# 525-565 Conestogo Road
# Waterloo

# Transportation Impact Study and Transportation Demand Management Report

Paradigm Transportation Solutions Limited

June 2021
200039

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Project Summary

# 525-565 Conestogo Road, Waterloo Transportation Impact Study and Transportation Demand Management Report

**Project Number**
200039

**June 2021**

**Client**
**Northfield Properties LP**
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# Executive Summary

## Content

Northfield Properties LP retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) and Transportation Demand Management Report (TDM) for a proposed mixed-use development located at 525-565 Conestogo Road in Waterloo, Ontario.

The impact assessment includes an analysis existing traffic conditions, describes the proposed development, forecasts traffic to the phase 1 buildout of the development (assumed to be 2025), full buildout of the development (assumed to be 2027), an analysis of five (5) years beyond the full build-out (2032), an analysis of 10 years beyond the full build-out (2037), and recommends improvements to mitigate future traffic conditions. This report also includes recommended TDM measures and strategies to reduce the number of single occupancy vehicles to and from the site.

## Development Description

The subject development consists of multiple mixed-use buildings, grouped into 8 blocks, including:

- 432 residential units in mid-rise buildings;
- 2102 residential units in high-rise buildings;
- 21,400 $ft^2$ gross floor area (GFA) of commercial retail; and
- 196,100 $ft^2$ GFA of office space.

Six accesses are proposed on Conestogo Road to Blocks 1 through 8, referred to as:

- Street A;
- Street B, opposite Durward Place;
- Street C;
- Access 1;
- Street F; and
- Access 2.

The subject site is located within walking distance of two ION LRT stations. The site design features active transportation facilities on-site,

including a proposed pedestrian / bicycle bridge over Highway 85 to provide more convenient access to Northfield ION station.

## Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** The analyses indicate that all intersections and individual movements within the study area are currently operating at acceptable levels of service with the exception of the eastbound left-turn movement at **Conestogo Road/Colby Drive and Northfield Drive West** which exceeds the available queue length.
- The development is forecast to generate 787 and 861 new trips during the AM and PM peak hours, respectively at full build out. These values include reductions for internal capture, pass-by reductions and the Region of Waterloo mode split.
  - **Background Traffic Operations:** All intersections within the study area are forecast to operate with adequate levels of service at the 2032 Background horizon with the exception of the eastbound left-turn movement at **Conestogo Road/Colby Drive and Northfield Drive West** which exceeds the available queue length.
- **Total Traffic Operations:** As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements at the 2032 Total horizon:
  - **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the AM peak hour, and LOS F with a v/c greater than 1.0 during the PM peak hour. Overall, the intersection is forecast to operate at a LOS E during the PM peak hour;
  - **King Street North and Conestogo Road:** The westbound left movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

  The queuing of the eastbound shared through-right movement at **Conestogo Road/Colby Drive and Northfield Drive West** is

not forecast to exceed the storage length available between the intersection and the Highway 85 southbound off ramp;

- **TDM / Parking Conclusions:** Using the Region of Waterloo's TDM Checklist, the subject development is rated as a TDM Supportive Development. According to the checklist, TDM measure could result in approximately 25% reduction in parking demand;
- A northbound left-turn lane is warranted on **Conestogo Road at Street C**;
- The addition of a northbound and southbound left-turn lane, and protected/permissive signal phasing for the north and south movements on Conestogo Road at the signalized intersection with Northfield Drive will improve operations at this intersection; and
- The reconfiguration of the eastbound lanes on Conestogo Road at the signalized intersection with King Street North will improve operations at this intersection.

## Recommendations

Based on the findings of this study, it is recommended that:

- A northbound left-turn lane with 15 m of storage length be constructed on **Conestogo Road at Street C**;
- A northbound and southbound left-turn lane with protected/permissive signal phasing be constructed on **Conestogo Road and Northfield Drive**; and
- The eastbound approach of **Conestogo Road and King Street North** be reconfigured to:
  - a dedicated right-turn lane; and
  - a shared left-through lane.

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# 1 Introduction

## 1.1 Overview

Northfield Properties LP retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) and Transportation Demand Management Report (TDM) for a proposed mixed-use development located at 525-565 Conestogo Road in Waterloo, Ontario.

**Figure 1.1** details the location of the subject development.

The scope of the study includes:

- assessment of the current traffic and site conditions within the study area;
- estimates of background traffic growth for the phase 1 buildout of the development (assumed to be 2025), full buildout of the development (assumed to be 2027), an analysis of five (5) years beyond the full build-out (2032), an analysis of 10 years beyond the full build-out (2037);
- estimates of additional traffic generated by the subject site;
- analyses of the impact of the future traffic on the surrounding road network;
- analyses of the location of the proposed road connections;
- TDM measures and strategies to reduce the number of single occupancy vehicles to and from the site; and
- recommendations necessary to mitigate the site generated traffic in a satisfactory manner.

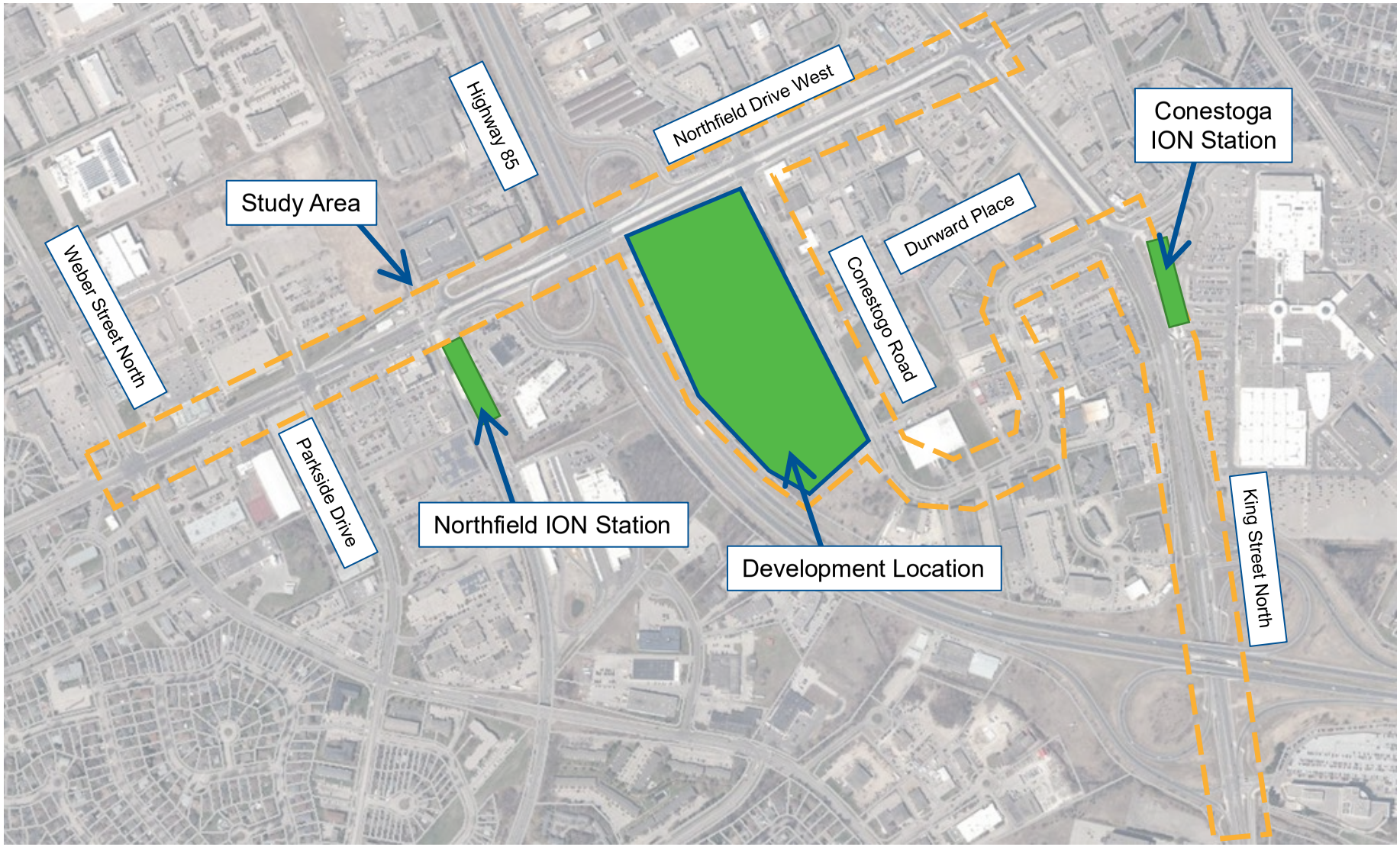
The impact assessment will focus on the following study area intersections:

- Northfield Drive West and Weber Street;
- Northfield Drive West and Parkside Drive;
- Northfield Drive West and Conestogo Road / Colby Drive;
- Northfield Drive West and King Street North;
- King Street North and Conestogo Road;
- Conestogo Road and Durward Place;
- King Street North and North Higway 85 Ramps; and

- King Street North and South Higway 85 Ramps / Manulife Driveway.

This study has been prepared in accordance with the requirements of the Region of Waterloo (the Region) and Ministry of Transportation (MTO) Traffic Impact Study Guidelines. A pre-study conference was held with Region and MTO staff to confirm the study scope.

**Appendix A** contains the pre-study conference form.




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# Study Area and Subject Development Location

# 2 Existing Conditions

This section documents current traffic conditions, operational deficiencies, and constraints experienced by the public travelling at the intersections within the study area. The operational deficiencies and constraints identified at this stage will be fundamental to the process of defining the required remedial measures.

## 2.1 Road Network

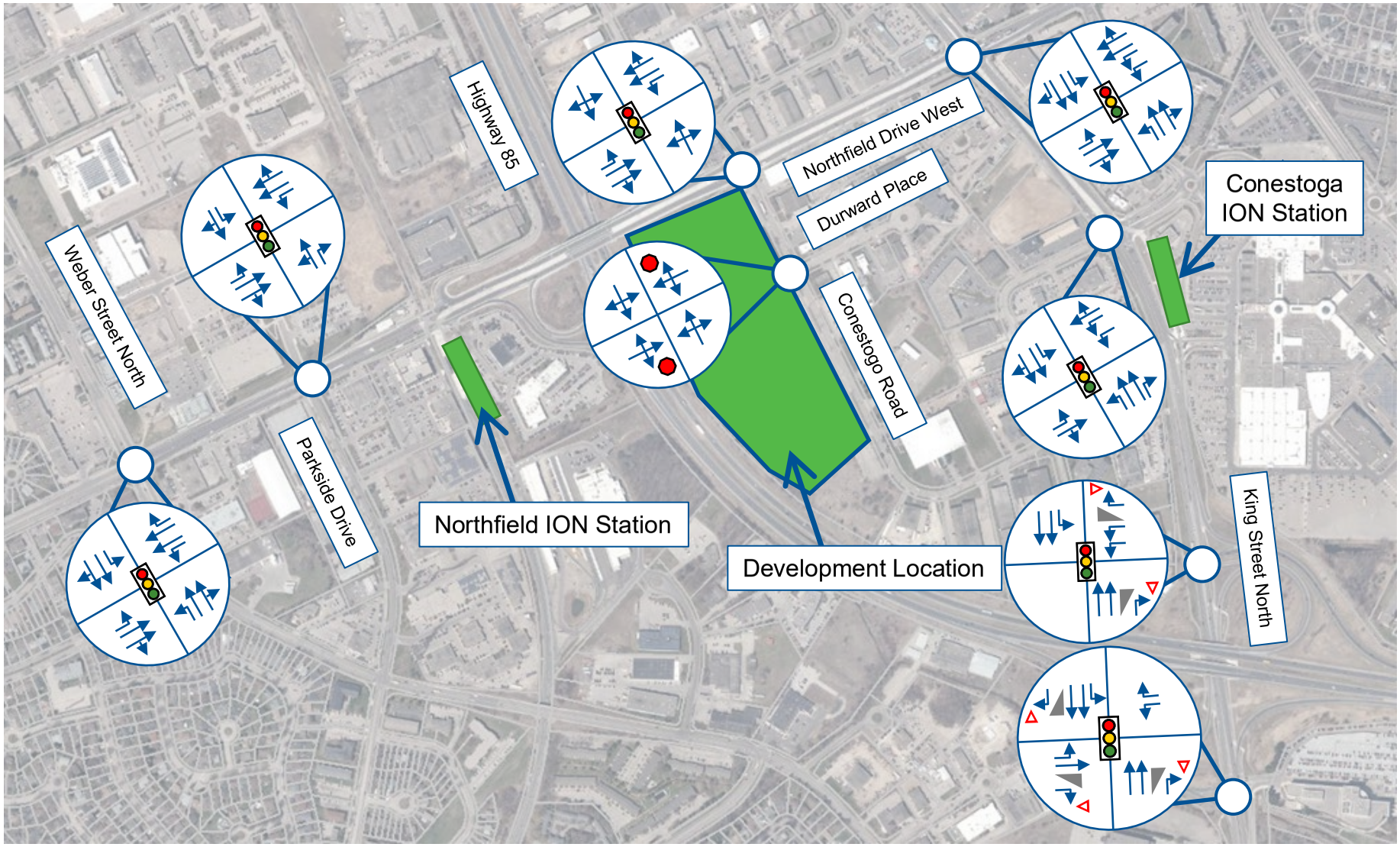
The study area roadways include:

- **Northfield Drive West** is a 4-lane Regional Road with a posted speed limit of 60 km/h. Within the study area, ION LRT runs down the centre of the road limiting left-turns to signalized intersections.
- **King Street North** is a 4-lane Regional Road with a posted speed limit of 60 km/h. Within the study area, ION LRT runs down the centre of the road limiting left-turns to signalized intersections.
- **Conestogo Road** is a 2-lane City road with a speed limit of 50 km/h.
- **Parkside Drive** is a 2-lane City road with a speed limit of 50 km/h.
- **Weber Street** is a 4-lane Regional Road with a speed limit of 60 km/hr
- **Highway 85 (Conestoga Parkway)** is a 4-lane Provincial Highway with a speed limit of 90 km/hr.

