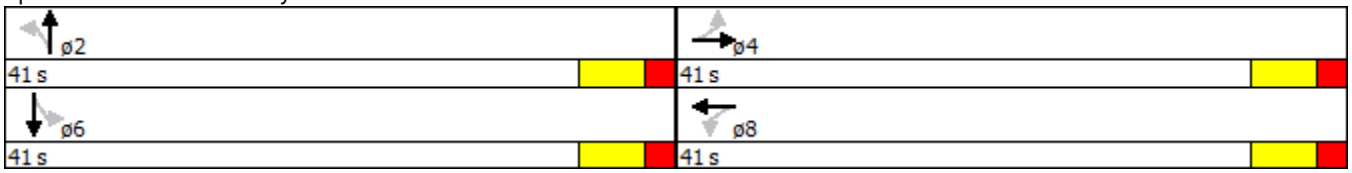


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	665	30	5	795	75	30	30	15	120	15	35
Satd. Flow (prot)	0	3554	0	0	3532	0	0	1798	0	0	1768	0
Flt Permitted		0.937			0.951			0.809			0.739	
Satd. Flow (perm)	0	3333	0	0	3359	0	0	1484	0	0	1353	0
Satd. Flow (RTOR)		7			15			16			20	
Lane Group Flow (vph)	0	767	0	0	951	0	0	82	0	0	184	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		23.7			23.7			12.0			12.0	
Actuated g/C Ratio		0.49			0.49			0.25			0.25	
v/c Ratio		0.47			0.57			0.21			0.52	
Control Delay		9.5			10.6			13.6			19.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.5			10.6			13.6			19.6	
LOS		A			B			B			B	
Approach Delay		9.5			10.6			13.6			19.6	
Approach LOS		A			B			B			B	
Queue Length 50th (m)		19.1			25.3			3.8			10.2	
Queue Length 95th (m)		38.8			50.4			14.0			30.3	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		2496			2517			1114			1017	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.31			0.38			0.07			0.18	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 48
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 54.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	525	5	0	950	5	5	0	5	10	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	571	5	0	1033	5	5	0	5	11	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1038			576			1090	1611	288	1326	1611	519
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1038			576			1090	1611	288	1326	1611	519
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	100	99	90	100	100
cM capacity (veh/h)	665			993			170	103	709	113	103	502

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	285	291	516	522	11	11
Volume Left	0	0	0	0	5	11
Volume Right	0	5	0	5	5	0
cSH	665	1700	993	1700	274	113
Volume to Capacity	0.00	0.17	0.00	0.31	0.04	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.9	2.4
Control Delay (s)	0.0	0.0	0.0	0.0	18.7	40.3
Lane LOS					C	E
Approach Delay (s)	0.0		0.0		18.7	40.3
Approach LOS					C	E

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	36.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	540	955	40	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	587	1038	43	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1082				1353	541
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1082				1353	541
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	641				141	486

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	196	391	692	389	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	43	0
cSH	641	1700	1700	1700	1700
Volume to Capacity	0.00	0.23	0.41	0.23	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	520	20	5	995	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	565	22	5	1082	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			587		1128	293
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			587		1128	293
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			984		197	703

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	377	210	366	721	0
Volume Left	0	0	5	0	0
Volume Right	0	22	0	0	0
cSH	1700	1700	984	1700	1700
Volume to Capacity	0.22	0.12	0.01	0.42	0.00
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	0.0	0.2	0.0	0.0
Lane LOS			A		A
Approach Delay (s)	0.0		0.1		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	460	60	10	925	75	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	500	65	11	1005	82	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			565		1057	283
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			565		1057	283
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		63	98
cM capacity (veh/h)			1003		218	714

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	333	232	346	670	92
Volume Left	0	0	11	0	82
Volume Right	0	65	0	0	11
cSH	1700	1700	1003	1700	237
Volume to Capacity	0.20	0.14	0.01	0.39	0.39
Queue Length 95th (m)	0.0	0.0	0.2	0.0	13.3
Control Delay (s)	0.0	0.0	0.4	0.0	29.5
Lane LOS			A		D
Approach Delay (s)	0.0		0.1		29.5
Approach LOS					D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	440	10	25	905	25	135
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	478	11	27	984	27	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			489		1030	245
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			489		1030	245
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		88	81
cM capacity (veh/h)			1070		223	756