The study area is primarily bordered by commercial retail and light industrial uses.

The intersections included in the study area are signalized, with the exception of Conestogo Road and Durward Place, which is unsignalized with two-way stop control.

**Figure 2.1** displays the existing lane configuration and traffic controls of intersections within the study area.




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# Existing Lane Configurations and Traffic Control

## 2.2 Transit Network

The subject development is located in an area well served by transit services and is within walking distance of two ION Light Rail stations:

- Northfield, which also connects to bus routes:
  - Route 9 (Lakeshore);
  - Route 19 (Hazel); and
  - Route 73 (Northlake)
- Conestoga, which also connects to bus routes:
  - Route 201 (iXpress Fischer-Hallman);
  - Route 202 (IXpress University);
  - Route 6 (Bridge-Courtland);
  - Route 7 (King);
  - Route 9 (Lakeshore);
  - Route 14 (Bathurst);
  - Route 21 (Columbia);
  - Route 29 (Keats-University); and
  - Route 31 (Columbia)

In addition, Route 9 runs on Northfield Drive directly adjacent to the subject development.

**Figure 2.2** displays the map of the existing transit network around the subject site.




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# Existing Transit Network

## 2.3 Cycling and Pedestrian Facilities

Sidewalk infrastructure on both sides of the street are provided on all streets within the study area, except on Conestogo Road but sidewalks are planned to be installed along the frontage of the subject development. Bicycle lanes are currently provided on Northfield Drive, Parkside Drive, and Weber Street to the north of Northfield Drive.

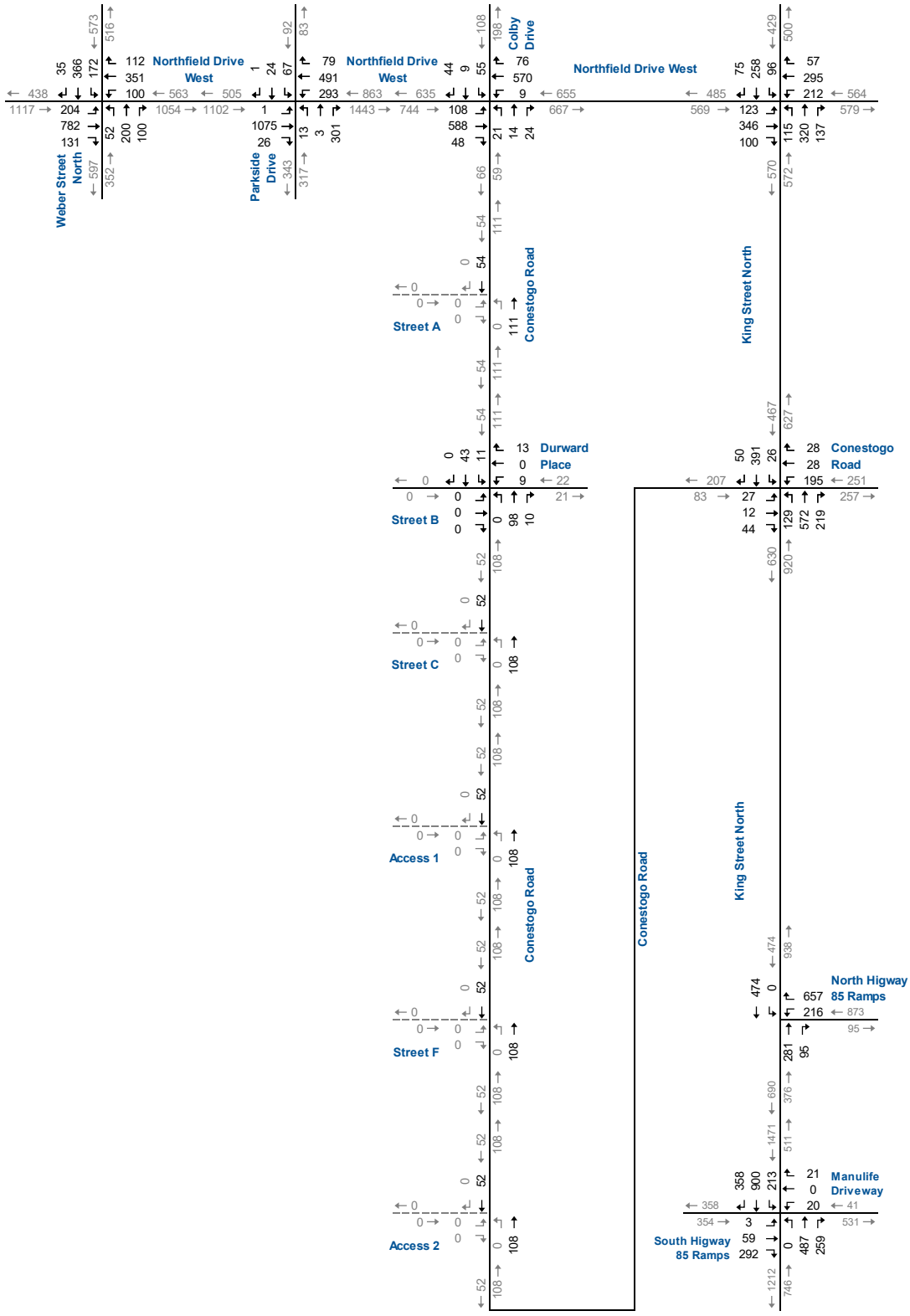
As part of the development plan, a pedestrian / cycling bridge is proposed to cross Highway 85 to connect the subject development to Northfield Station.

## 2.4 Traffic Volumes

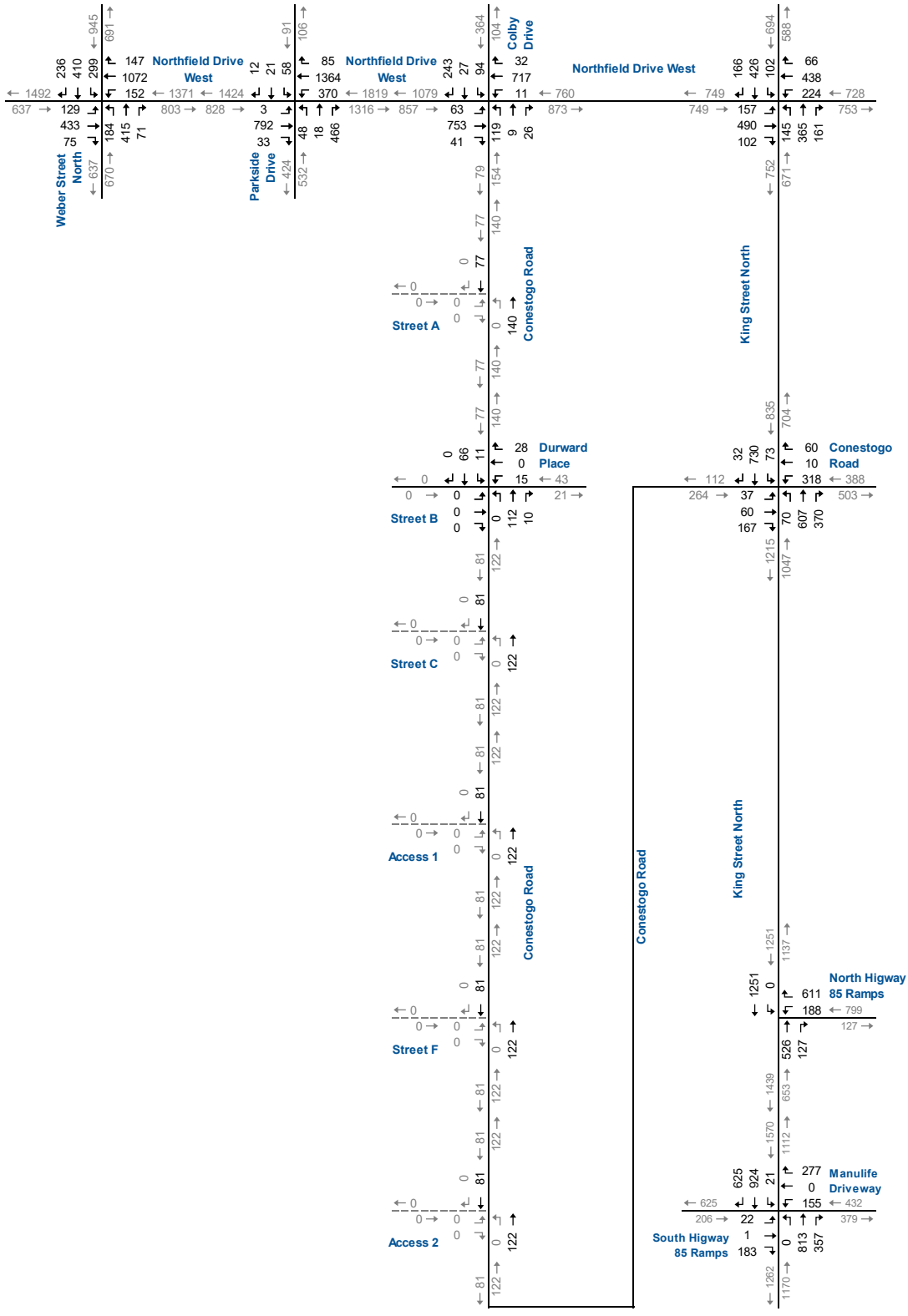
Traffic counts were provided by the Region of Waterloo, with the exception of **Conestogo Road and Durward Place**, and **King Street North and North Higway 85 Ramps**, which were counted by Paradigm in June and November 2020, respectively.

**Figure 2.3a** and **Figure 2.3b** summarizes the existing AM and PM peak hour traffic volumes, respectively.

**Appendix B** contains the existing count data.




# Existing Traffic Volumes – AM Peak Hour




# Existing Traffic Volumes – PM Peak Hour

## 2.5 Traffic Operations

The operations of the intersections in the study area were evaluated using the existing lane configurations, traffic controls and the existing traffic peak volumes.

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles desiring to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on a number of criteria related to the opposing traffic flows. The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized intersections), the movement is considered to have a LOS F and remedial measures are usually implemented, if they are feasible.

The level of service conditions on the existing road network have been assessed using Synchro 10. The criteria, as defined by the Region, for identifying “critical” intersections are:

- overall Level of Service E or F (i.e. average control delay per vehicle greater than 55 seconds) for signalized intersections; and
- overall Level of Service E or F (i.e. average control delay per vehicle greater than 35 seconds) for unsignalized intersections.

As well, the criteria for identifying individual “critical” movements are:

- the average control delay for individual movements is greater that 55 seconds;
- estimated 95th percentile queue length for an exclusive movement exceeds the available storage space;
- estimated 95th percentile queue length for an individual movement will block an existing access;
- exclusive turning lanes are inaccessible because of queue lengths in adjacent through lanes; and
- poor quality of service for non-auto modes.

Signals within the study area have continencies in the case of an ION LRT vehicle travelling through the intersection. These special timings include an all-red phase for all other vehicles (except for the intersection of Northfield and Colby / Conestogo in which the ION





signal runs concurrently with the east and westbound phases on Northfield Drive) from anywhere between 25 and 47 seconds. For an ION schedule of 15 mintues headways, an LRT vehicle phase will occur every 7.5 mintues on average, which represents one every 3 to 4.5 mintues. For the analyses contained in this report, the non-LRT phases were used as the basis of the analyses. Consideration to the impact of the LRT phases is discussed for the future conditions later in the report.

**Table 2.1** summarizes the level of service and other performance results.

**Appendix C** contains the detailed Synchro reports.

The westbound channelized right-turn movement of the **King Street North and North Highway 85 Ramps** was removed from the analysis as it operates under free-flow conditions with no traffic control. This was also done for all future horizons.

The analyses indicate that all intersections and individual movements within the study area are currently operating at acceptable levels of service.

# TABLE 2.1: BASE YEAR PEAK HOUR TRAFFIC OPERATIONS

| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 22 | 35 | > | 33 | 26 | 30 | 1 | 23 | 20 | 27 | > | 26 | 23 | 27 | > | 26 | 28 |
| | | | V/C | 0.45 | 0.73 | > | | 0.48 | 0.29 | 0.18 | | 0.15 | 0.33 | > | | 0.39 | 0.33 | > | | |
| | | | Q | 46 | 126 | > | | 24 | 47 | 0 | | 15 | 37 | > | | 41 | 50 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | C | C | > | C | D | A | > | B | < | C | A | A | D | C | > | D | C |
| | | | Delay | 20 | 30 | > | 30 | 35 | 8 | > | 17 | < | 33 | 7 | 9 | 37 | 32 | > | 36 | 23 |
| | | | V/C | 0.00 | 0.72 | > | | 0.79 | 0.27 | > | | < | 0.04 | 0.51 | | 0.22 | 0.06 | > | | |
| | | | Q | 1 | 153 | > | | 71 | 34 | > | | < | 9 | 23 | | 26 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | C | > | C | B |
| | | | Delay | 38 | 6 | > | 10 | 37 | 12 | > | 12 | < | 23 | > | 23 | < | 30 | > | 30 | 13 |
| | | | V/C | 0.44 | 0.26 | > | | 0.06 | 0.33 | > | | < | 0.27 | > | | < | 0.48 | > | | |
| | | | Q | 33 | 42 | > | | 6 | 54 | > | | < | 16 | > | | < | 27 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | B | C |
| | | | Delay | 20 | 34 | > | 31 | 44 | 28 | > | 34 | 17 | 25 | > | 23 | 17 | 26 | 1 | 20 | 27 |
| | | | V/C | 0.31 | 0.55 | > | | 0.49 | 0.38 | > | | 0.25 | 0.43 | > | | 0.25 | 0.23 | 0.13 | | |
| | | | Q | 28 | 61 | > | | 35 | 45 | > | | 27 | 56 | > | | 23 | 35 | 0 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | < | 0 | > | 0 | < | 2 | > | 2 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 1 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | B | > | C | D | B | > | D | A | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 18 | > | 25 | 41 | 15 | > | 35 | 10 | 13 | 6 | 11 | 45 | 16 | > | 17 | 17 |
| | | | V/C | 0.16 | 0.24 | > | | 0.44 | 0.14 | > | | 0.24 | 0.29 | 0.22 | | 0.23 | 0.29 | > | | |
| | | | Q | 13 | 14 | > | | 30 | 13 | > | | 19 | 53 | 29 | | 13 | 39 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | A | > | A | A | A | > | A | B |
| | | | Delay | | | | | 28 | | 0 | 28 | | 8 | > | 8 | 0 | 9 | > | 9 | 17 |
| | | | V/C | | | | | 0.27 | | 0.00 | | | 0.20 | > | | 0.00 | 0.22 | > | | |
| | | | Q | | | | | 28 | | 0 | | | 28 | > | | 0 | 40 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 30.3 | 33.4 | 33.3 | 33 | 33 | | 0 | 16 | | 10 | 2 | 8 | 8 | 7 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.16 | 0.78 | | 0.09 | | 0.07 | | | 0.25 | 0.29 | | 0.40 | 0.39 | 0.38 | | |
| | | | Q | 3 | 22.3 | 67 | | 10 | | 0 | | | 41 | 12 | | 29 | 62 | 11 | | |
| PM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | D | C | > | C | C | D | A | D | C | D | > | D | C | C | > | C | D |
| | | | Delay | 44 | 32 | > | 34 | 23 | 43 | 10 | 37 | 27 | 40 | > | 36 | 31 | 32 | > | 32 | 35 |
| | | | V/C | 0.70 | 0.46 | > | | 0.43 | 0.84 | 0.25 | | 0.57 | 0.55 | > | | 0.71 | 0.61 | > | | |
| | | | Q | 45 | 69 | > | | 37 | 161 | 22 | | 43 | 73 | > | | 70 | 85 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | B | C | > | C | C | B | > | B | < | C | B | B | C | C | > | C | B |
| | | | Delay | 18 | 23 | > | 23 | 31 | 15 | > | 18 | < | 34 | 16 | 19 | 34 | 23 | > | 30 | 20 |
| | | | V/C | 0.02 | 0.53 | > | | 0.85 | 0.67 | > | | < | 0.18 | 0.72 | | 0.18 | 0.08 | > | | |
| | | | Q | 2 | 96 | > | | 76 | 138 | > | | < | 24 | 65 | | 22 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | B | > | B | D | B | > | C | < | D | > | D | < | D | > | D | C |
| | | | Delay | 49 | 13 | > | 16 | 48 | 20 | > | 20 | < | 50 | > | 50 | < | 41 | > | 41 | 24 |
| | | | V/C | 0.36 | 0.42 | > | | 0.09 | 0.47 | > | | < | 0.73 | > | | < | 0.84 | > | | |
| | | | Q | 27 | 81 | > | | 9 | 83 | > | | < | 61 | > | | < | 110 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 21 | 37 | > | 34 | 47 | 31 | > | 36 | 21 | 29 | > | 27 | 21 | 31 | 6 | 24 | 30 |
| | | | V/C | 0.43 | 0.66 | > | | 0.50 | 0.50 | > | | 0.37 | 0.49 | > | | 0.30 | 0.38 | 0.29 | | |
| | | | Q | 34 | 83 | > | | 39 | 66 | > | | 38 | 73 | > | | 27 | 63 | 17 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | < | 0 | > | 0 | < | 1 | > | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.05 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 2 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | C | > | C | D | A | > | D | B | C | B | C | D | C | > | C | C |
| | | | Delay | 39 | 31 | > | 32 | 47 | 7 | > | 40 | 16 | 26 | 14 | 21 | 54 | 23 | > | 26 | 27 |
| | | | V/C | 0.17 | 0.66 | > | | 0.60 | 0.13 | > | | 0.22 | 0.41 | 0.43 | | 0.43 | 0.50 | > | | |
| | | | Q | 17 | 52 | > | | 53 | 10 | > | | 18 | 84 | 81 | | 32 | 97 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | B | > | B | A | B | > | B | C |
| | | | Delay | | | | | 28 | | 0 | 28 | | 11 | > | 11 | 0 | 15 | > | 15 | 23 |
| | | | V/C | | | | | 0.20 | | 0.00 | | | 0.37 | > | | 0.00 | 0.63 | > | | |
| | | | Q | | | | | 27 | | 0 | | | 49 | > | | 0 | 117 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | D | | C | C | | A | > | A | A | A | > | A | A |
| | | | Delay | 24.1 | 23 | 21.9 | 22 | 35 | | 28 | 30 | | 8 | 2 | 6 | 7 | 8 | 3 | 6 | 10 |
| | | | V/C | 0.06 | 0.00 | 0.52 | | 0.55 | | 0.70 | | | 0.37 | 0.36 | | 0.07 | 0.42 | 0.59 | | |
| | | | Q | 9 | 1.3 | 38 | | 44 | | 57 | | | 57 | 11 | | 5 | 67 | 14 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*

### 2.5.1 Conestogo Road/Colby Drive and Northfield Drive West Queuing

In addition to the Synchro 10 analysis, MTO requested queue length analysis for the eastbound movements at the intersection of **Conestogo Road/Colby Drive and Northfield Drive West** to determine potential impacts to the Highway 85 ramp on Northfield Drive. This analysis was carried out using the MTO Geometric Design Standards[1], Table B7 - 4 under Level of Service (LOS) A conditions, assuming a vehicle length of 7.5 meters.

The distance between Conestogo Road / Colby Drive and the Highway 85 Southbound ramp on Northfield Drive is 340 metres. The results indicate that the eastbound movements are not forecast to reach the Highway 85 Southbound ramp.

**Table 2.2** summarizes the queuing analysis under the existing traffic conditions.

**TABLE 2.2: QUEUING ANALYSIS SUMMARY**

| Movement | Cycle Length | | Movement Counts (per lane) | | $m_u$ max | Calc'd Length (per lane) |
|---|---|---|---|---|---|---|
| | AM Peak | PM Peak | AM Peak | PM Peak | | |
| EBL | 102 | 117 | 110 | 64 | 3.1 | 45.0 |
| EBT | | | 330 | 410 | 13.3 | 150.0 |

[1] Geometric Design Standards for Ontario Highways, *Ministry of Transportation,* 1985

# 3 Development Concept

## 3.1 Development Description

The subject development consists of multiple mixed-use buildings, grouped into 8 blocks, including:

- 432 residential units in mid-rise buildings
- 2102 residential units in high-rise buildings;
- 21,400 $ft^2$ gross floor area (GFA) of commercial retail; and
- 196,100 $ft^2$ GFA of office space.

The statistics for each block are as follows:

- **Block 1:** 567 residential units;
- **Block 2:** 350 residential units;
- **Block 3:** 355 residential units;
- **Block 4:** 292 residential units and 10,700 $ft^2$ GFA of retail;
- **Block 5:** 270 residential units and 10,700 $ft^2$ GFA of retail;
- **Block 6:** 384 residential units;
- **Block 7:** 316 residential units; and
- **Block 8:** 196,100 $ft^2$ of office.

A total of 2648 parking spaces is proposed for the entire development in a mix of underground and podium parking structures, and surface parking lots:

- **Block 1:** 460 underground parking spaces;
- **Block 2:** 281 underground parking spaces;
- **Block 3:** 229 underground parking spaces;
- **Block 4 and 5:** 490 podeum parking spaces;
- **Block 6:** 404 podium parking spaces;
- **Block 7:** 255 underground parking spaces;
- **Block 8:** 511 surface parking spaces; and
- **Surface Parking:** 18 spaces.

Zoning by-law requirements as per Area C are 2.8 spaces per 100 $m^2$ for office and retail and 1.0 spaces per residential unit (0.9 for residents and 0.1 for visitors). This is a total of 3102 parking spaces.





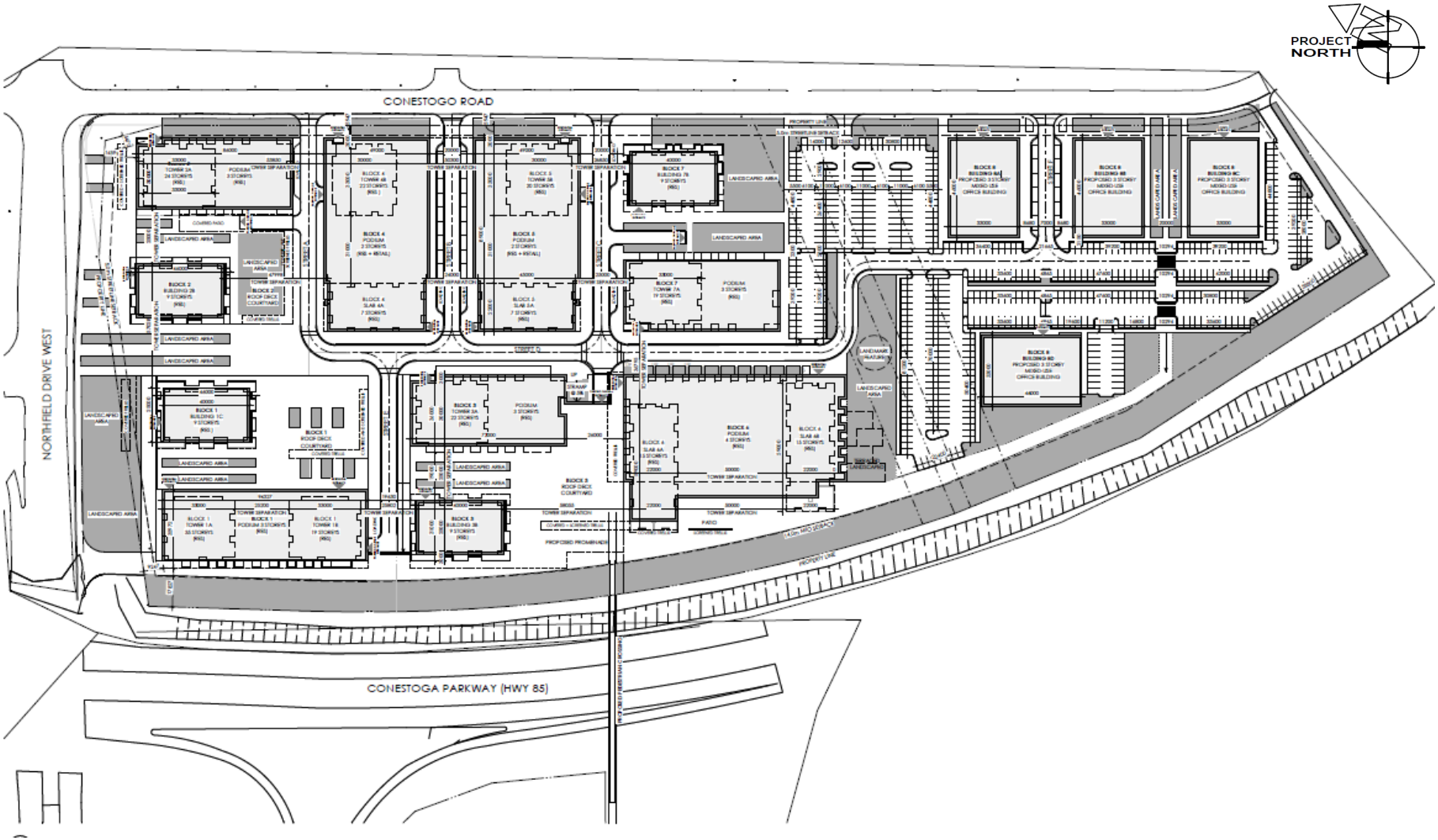
The subject development will reduce parking demand by a combination of Transportation Demand Management, the mixed-use nature of the site, and the availability of transit and active transportation options.

Six all-moves accesses are proposed on Conestogo Road to Blocks 1 through 8, referred to as:

- Street A;
- Street B, opposite Durward Place;
- Street C;
- Access 1;
- Street F; and
- Access 2.

As noted in **Chapter 2**, the subject site is located within walking distance of two ION LRT stations. The site design features active transportation facilities on-site, including a proposed pedestrian / bicycle bridge over Highway 85 to provide more convenient access to Northfield ION station.

The site plan is shown in **Figure 3.1**.




# Development Site Plan

Figure 3.1

## 3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation[2] rates and equations were used to estimate the peak hour site-generate traffic volumes. Land Use Codes (LUC) 221 (Mid-Rise Apartment), 222 (High-Rise Apartment), 710 (General Office Building), and 820 (Shopping Center) were used in this study. This results in 1051 and 1263 new trips forecast to be generated in the AM and PM peaks, respectively.

- **LUC 221 (Multifamily Housing (Mid-Rise)):** Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors);
- **LUC 222 (Multifamily Housing (High -Rise)):** High-rise multifamily housing includes apartments, townhouses, and condominiums that have more than 10 levels (floors). They are likely to have one or more elevators;
- **LUC 710 (General Office Building):** A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. A general office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use 712); and
- **LUC 820 (Shopping Center):** A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

ITE Internal Capture calculations were used to determine the internal capture rates between all uses and a mode share reduction was applied**.** The internal capture calculations can be found in **Appendix D.**

The site location will be a significant factor contributing to a reduction of automobile trips to/from the site as the site location will be attractive

[2] Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, 2017.

for either the residents or employees to use transit or active transporation modes. The site location is near two ION LRT stations, providing access to the ION system and multiple bus routes (as outlined in **Section 2.2**. This will make public transit an attractive alternative for those who work beyond comfortable walking or cycling distances.