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	319	170	355	656	174
Volume Left	0	0	27	0	27
Volume Right	0	11	0	0	147
cSH	1700	1700	1070	1700	551
Volume to Capacity	0.19	0.10	0.03	0.39	0.32
Queue Length 95th (m)	0.0	0.0	0.6	0.0	10.2
Control Delay (s)	0.0	0.0	0.9	0.0	14.5
Lane LOS			A		B
Approach Delay (s)	0.0		0.3		14.5
Approach LOS					B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	620	5	35	820	50	15	15	30	20	10	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	674	5	38	891	54	16	16	33	22	11	54
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	946			679			1312	1753	340	1427	1728	473
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	799			679			1192	1664	340	1314	1638	293
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			84	80	95	74	87	92
cM capacity (veh/h)	765			909			104	83	656	82	86	657

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	364	342	484	500	65	87
Volume Left	27	0	38	0	16	22
Volume Right	0	5	0	54	33	54
cSH	765	1700	909	1700	162	184
Volume to Capacity	0.04	0.20	0.04	0.29	0.40	0.47
Queue Length 95th (m)	0.8	0.0	1.0	0.0	13.4	17.3
Control Delay (s)	1.1	0.0	1.2	0.0	41.6	41.1
Lane LOS	A		A		E	E
Approach Delay (s)	0.6		0.6		41.6	41.1
Approach LOS					E	E

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	59.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	650	25	75	780	5	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	707	27	82	848	5	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			734		1307	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			703		1284	331
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		96	95
cM capacity (veh/h)			879		140	656

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	471	263	364	565	38
Volume Left	0	0	82	0	5
Volume Right	0	27	0	0	33
cSH	1700	1700	879	1700	430
Volume to Capacity	0.28	0.15	0.09	0.33	0.09
Queue Length 95th (m)	0.0	0.0	2.3	0.0	2.2
Control Delay (s)	0.0	0.0	3.0	0.0	14.2
Lane LOS			A		B
Approach Delay (s)	0.0		1.2		14.2
Approach LOS					B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	25	655	810	40	40	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	712	880	43	43	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked						
vC, conflicting volume	924				1312	462
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924				1312	462
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				70	91
cM capacity (veh/h)	735				144	547

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	264	475	587	337	92
Volume Left	27	0	0	0	43
Volume Right	0	0	0	43	49
cSH	735	1700	1700	1700	237
Volume to Capacity	0.04	0.28	0.35	0.20	0.39
Queue Length 95th (m)	0.9	0.0	0.0	0.0	13.3
Control Delay (s)	1.4	0.0	0.0	0.0	29.6
Lane LOS	A				D
Approach Delay (s)	0.5		0.0		29.6
Approach LOS					D

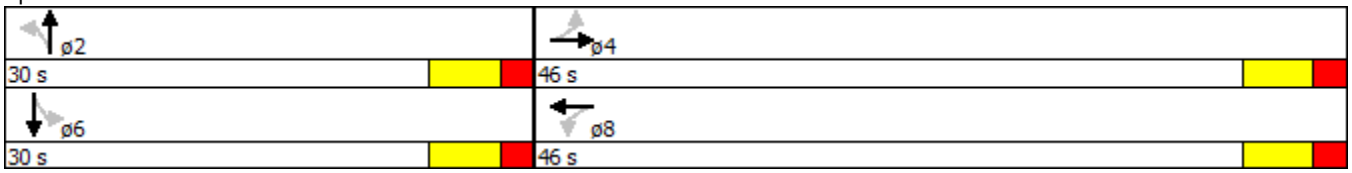
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	470	135	55	330	55	60	35	45	60	40	55
Satd. Flow (prot)	0	3457	0	0	3489	0	0	1763	0	0	1759	0
Flt Permitted		0.892			0.809			0.789			0.808	
Satd. Flow (perm)	0	3093	0	0	2840	0	0	1421	0	0	1449	0
Satd. Flow (RTOR)		65			31			33			38	
Lane Group Flow (vph)	0	707	0	0	479	0	0	152	0	0	168	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		19.8			19.8			9.2			9.2	
Actuated g/C Ratio		0.54			0.54			0.25			0.25	
v/c Ratio		0.42			0.31			0.40			0.43	
Control Delay		7.7			7.3			13.7			13.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.7			7.3			13.7			13.9	
LOS		A			A			B			B	
Approach Delay		7.7			7.3			13.7			13.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		13.2			8.6			5.6			6.2	
Queue Length 95th (m)		28.4			19.4			19.2			20.7	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		2995			2749			962			983	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.17			0.16			0.17	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 36.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 8.9 Intersection LOS: A
Intersection Capacity Utilization 56.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