With the convenient access to alternative mode facilities, the trip generation for this development was reduced by 25%, which is the transit mode share target recommended in the Region of Waterloo's Regional Transportation Master Plan[3]. These reductions resulted in 787 and 861 trips during the AM and PM peak hours, respectively.

**Table 3.1** summarizes the total trip generation for the site including the above described reductions.

For the purposes of forecasting in this study, full buildout of the site is forecast to occur over six years (2027).

## TABLE 3.1: TRIP GENERATION

| Land Use Code | Units | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Rate | In | Out | Total | Rate | In | Out | Total |
| **Phase 1 (2025)** | | | | | | | | | |
| **221: Multifamily Housing (Mid-Rise)** | 216 Units | (1) | 19 | 54 | 72 | (2) | 55 | 35 | 90 |
| **222: Multifamily Housing (High-Rise)** | 701 Units | (3) | 48 | 152 | 200 | (4) | 147 | 94 | 241 |
| *Internal Capture* | | - | *1* | *5* | *6* | - | *5* | *2* | *7* |
| *Mode Split* | | *25%* | *16* | *50* | *67* | *25%* | *49* | *32* | *81* |
| **Phase 1 Net Trips** | | | **49** | **151** | **200** | | **148** | **95** | **243** |
| **Full Build-Out (2027)** | | | | | | | | | |
| **221: Multifamily Housing (Mid-Rise)** | 432 Units | (1) | 37 | 107 | 144 | (2) | 110 | 70 | 180 |
| **222: Multifamily Housing (High-Rise)** | 2102 Units | (3) | 144 | 457 | 601 | (4) | 441 | 282 | 723 |
| **710: General Office Building** | 196.1 1000 Sq. ft | (5) | 181 | 30 | 211 | (6) | 35 | 181 | 216 |
| **820: Shopping Center** | 21.4 1000 Sq. ft | (7) | 100 | 62 | 162 | (8) | 84 | 90 | 174 |
| ***Total Trips*** | | | ***462*** | ***656*** | ***1118*** | | ***670*** | ***623*** | ***1293*** |
| *Internal Capture* | | - | *34* | *34* | *68* | - | *55* | *55* | *110* |
| *Mode Split* | | *25%* | *107* | *156* | *263* | *25%* | *154* | *142* | *296* |
| *Passby: 820* | | *n/a* | *0* | *0* | *0* | *34%* | *13* | *13* | *26* |
| **Total Net Trips** | | | **321** | **466** | **787** | | **448** | **413** | **861** |

*(1) Ln(Trip) = 0.98Ln(x) - 0.98* *(2) Ln(Trip) = 0.96Ln(x) - 0.63*

*(3) Trip = 0.28x + 12.86* *(4) Trip = 0.34x + 8.56*

*(5) Trip = 0.94x + 26.49* *(6) Ln(Trip) = 0.95Ln(x) + 0.36*

*(7) Trip = 0.50x + 151.78* *(8) Ln(Trip) = 0.74Ln(x) + 2.89*

[3] Regional Transportation Master Plan, Regional Municipality of Waterloo, February 2011

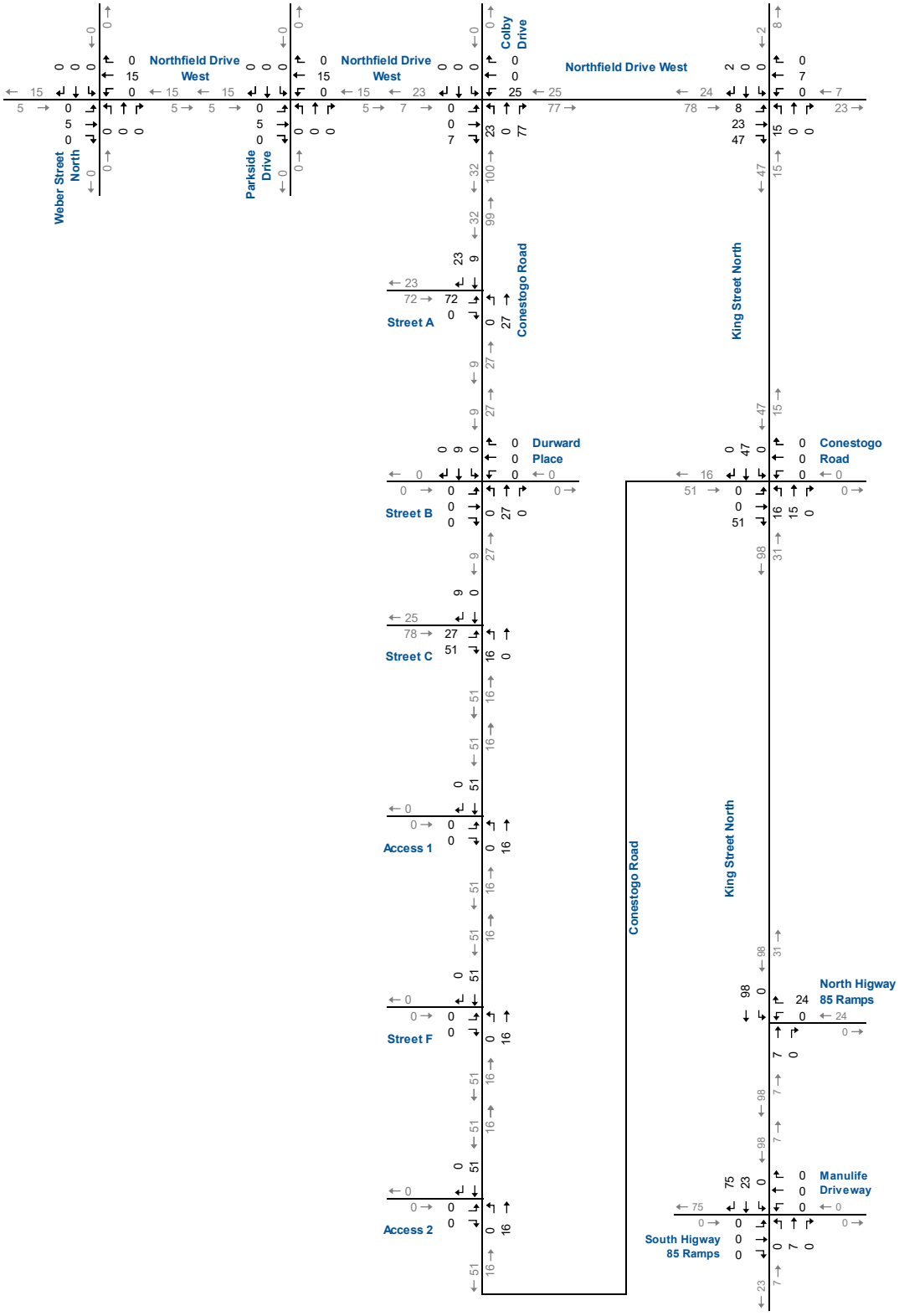
## 3.3 Trip Distribution and Assignment

**Table 3.2** summarizes the Transportation Tomorrow Survey results used to determine the likely distribution of trips to / from the subject site. Trip Assignment was determined by the likely route vehicles would take to travel to / from their destination / origin.

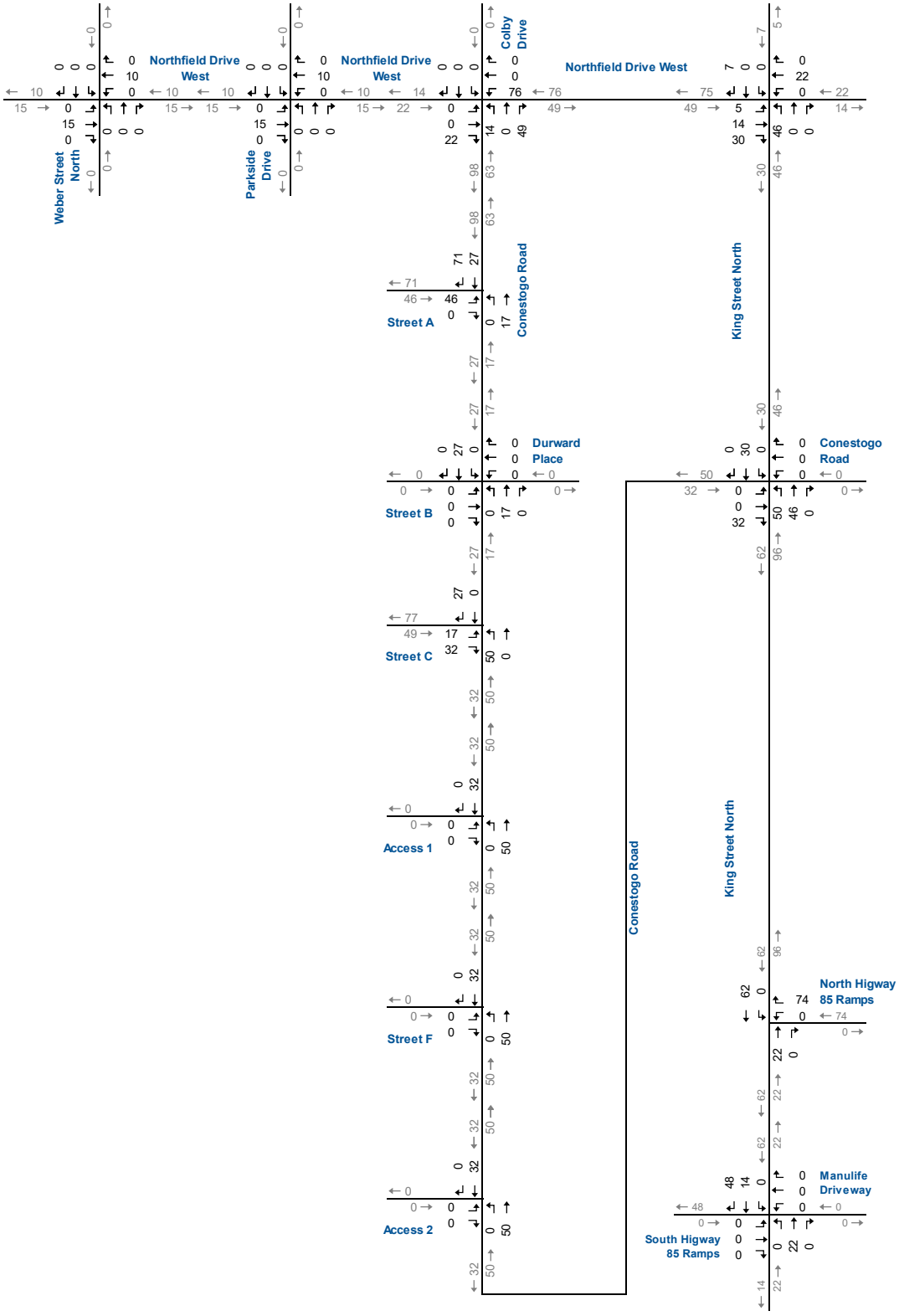
**Figure 3.2a** and **Figure 3.2b** show the trip assignment for the trips forecast to be generated by Phase 1 of the subject development. **Figure 3.3a** , **Figure 3.3b** and **Figure 3.3c** show the trip assignment for the trips forecast to be generated by the full build-out of the subject development.

**TABLE 3.2: TRIP DISTRIBUTION**

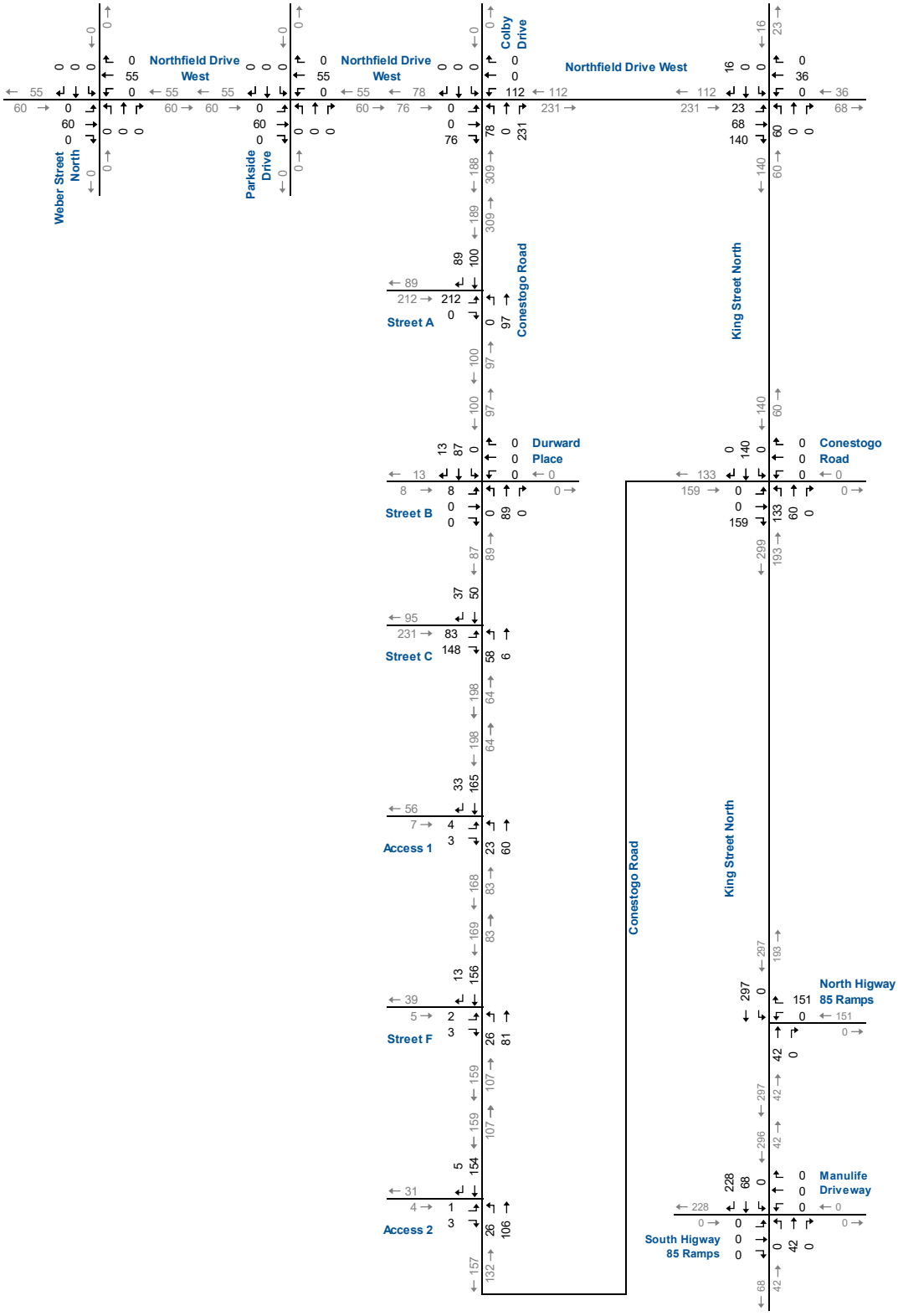
| Direction | Distribution | | |
|---|---|---|---|
| | Commercial | Home | Work |
| East via Northfield Drive | 15% | 15% | 5% |
| West via Northfield Drive | 25% | 10% | 25% |
| North via King Street | 5% | 5% | 5% |
| South via King Street | 15% | 15% | 10% |
| North via Highway 85 | 5% | 5% | 5% |
| South via Highway 85 | 35% | 50% | 50% |
| ***Total*** | ***100%*** | ***100%*** | ***100%*** |