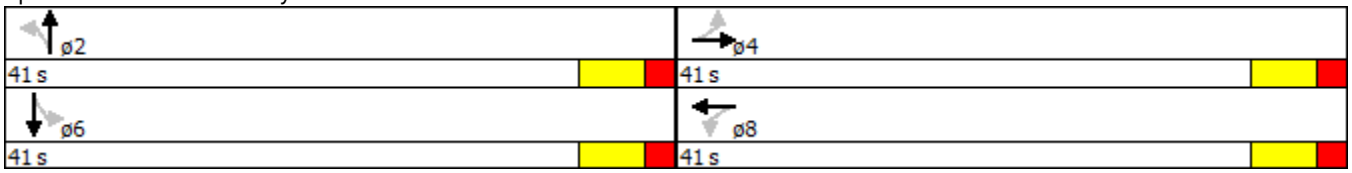


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	620	35	10	530	10	35	10	40	20	5	5
Satd. Flow (prot)	0	3546	0	0	3564	0	0	1729	0	0	1783	0
Flt Permitted		0.937			0.939			0.851			0.738	
Satd. Flow (perm)	0	3326	0	0	3350	0	0	1502	0	0	1361	0
Satd. Flow (RTOR)		8			3			43			5	
Lane Group Flow (vph)	0	728	0	0	598	0	0	92	0	0	32	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		22.7			22.7			7.8			7.8	
Actuated g/C Ratio		0.60			0.60			0.21			0.21	
v/c Ratio		0.36			0.30			0.27			0.11	
Control Delay		6.6			6.2			10.2			11.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.6			6.2			10.2			11.9	
LOS		A			A			B			B	
Approach Delay		6.6			6.2			10.2			11.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		13.3			10.4			2.6			1.4	
Queue Length 95th (m)		25.5			20.4			10.5			5.9	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		3020			3042			1367			1236	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.24			0.20			0.07			0.03	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 37.8
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 6.8 Intersection LOS: A
Intersection Capacity Utilization 44.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	610	0	0	475	80	0	0	5	15	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	663	0	0	516	87	0	0	5	16	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	603			663			932	1277	332	908	1234	302
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	603			663			932	1277	332	908	1234	302
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	93	100	100
cM capacity (veh/h)	970			922			220	164	664	228	174	694

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	337	332	258	345	5	16
Volume Left	5	0	0	0	0	16
Volume Right	0	0	0	87	5	0
cSH	970	1700	922	1700	664	228
Volume to Capacity	0.01	0.20	0.00	0.20	0.01	0.07
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.2	1.7
Control Delay (s)	0.2	0.0	0.0	0.0	10.5	22.0
Lane LOS	A				B	C
Approach Delay (s)	0.1		0.0		10.5	22.0
Approach LOS					B	C

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	34.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	530	550	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	576	598	5	5	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	603				889	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	603				889	302
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	970				283	694

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	192	384	399	205	11
Volume Left	0	0	0	0	5
Volume Right	0	0	0	5	5
cSH	970	1700	1700	1700	402
Volume to Capacity	0.00	0.23	0.23	0.12	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	14.2
Lane LOS					B
Approach Delay (s)	0.0		0.0		14.2
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	635	0	0	555	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	690	0	0	603	0	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			690		992	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			690		992	345
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			900		243	651

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	460	230	201	402	5
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	5
cSH	1700	1700	900	1700	651
Volume to Capacity	0.27	0.14	0.00	0.24	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.6
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.6
Approach LOS					B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	580	60	5	520	35	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	630	65	5	565	38	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			696		957	348
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			696		957	348
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		85	99
cM capacity (veh/h)			896		254	648

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	420	275	194	377	43
Volume Left	0	0	5	0	38
Volume Right	0	65	0	0	5
cSH	1700	1700	896	1700	275
Volume to Capacity	0.25	0.16	0.01	0.22	0.16
Queue Length 95th (m)	0.0	0.0	0.1	0.0	4.2
Control Delay (s)	0.0	0.0	0.3	0.0	20.5
Lane LOS			A		C
Approach Delay (s)	0.0		0.1		20.5
Approach LOS					C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	570	15	30	520	5	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	620	16	33	565	5	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			636		976	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			636		976	318
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		98	96
cM capacity (veh/h)			943		240	678

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	413	223	221	377	33
Volume Left	0	0	33	0	5
Volume Right	0	16	0	0	27
cSH	1700	1700	943	1700	520
Volume to Capacity	0.24	0.13	0.03	0.22	0.06
Queue Length 95th (m)	0.0	0.0	0.8	0.0	1.5
Control Delay (s)	0.0	0.0	1.6	0.0	12.4
Lane LOS			A		B
Approach Delay (s)	0.0		0.6		12.4
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	615	20	0	460	0	45	5	100	0	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	668	22	0	500	0	49	5	109	0	5	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked												
vC, conflicting volume	500			690			938	1179	345	946	1190	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500			690			938	1179	345	946	1190	250
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			77	97	83	100	97	99
cM capacity (veh/h)	1060			900			213	189	651	176	186	750

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	334	356	250	250	163	11
Volume Left	0	0	0	0	49	0
Volume Right	0	22	0	0	109	5
cSH	1060	1700	900	1700	383	298
Volume to Capacity	0.00	0.21	0.00	0.15	0.43	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	15.7	0.9
Control Delay (s)	0.0	0.0	0.0	0.0	21.2	17.5
Lane LOS					C	C
Approach Delay (s)	0.0		0.0		21.2	17.5
Approach LOS					C	C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	555	5	45	420	10	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	603	5	49	457	11	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked						
vC, conflicting volume			609		932	304
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			609		932	304
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		96	98
cM capacity (veh/h)			966		252	692

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	402	207	201	304	22
Volume Left	0	0	49	0	11
Volume Right	0	5	0	0	11
cSH	1700	1700	966	1700	369
Volume to Capacity	0.24	0.12	0.05	0.18	0.06
Queue Length 95th (m)	0.0	0.0	1.2	0.0	1.4
Control Delay (s)	0.0	0.0	2.5	0.0	15.4
Lane LOS			A		C
Approach Delay (s)	0.0		1.0		15.4
Approach LOS					C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	15	550	435	15	10	30
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	598	473	16	11	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked						
vC, conflicting volume	489				812	245
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489				812	245
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				97	96
cM capacity (veh/h)	1070				312	756

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	216	399	315	174	43
Volume Left	16	0	0	0	11
Volume Right	0	0	0	16	33
cSH	1070	1700	1700	1700	557
Volume to Capacity	0.02	0.23	0.19	0.10	0.08
Queue Length 95th (m)	0.4	0.0	0.0	0.0	1.9
Control Delay (s)	0.8	0.0	0.0	0.0	12.0
Lane LOS	A				B
Approach Delay (s)	0.3		0.0		12.0
Approach LOS					B

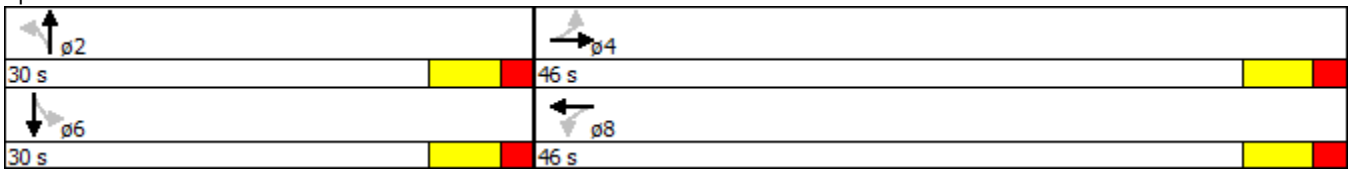
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	495	100	75	825	40	70	10	75	90	60	70
Satd. Flow (prot)	0	3479	0	0	3543	0	0	1720	0	0	1766	0
Flt Permitted		0.699			0.824			0.767			0.823	
Satd. Flow (perm)	0	2446	0	0	2931	0	0	1349	0	0	1483	0
Satd. Flow (RTOR)		39			9			65			32	
Lane Group Flow (vph)	0	739	0	0	1022	0	0	169	0	0	239	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	46.0	46.0		46.0	46.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		26.7			26.7			13.7			13.7	
Actuated g/C Ratio		0.50			0.50			0.26			0.26	
v/c Ratio		0.59			0.69			0.43			0.59	
Control Delay		11.4			13.2			15.7			22.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.4			13.2			15.7			22.9	
LOS		B			B			B			C	
Approach Delay		11.4			13.2			15.7			22.9	
Approach LOS		B			B			B			C	
Queue Length 50th (m)		21.1			33.2			7.7			16.4	
Queue Length 95th (m)		46.6			69.0			26.0			43.9	
Internal Link Dist (m)		200.7			373.6			244.1			203.5	
Turn Bay Length (m)												
Base Capacity (vph)		1907			2276			684			732	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.45			0.25			0.33	