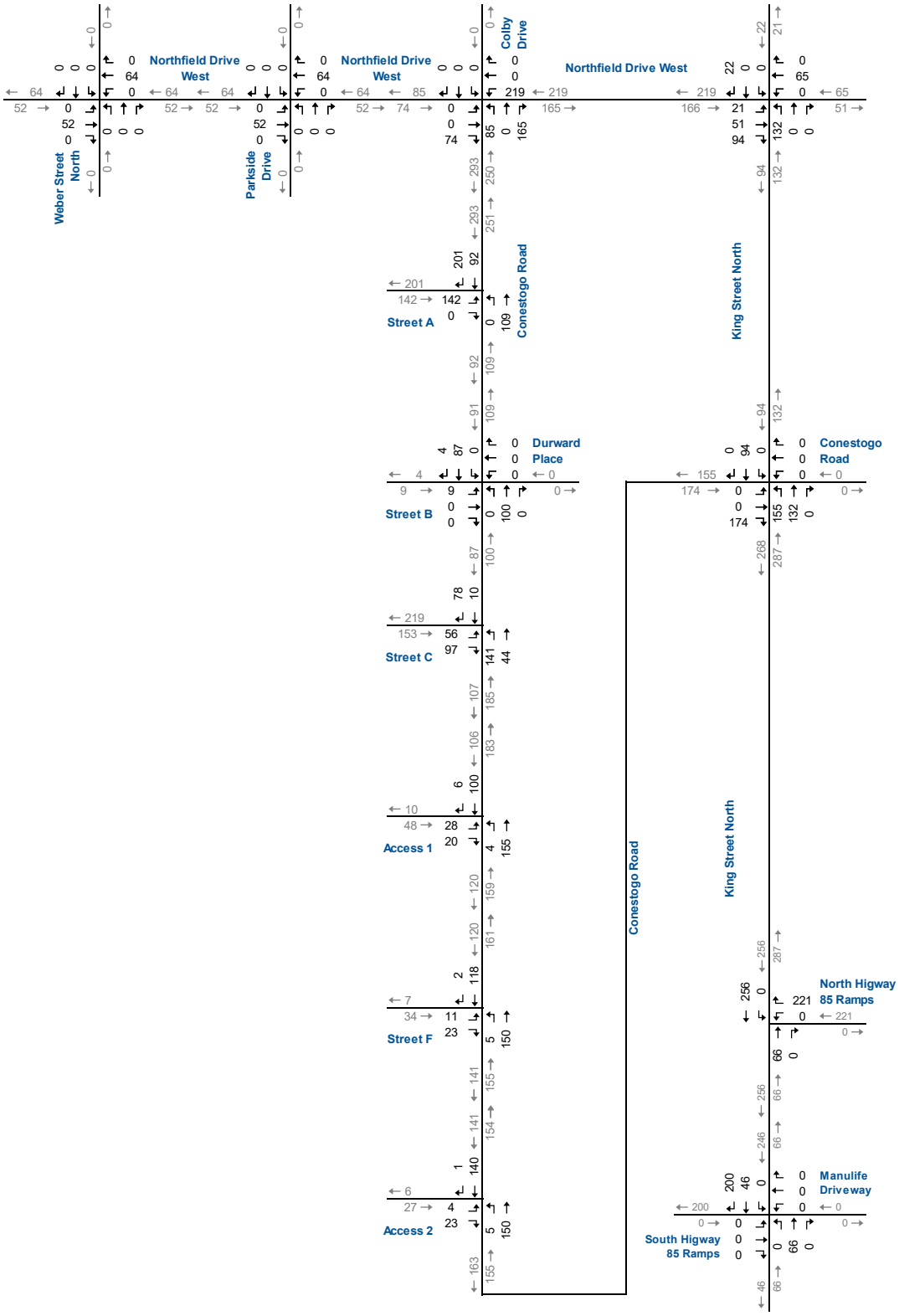

# Phase 1 Site Generated Traffic Volumes – AM Peak Hour



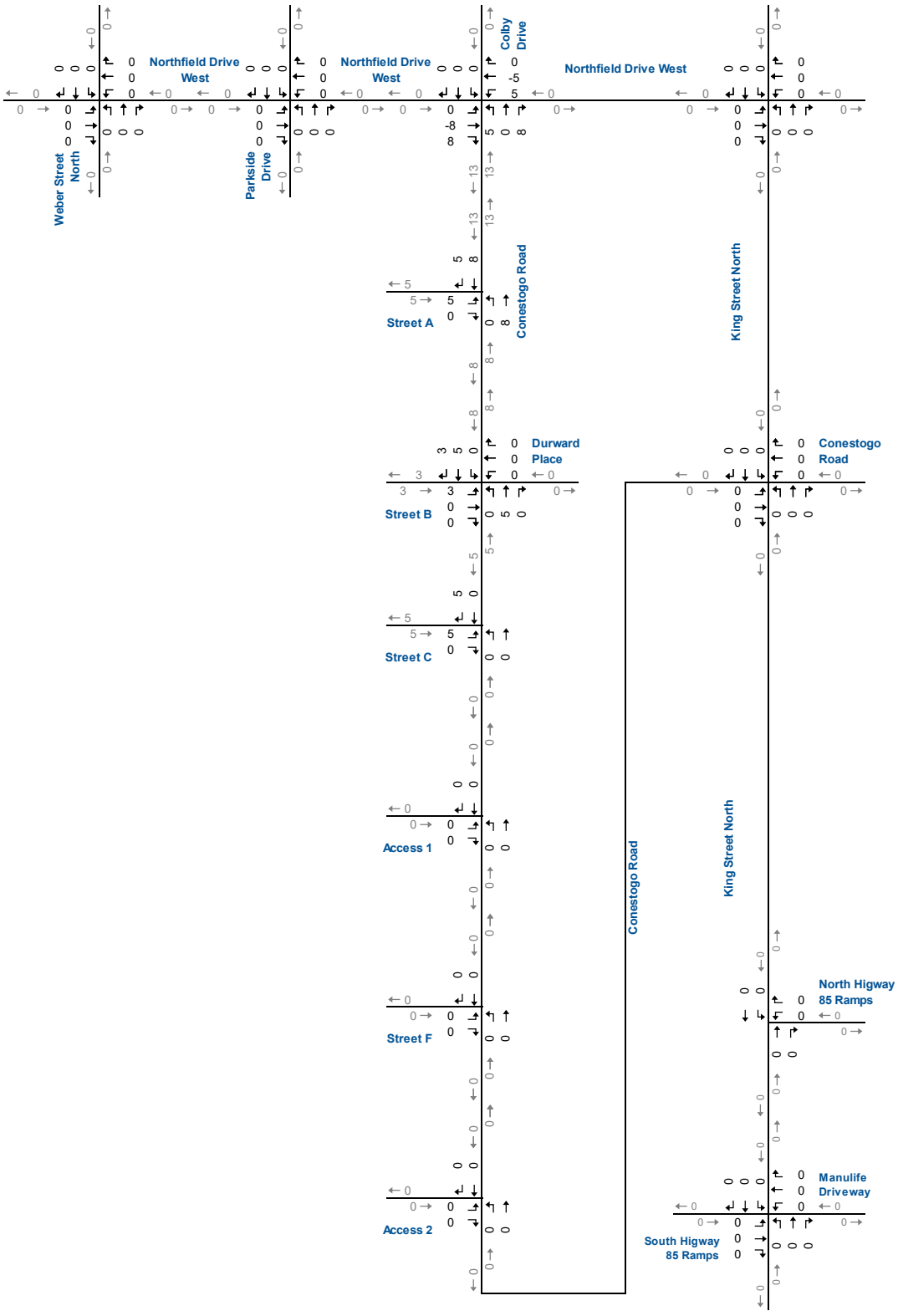

# Phase 1 Site Generated Traffic Volumes – PM Peak Hour




# Full Build-Out Site Generated Traffic Volumes – AM Peak Hour




# Full Build-Out Site Generated Traffic Volumes – PM Peak Hour




# Full Build-Out Passby Traffic Volumes – PM Peak Hour

# 4 Evaluation of Future Traffic Conditions

Future traffic conditions assessed include estimates of future background and total traffic analysis for the 2025, 2027, 2032 and 2037 horizon. The future traffic volumes near the development will likely consist of increased non-site traffic volumes (background traffic), and the traffic forecast to be generated by the proposed development.

### 4.0.1 Background Growth Rate

The growth rate for the generalized traffic near the site was assumed to be 0.33% on Northfield Drive and 0.23% on King Street. This growth rate was established with use of the Region of Waterloo's ION corridor growth calculations. The forecasts used for this study were from the long-range forecasts after ION is built.

## 4.1 2025 Horizon

### 4.1.1 Background Traffic Operations

Based on the estimated 2025 background traffic volumes, Level of Service analyses have been conducted using Synchro 10, for the weekday AM and PM peak hour conditions for the intersections in the study area. Signalized intersections were optimized for movement splits, no other improvements were considered.

**Figure 4.1a** and **Figure 4.1b** displays the 2025 background traffic volumes for the weekday AM and PM peak hours, respectively.

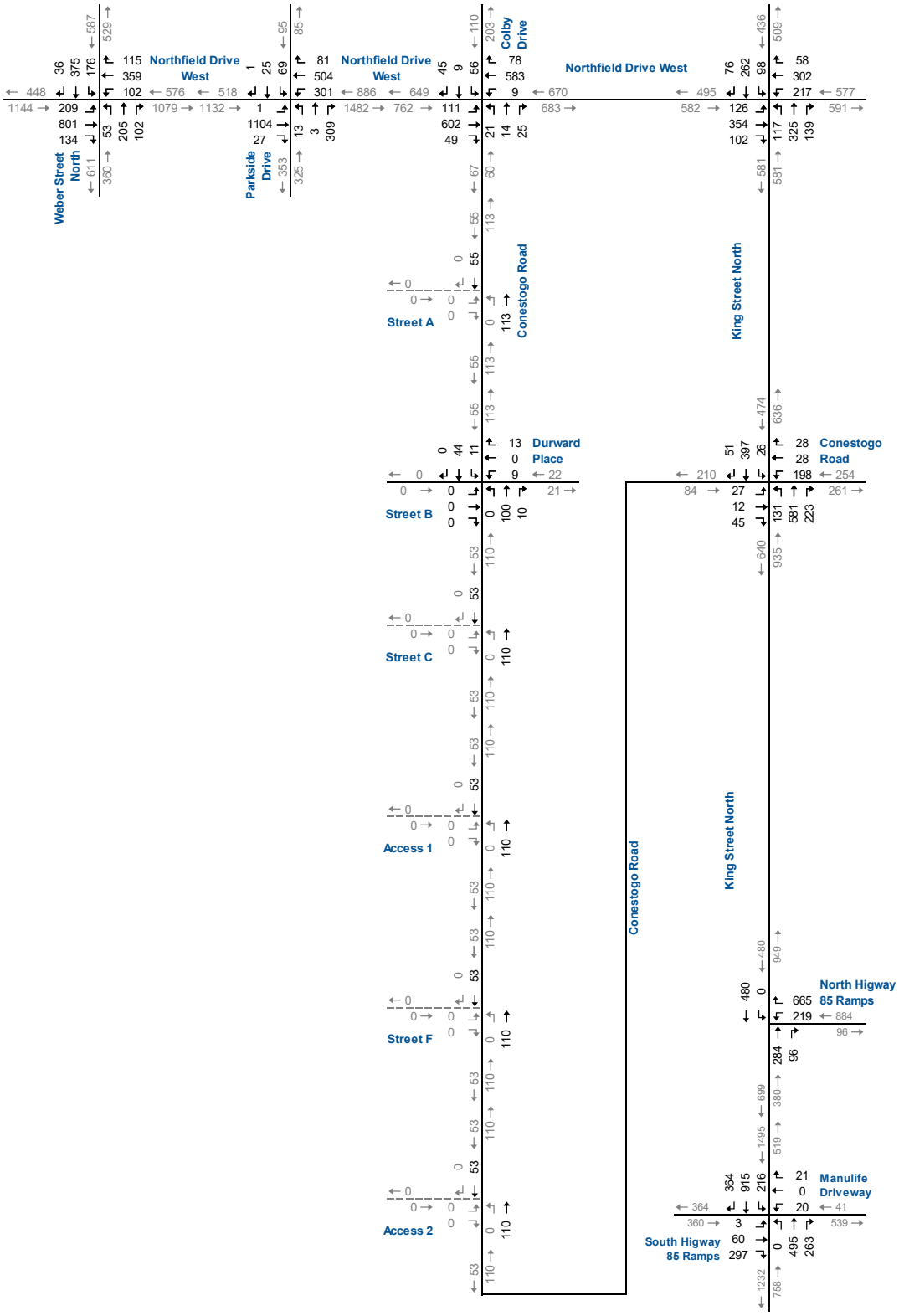
**Table 4.1** summarizes the analysis results, indicating the levels of service (LOS), volume to capacity ratios (V/C) and 95th percentile queues experienced at the study area intersections.