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 53.2
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 15: Pitt Street & Reeves Street

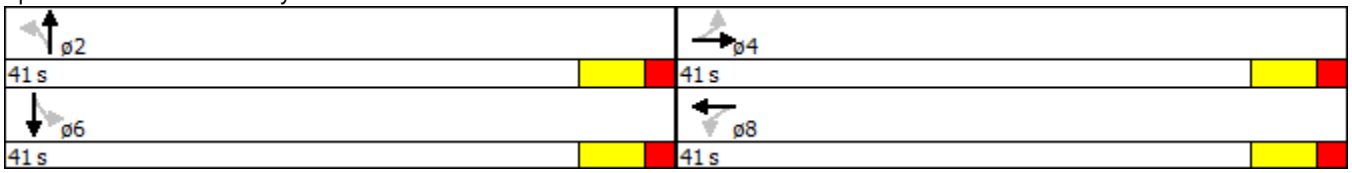


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	740	30	5	890	75	30	30	15	120	15	35
Satd. Flow (prot)	0	3554	0	0	3536	0	0	1798	0	0	1768	0
Flt Permitted		0.937			0.951			0.828			0.739	
Satd. Flow (perm)	0	3333	0	0	3362	0	0	1519	0	0	1353	0
Satd. Flow (RTOR)		6			13			16			20	
Lane Group Flow (vph)	0	848	0	0	1054	0	0	82	0	0	184	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	41.0	41.0		41.0	41.0		41.0	41.0		41.0	41.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Act Effct Green (s)		26.5			26.5			12.3			12.3	
Actuated g/C Ratio		0.52			0.52			0.24			0.24	
v/c Ratio		0.49			0.60			0.22			0.54	
Control Delay		9.5			10.7			15.0			21.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.5			10.7			15.0			21.7	
LOS		A			B			B			C	
Approach Delay		9.5			10.7			15.0			21.7	
Approach LOS		A			B			B			C	
Queue Length 50th (m)		22.6			30.4			4.2			11.3	
Queue Length 95th (m)		43.4			57.4			15.2			32.8	
Internal Link Dist (m)		373.6			158.5			223.1			199.3	
Turn Bay Length (m)												
Base Capacity (vph)		2342			2364			1071			956	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.36			0.45			0.08			0.19	

Intersection Summary

Cycle Length: 82
Actuated Cycle Length: 51.1
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 56.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 19: Reynolds Street & Reeves Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	590	5	0	1055	5	5	0	5	10	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	641	5	0	1147	5	5	0	5	11	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1152			647			1217	1796	323	1476	1796	576
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1152			647			1217	1796	323	1476	1796	576
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	88	100	100
cM capacity (veh/h)	602			935			137	79	672	87	79	460

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	321	326	573	579	11	11
Volume Left	0	0	0	0	5	11
Volume Right	0	5	0	5	5	0
cSH	602	1700	935	1700	227	87
Volume to Capacity	0.00	0.19	0.00	0.34	0.05	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.1	3.1
Control Delay (s)	0.0	0.0	0.0	0.0	21.6	52.1
Lane LOS					C	F
Approach Delay (s)	0.0		0.0		21.6	52.1
Approach LOS					C	F

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	39.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	600	1055	40	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	652	1147	43	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1190				1495	595
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1190				1495	595
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	582				114	447