All observed intersections have acceptable operational values.

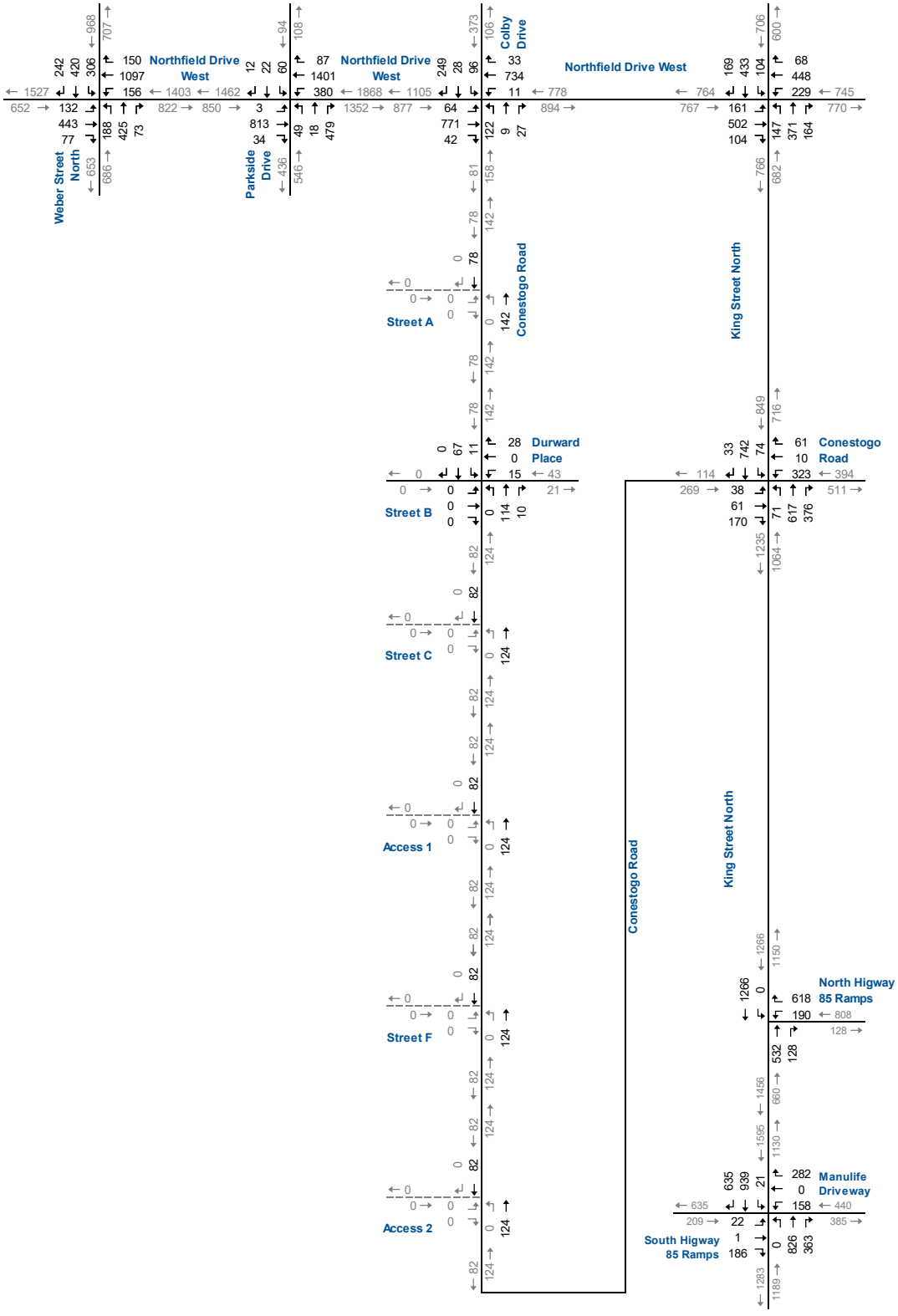
**Appendix E** includes the detailed Synchro 10 reports.








# 2025 Background Traffic Forecasts – AM Peak Hour




# 2025 Background Traffic Forecasts – PM Peak Hour

# TABLE 4.1: 2025 BACKGROUND TRAFFIC OPERATION

| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 22 | 36 | > | 33 | 28 | 30 | 1 | 24 | 21 | 27 | > | 26 | 23 | 27 | > | 26 | 29 |
| | | | V/C | 0.47 | 0.75 | > | | 0.52 | 0.30 | 0.19 | | 0.16 | 0.34 | > | | 0.41 | 0.34 | > | | |
| | | | Q | 48 | 131 | > | | 25 | 48 | 0 | | 15 | 38 | > | | 42 | 52 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | C | C | > | C | D | A | > | B | < | C | A | A | D | C | > | D | C |
| | | | Delay | 20 | 32 | > | 32 | 41 | 8 | > | 19 | < | 33 | 7 | 9 | 37 | 33 | > | 36 | 25 |
| | | | V/C | 0.00 | 0.76 | > | | 0.81 | 0.27 | > | | < | 0.04 | 0.52 | | 0.22 | 0.06 | > | | |
| | | | Q | 1 | 161 | > | | 79 | 36 | > | | < | 9 | 24 | | 27 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | C | > | C | B |
| | | | Delay | 38 | 6 | > | 10 | 37 | 12 | > | 12 | < | 23 | > | 23 | < | 30 | > | 30 | 13 |
| | | | V/C | 0.45 | 0.27 | > | | 0.06 | 0.34 | > | | < | 0.27 | > | | < | 0.49 | > | | |
| | | | Q | 34 | 45 | > | | 6 | 56 | > | | < | 16 | > | | < | 28 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | C | C |
| | | | Delay | 20 | 34 | > | 31 | 44 | 28 | > | 34 | 18 | 25 | > | 24 | 18 | 27 | 1 | 20 | 28 |
| | | | V/C | 0.32 | 0.57 | > | | 0.50 | 0.39 | > | | 0.26 | 0.44 | > | | 0.26 | 0.23 | 0.14 | | |
| | | | Q | 29 | 63 | > | | 36 | 47 | > | | 28 | 59 | > | | 24 | 37 | 0 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | < | 0 | > | 0 | < | 2 | > | 2 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 1 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | B | > | C | D | B | > | D | A | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 18 | > | 25 | 41 | 15 | > | 35 | 10 | 14 | 6 | 11 | 46 | 16 | > | 18 | 17 |
| | | | V/C | 0.17 | 0.24 | > | | 0.45 | 0.14 | > | | 0.25 | 0.30 | 0.22 | | 0.23 | 0.30 | > | | |
| | | | Q | 14 | 14 | > | | 30 | 13 | > | | 19 | 54 | 30 | | 14 | 40 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | A | > | A | A | A | > | A | B |
| | | | Delay | | | | | 27 | | 0 | 27 | | 8 | > | 8 | 0 | 9 | > | 9 | 18 |
| | | | V/C | | | | | 0.25 | | 0.00 | | | 0.20 | > | | 0.00 | 0.23 | > | | |
| | | | Q | | | | | 28 | | 0 | | | 28 | > | | 0 | 40 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 31 | 34 | 33 | 33 | 32 | | 0 | 16 | | 10 | 2 | 8 | 8 | 7 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.17 | 0.76 | | 0 | | 0 | | | 0 | 0 | | 0 | 0 | 0 | | |
| | | | Q | 3 | 22.7 | 68 | | 10 | | 0 | | | 42 | 12 | | 29 | 64 | 10 | | |
| PM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | D | C | > | C | C | D | A | D | C | D | > | D | C | C | > | C | D |
| | | | Delay | 44 | 31 | > | 33 | 23 | 42 | 10 | 37 | 29 | 42 | > | 38 | 34 | 34 | > | 34 | 36 |
| | | | V/C | 0.71 | 0.46 | > | | 0.44 | 0.85 | 0.26 | | 0.61 | 0.61 | > | | 0.75 | 0.65 | > | | |
| | | | Q | 46 | 69 | > | | 37 | 163 | 22 | | 44 | 76 | > | | 72 | 89 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | C | < | C | B | B | C | C | > | C | C |
| | | | Delay | 19 | 26 | > | 26 | 45 | 17 | > | 23 | < | 33 | 18 | 20 | 33 | 23 | > | 29 | 23 |
| | | | V/C | 0.03 | 0.57 | > | | 0.92 | 0.71 | > | | < | 0.18 | 0.73 | | 0.18 | 0.07 | > | | |
| | | | Q | 2 | 100 | > | | 106 | 146 | > | | < | 25 | 74 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | B | > | B | D | C | > | C | < | D | > | D | < | D | > | D | C |
| | | | Delay | 49 | 14 | > | 17 | 48 | 21 | > | 21 | < | 51 | > | 51 | < | 42 | > | 42 | 25 |
| | | | V/C | 0.37 | 0.44 | > | | 0.09 | 0.49 | > | | < | 0.74 | > | | < | 0.85 | > | | |
| | | | Q | 28 | 84 | > | | 9 | 87 | > | | < | 65 | > | | < | 116 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 21 | 37 | > | 34 | 47 | 31 | > | 36 | 22 | 33 | > | 30 | 21 | 35 | 7 | 26 | 32 |
| | | | V/C | 0.45 | 0.67 | > | | 0.51 | 0.51 | > | | 0.37 | 0.55 | > | | 0.30 | 0.43 | 0.31 | | |
| | | | Q | 35 | 87 | > | | 41 | 68 | > | | 39 | 79 | > | | 29 | 68 | 18 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | < | 0 | > | 0 | < | 1 | > | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.05 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 2 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | C | > | C | C | A | > | C | B | C | B | C | D | C | > | C | C |
| | | | Delay | 38 | 30 | > | 32 | 25 | 7 | > | 22 | 15 | 27 | 17 | 22 | 53 | 24 | > | 27 | 25 |
| | | | V/C | 0.17 | 0.66 | > | | 0.50 | 0.13 | > | | 0.22 | 0.44 | 0.48 | | 0.43 | 0.53 | > | | |
| | | | Q | 17 | 52 | > | | 35 | 10 | > | | 17 | 87 | 87 | | 32 | 100 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | B | > | B | A | B | > | B | C |
| | | | Delay | | | | | 28 | | 0 | 28 | | 11 | > | 11 | 0 | 15 | > | 15 | 23 |
| | | | V/C | | | | | 0.20 | | 0.00 | | | 0.37 | > | | 0.00 | 0.64 | > | | |
| | | | Q | | | | | 27 | | 0 | | | 49 | > | | 0 | 119 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | D | D | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 30 | 33 | 36 | 36 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 8 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.16 | 0.77 | | 0 | | 0 | | | 0 | 0 | | 0 | 0 | 1 | | |
| | | | Q | 3 | 22.7 | 73 | | 10 | | 0 | | | 48 | 12 | | 29 | 70 | 12 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*