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	217	435	764	426	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	43	0
cSH	582	1700	1700	1700	1700
Volume to Capacity	0.00	0.26	0.45	0.25	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	580	20	5	1095	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	630	22	5	1190	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			652		1247	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			652		1247	326
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			930		165	670

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	420	232	402	793	0
Volume Left	0	0	5	0	0
Volume Right	0	22	0	0	0
cSH	1700	1700	930	1700	1700
Volume to Capacity	0.25	0.14	0.01	0.47	0.00
Queue Length 95th (m)	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	0.0	0.0	0.2	0.0	0.0
Lane LOS			A		A
Approach Delay (s)	0.0		0.1		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	520	60	10	1025	75	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	565	65	11	1114	82	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			630		1177	315
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			630		1177	315
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		55	98
cM capacity (veh/h)			948		182	681

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	377	254	382	743	92
Volume Left	0	0	11	0	82
Volume Right	0	65	0	0	11
cSH	1700	1700	948	1700	199
Volume to Capacity	0.22	0.15	0.01	0.44	0.46
Queue Length 95th (m)	0.0	0.0	0.3	0.0	16.9
Control Delay (s)	0.0	0.0	0.4	0.0	37.8
Lane LOS			A		E
Approach Delay (s)	0.0		0.1		37.8
Approach LOS					E

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	495	10	25	1005	25	135
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	538	11	27	1092	27	147
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			549		1144	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			549		1144	274
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		86	80
cM capacity (veh/h)			1017		188	723

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	359	190	391	728	174
Volume Left	0	0	27	0	27
Volume Right	0	11	0	0	147
cSH	1700	1700	1017	1700	501
Volume to Capacity	0.21	0.11	0.03	0.43	0.35
Queue Length 95th (m)	0.0	0.0	0.6	0.0	11.7
Control Delay (s)	0.0	0.0	0.9	0.0	16.0
Lane LOS			A		C
Approach Delay (s)	0.0		0.3		16.0
Approach LOS					C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	650	5	35	920	50	15	15	30	20	10	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	707	5	38	1000	54	16	16	33	22	11	54
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					225							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	1054			712			1399	1894	356	1552	1870	527
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	776			712			1170	1736	356	1344	1708	173
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			96			84	77	95	69	85	93
cM capacity (veh/h)	731			884			100	70	640	71	73	735

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	380	359	538	554	65	87
Volume Left	27	0	38	0	16	22
Volume Right	0	5	0	54	33	54
cSH	731	1700	884	1700	146	164
Volume to Capacity	0.04	0.21	0.04	0.33	0.45	0.53
Queue Length 95th (m)	0.9	0.0	1.0	0.0	15.4	20.2
Control Delay (s)	1.2	0.0	1.2	0.0	48.3	49.6
Lane LOS	A		A		E	E
Approach Delay (s)	0.6		0.6		48.3	49.6
Approach LOS					E	E

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	725	25	75	875	5	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	788	27	82	951	5	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	183					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			815		1440	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			700		1358	270
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		95	95
cM capacity (veh/h)			848		120	691

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	525	290	399	634	38
Volume Left	0	0	82	0	5
Volume Right	0	27	0	0	33
cSH	1700	1700	848	1700	412
Volume to Capacity	0.31	0.17	0.10	0.37	0.09
Queue Length 95th (m)	0.0	0.0	2.4	0.0	2.3
Control Delay (s)	0.0	0.0	2.9	0.0	14.6
Lane LOS			A		B
Approach Delay (s)	0.0		1.1		14.6
Approach LOS					B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	25	730	905	40	40	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	793	984	43	43	49
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		219				
pX, platoon unblocked					1.00	
vC, conflicting volume	1027				1457	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1027				1453	514
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				63	90
cM capacity (veh/h)	672				116	506

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	292	529	656	371	92
Volume Left	27	0	0	0	43
Volume Right	0	0	0	43	49
cSH	672	1700	1700	1700	196
Volume to Capacity	0.04	0.31	0.39	0.22	0.47
Queue Length 95th (m)	1.0	0.0	0.0	0.0	17.3
Control Delay (s)	1.4	0.0	0.0	0.0	38.8
Lane LOS	A				E
Approach Delay (s)	0.5		0.0		38.8
Approach LOS					E

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E

Intersection Performance Analysis Results and Summary Tables (Improvement Scenarios)

WSP

October 2014