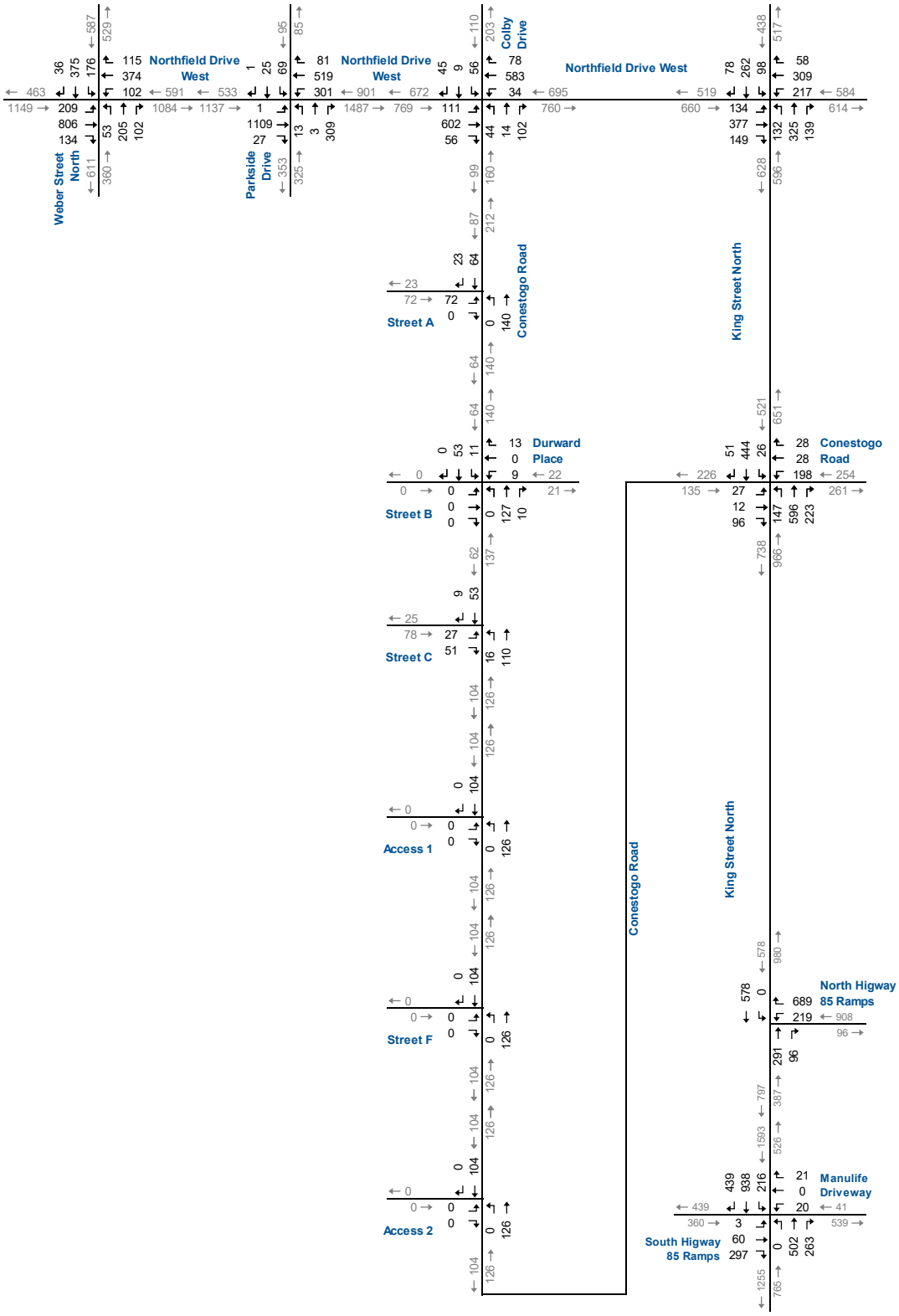
### 4.1.2 Total Traffic Operations

The forecast 2025 total traffic volumes, including both background traffic and development traffic, are shown in **Figure 4.2a** and **Figure 4.2b** for the AM and PM peaks, respectively.

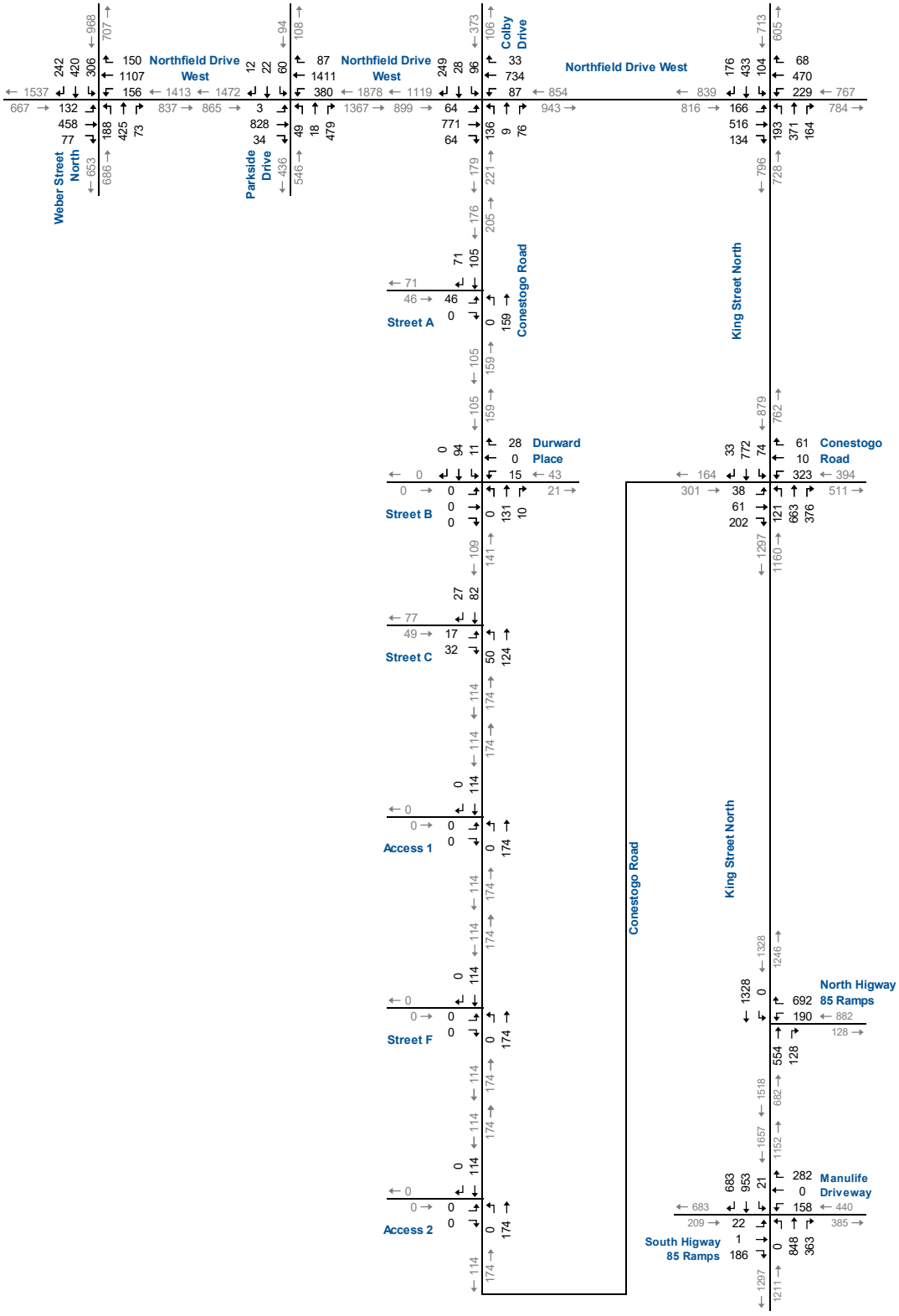
Similar to background traffic conditions, Level of Service analysis was undertaken, and the results are summarized in **Table 4.2a** and **Table 4.2b** . As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements:

- **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the PM peak hour; and
- **King Street North and Conestogo Road:** The eastbound left movement is forecast to operate at a LOS E during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

**Appendix F** includes the detailed Synchro 10 reports.




# 2025 Total Traffic Forecasts – AM Peak Hour




# 2025 Total Traffic Forecasts – PM Peak Hour

# TABLE 4.2A: 2025 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 22 | 36 | > | 33 | 27 | 30 | 1 | 24 | 20 | 27 | > | 26 | 23 | 27 | > | 26 | 29 |
| | | | V/C | 0.47 | 0.75 | > | | 0.51 | 0.31 | 0.19 | | 0.15 | 0.33 | > | | 0.40 | 0.34 | > | | |
| | | | Q | 47 | 130 | > | | 24 | 50 | 0 | | 15 | 38 | > | | 42 | 52 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | C | A | > | B | < | D | A | B | D | D | > | D | B |
| | | | Delay | 17 | 24 | > | 24 | 25 | 5 | > | 12 | < | 40 | 10 | 11 | 45 | 39 | > | 43 | 18 |
| | | | V/C | 0.00 | 0.66 | > | | 0.73 | 0.25 | > | | < | 0.06 | 0.59 | | 0.30 | 0.08 | > | | |
| | | | Q | 1 | 151 | > | | 60 | 27 | > | | < | 10 | 26 | | 29 | 13 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | D | > | D | B |
| | | | Delay | 40 | 9 | > | 14 | 40 | 12 | > | 14 | < | 26 | > | 26 | < | 36 | > | 36 | 16 |
| | | | V/C | 0.46 | 0.32 | > | | 0.22 | 0.37 | > | | < | 0.60 | > | | < | 0.57 | > | | |
| | | | Q | 36 | 51 | > | | 16 | 59 | > | | < | 32 | > | | < | 30 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | C | C |
| | | | Delay | 20 | 34 | > | 32 | 46 | 28 | > | 35 | 19 | 26 | > | 25 | 19 | 28 | 0 | 21 | 29 |
| | | | V/C | 0.33 | 0.63 | > | | 0.50 | 0.38 | > | | 0.30 | 0.44 | > | | 0.26 | 0.24 | 0.14 | | |
| | | | Q | 30 | 71 | > | | 37 | 47 | > | | 33 | 61 | > | | 25 | 38 | 0 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 0 | > | | < | 1 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | D | B | > | B | D | B | > | D | B | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 15 | > | 20 | 43 | 15 | > | 37 | 11 | 14 | 7 | 12 | 46 | 17 | > | 19 | 18 |
| | | | V/C | 0.17 | 0.40 | > | | 0.49 | 0.13 | > | | 0.30 | 0.32 | 0.23 | | 0.23 | 0.34 | > | | |
| | | | Q | 13 | 18 | > | | 30 | 13 | > | | 22 | 56 | 31 | | 13 | 46 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | C | C | | A | > | A | A | | | A | B |
| | | | Delay | | | | | 27 | | 26 | 26 | | 8 | > | 8 | 0 | | | 10 | 17 |
| | | | V/C | | | | | 0.25 | | 0.91 | | | 0.20 | > | | 0.00 | | | | |
| | | | Q | | | | | 28 | | 109 | | | 29 | > | | 0 | | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | A | A | A | A | A | A | A |
| | | | Delay | 31 | 33 | 34 | 34 | 32 | | 0 | 16 | | 10 | 2 | 8 | 8 | 7 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.17 | 0.76 | | 0.08 | | 0.07 | | | 0.26 | 0.28 | | 0.39 | 0.41 | 0.42 | | |
| | | | Q | 3 | 23 | 69 | | 10 | | 0 | | | 42 | 12 | | 29 | 66 | 11 | | |
| | Conestogo Road & Street A | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.10 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 9 | | > | 9 | | | | | 7 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.09 | | > | | | | | | 0.01 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*

# TABLE 4.2B: 2025 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| PM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | D | C | > | C | C | D | A | C | C | D | > | D | D | C | > | D | C |
| | | | Delay | 53 | 28 | > | 33 | 21 | 37 | 8 | 32 | 34 | 39 | > | 38 | 46 | 34 | > | 38 | 35 |
| | | | V/C | 0.78 | 0.44 | > | | 0.43 | 0.78 | 0.24 | | 0.67 | 0.56 | > | | 0.84 | 0.66 | > | | |
| | | | Q | 50 | 66 | > | | 34 | 153 | 19 | | 46 | 72 | > | | 84 | 87 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | B | < | C | B | C | C | C | > | C | C |
| | | | Delay | 18 | 24 | > | 24 | 39 | 15 | > | 20 | < | 34 | 19 | 20 | 34 | 23 | > | 30 | 21 |
| | | | V/C | 0.02 | 0.56 | > | | 0.89 | 0.69 | > | | < | 0.19 | 0.74 | | 0.19 | 0.08 | > | | |
| | | | Q | 2 | 101 | > | | 103 | 146 | > | | < | 24 | 73 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | E | C | > | C | D | C | > | C | < | E | > | E | < | D | > | D | C |
| | | | Delay | 56 | 24 | > | 26 | 54 | 20 | > | 24 | < | 59 | > | 59 | < | 37 | > | 37 | 30 |
| | | | V/C | 0.44 | 0.55 | > | | 0.49 | 0.47 | > | | < | 0.87 | > | | < | 0.83 | > | | |
| | | | Q | 30 | 114 | > | | 38 | 96 | > | | < | 70 | > | | < | 87 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 22 | 38 | > | 35 | 49 | 32 | > | 37 | 25 | 30 | > | 29 | 22 | 34 | 7 | 25 | 32 |
| | | | V/C | 0.47 | 0.70 | > | | 0.51 | 0.52 | > | | 0.50 | 0.50 | > | | 0.31 | 0.40 | 0.31 | | |
| | | | Q | 36 | 93 | > | | 41 | 70 | > | | 52 | 78 | > | | 30 | 67 | 18 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.05 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 0 | > | | < | 2 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | D | C | > | C | E | A | > | D | B | C | B | B | E | C | > | C | C |
| | | | Delay | 38 | 30 | > | 31 | 57 | 8 | > | 48 | 16 | 23 | 14 | 19 | 58 | 25 | > | 28 | 28 |
| | | | V/C | 0.16 | 0.71 | > | | 0.74 | 0.14 | > | | 0.37 | 0.41 | 0.44 | | 0.48 | 0.56 | > | | |
| | | | Q | 17 | 56 | > | | 63 | 11 | > | | 26 | 82 | 80 | | 34 | 107 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | E | E | | B | > | B | A | B | | B | C |
| | | | Delay | | | | | 28 | | 79 | 68 | | 10 | > | 10 | 0 | 15 | | 15 | 30 |
| | | | V/C | | | | | 0.19 | | 1.07 | | | 0.35 | > | | 0.00 | 0.65 | | | |
| | | | Q | | | | | 27 | | 216 | | | 49 | > | | 0 | 126 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | C | C | | A | A | A | A | A | A | A | A |
| | | | Delay | 24 | 23 | 22 | 22 | 34 | | 28 | 30 | | 8 | 2 | 6 | 7 | 8 | 3 | 6 | 10 |
| | | | V/C | 0.06 | 0.00 | 0.51 | | 0.54 | | 0.69 | | | 0.39 | 0.34 | | 0.07 | 0.44 | 0.59 | | |
| | | | Q | 9 | 1 | 39 | | 45 | | 59 | | | 58 | 11 | | 5 | 67 | 14 | | |
| | Conestogo Road & Street A | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.07 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 2 | | 0 | 0 | 0 | |
| | | | V/C | 0.07 | | > | | | | | | 0.04 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | A | | > | A | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 0 | | > | 0 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.00 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*





### 4.1.3 Conestogo Road/Colby Drive and Northfield Drive West Queuing

In addition to the Synchro 10 analysis, MTO requested queue length analysis for the eastbound movements at the intersection of **Conestogo Road/Colby Drive and Northfield Drive West** to determine potential impacts to the Highway 85 ramp on Northfield Drive. This analysis was carried out using the MTO Geometric Design Standards[4], Table B7 - 4 under Level of Service (LOS) A conditions, assuming a vehicle length of 7.5 meters.

The distance between Conestogo Road / Colby Drive and the Highway 85 Southbound ramp on Northfield Drive is 340 metres. The results indicate that the eastbound movements are not forecast to reach the Highway 85 Southbound ramp. **Table 4.3** summarizes the queuing analysis under the 2025 background and total traffic conditions.

**TABLE 4.3: QUEUING ANALYSIS SUMMARY**

| Scenario | Movement | Cycle Length | | Movement Counts (per lane) | | $m_u$ max | Calc'd Length (per lane) |
|---|---|---|---|---|---|---|---|
| | | AM Peak | PM Peak | AM Peak | PM Peak | | |
| Background 2025 | EBL | 102 | 117 | 113 | 66 | 3.2 | 45.0 |
| | EBTR | | | 338 | 421 | 13.7 | 150.0 |
| Total 2025 | EBL | 102 | 117 | 113 | 66 | 3.2 | 45.0 |
| | EBTR | | | 342 | 432 | 14.0 | 150.0 |

[4] Geometric Design Standards for Ontario Highways, *Ministry of Transportation,* 1985

## 4.2 2027 Horizon

### 4.2.1 Background Traffic Operations

Based on the estimated 2027 background traffic volumes, Level of Service analyses have been conducted using Synchro 10, for the weekday AM and PM peak hour conditions for the intersections in the study area. Signalized intersections were optimized for movement splits, no other improvements were considered.

**Figure 4.3a** and **Figure 4.3b** displays the 2027 background traffic volumes for the weekday AM and PM peak hours, respectively.

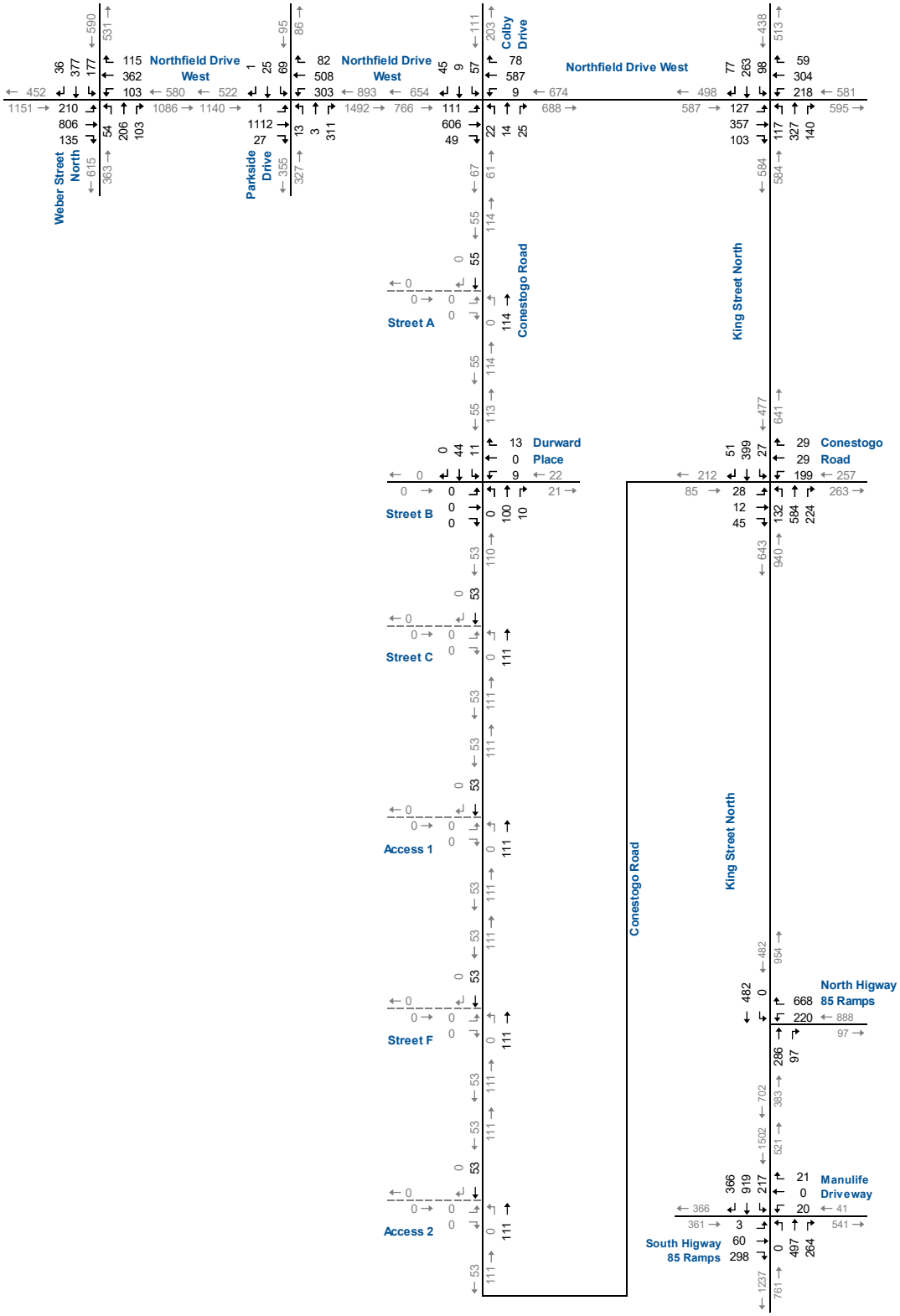
The results of the analysis are summarized in **Table 4.4** indicating the levels of service (LOS), volume to capacity ratios (V/C) and 95th percentile queues experienced at the study area intersections.

All observed intersections have acceptable operational values.

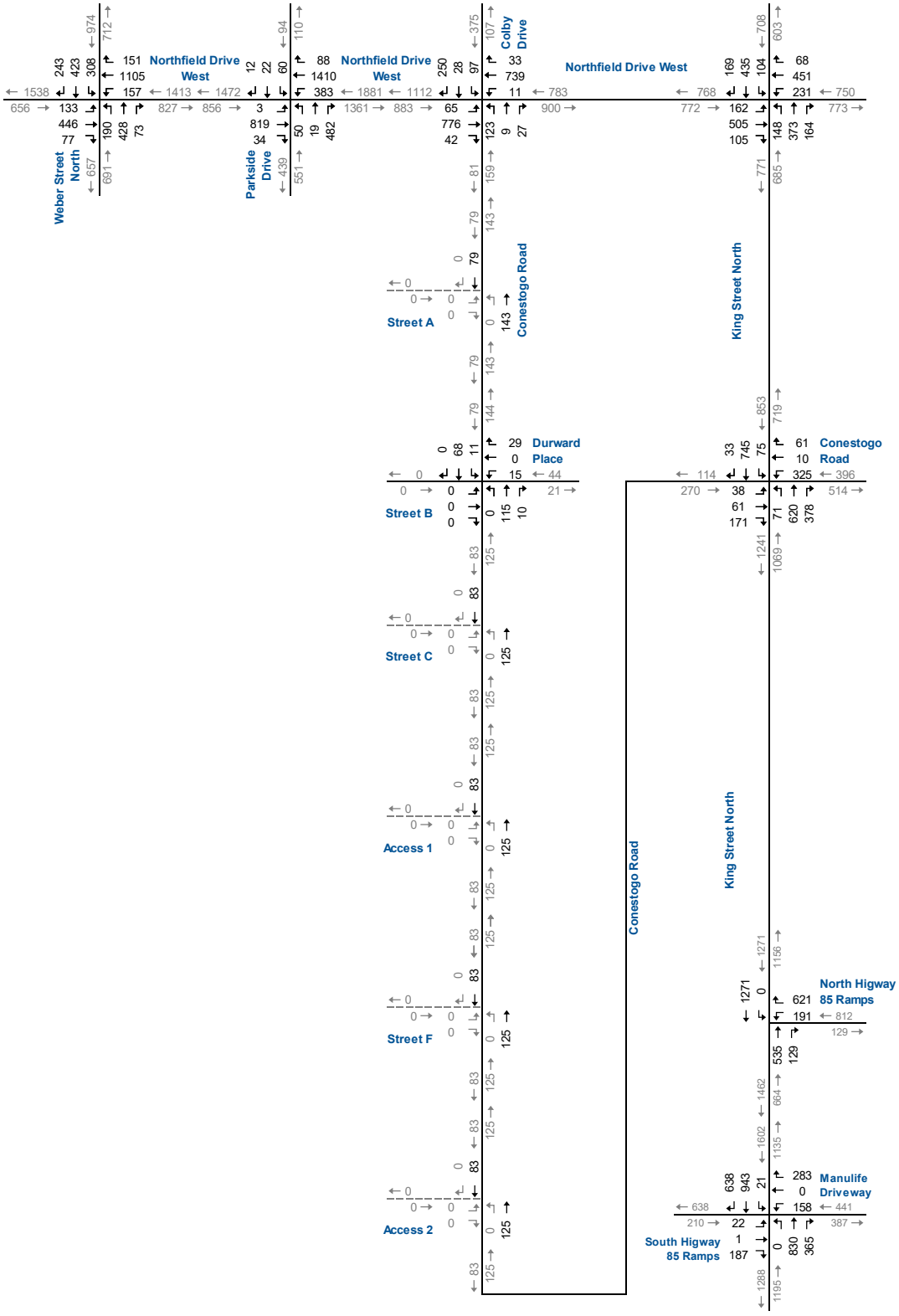
**Appendix G** includes the detailed Synchro 10 reports.








# 2027 Background Traffic Forecasts – AM Peak Hour




# 2027 Background Traffic Forecasts – PM Peak Hour

# TABLE 4.4: 2027 BACKGROUND TRAFFIC OPERATION

| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 22 | 36 | > | 33 | 28 | 30 | 1 | 24 | 21 | 27 | > | 26 | 23 | 27 | > | 26 | 29 |
| | | | V/C | 0.47 | 0.75 | > | | 0.52 | 0.30 | 0.19 | | 0.16 | 0.34 | > | | 0.41 | 0.34 | > | | |
| | | | Q | 48 | 131 | > | | 25 | 48 | 0 | | 15 | 38 | > | | 42 | 52 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | C | C | > | C | D | A | > | B | < | C | A | A | D | C | > | D | C |
| | | | Delay | 20 | 32 | > | 32 | 41 | 8 | > | 19 | < | 33 | 7 | 9 | 37 | 33 | > | 36 | 25 |
| | | | V/C | 0.00 | 0.76 | > | | 0.81 | 0.27 | > | | < | 0.04 | 0.52 | | 0.22 | 0.06 | > | | |
| | | | Q | 1 | 161 | > | | 79 | 36 | > | | < | 9 | 24 | | 27 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | C | > | C | B |
| | | | Delay | 38 | 6 | > | 10 | 37 | 12 | > | 12 | < | 23 | > | 23 | < | 30 | > | 30 | 13 |
| | | | V/C | 0.45 | 0.27 | > | | 0.06 | 0.34 | > | | < | 0.27 | > | | < | 0.49 | > | | |
| | | | Q | 34 | 45 | > | | 6 | 56 | > | | < | 16 | > | | < | 28 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | C | C |
| | | | Delay | 20 | 34 | > | 31 | 44 | 28 | > | 34 | 18 | 25 | > | 24 | 18 | 27 | 1 | 20 | 28 |
| | | | V/C | 0.32 | 0.57 | > | | 0.50 | 0.39 | > | | 0.26 | 0.44 | > | | 0.26 | 0.23 | 0.14 | | |
| | | | Q | 29 | 63 | > | | 36 | 47 | > | | 28 | 59 | > | | 24 | 37 | 0 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | < | 0 | > | 0 | < | 2 | > | 2 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 1 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | B | > | C | D | B | > | D | A | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 18 | > | 25 | 41 | 15 | > | 35 | 10 | 14 | 6 | 11 | 46 | 16 | > | 18 | 17 |
| | | | V/C | 0.17 | 0.24 | > | | 0.45 | 0.14 | > | | 0.25 | 0.30 | 0.22 | | 0.23 | 0.30 | > | | |
| | | | Q | 14 | 14 | > | | 30 | 13 | > | | 19 | 54 | 30 | | 14 | 40 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | A | > | A | A | A | > | A | B |
| | | | Delay | | | | | 27 | | 0 | 27 | | 8 | > | 8 | 0 | 9 | > | 9 | 18 |
| | | | V/C | | | | | 0.25 | | 0.00 | | | 0.20 | > | | 0.00 | 0.23 | > | | |
| | | | Q | | | | | 28 | | 0 | | | 28 | > | | 0 | 40 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 31 | 34 | 33 | 33 | 32 | | 0 | 16 | | 10 | 2 | 8 | 8 | 7 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.17 | 0.76 | | 0 | | 0 | | | 0 | 0 | | 0 | 0 | 0 | | |
| | | | Q | 3 | 22.7 | 68 | | 10 | | 0 | | | 42 | 12 | | 29 | 64 | 10 | | |
| PM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | D | C | > | D | C | D | B | D | C | D | > | D | C | C | > | C | D |
| | | | Delay | 46 | 32 | > | 35 | 24 | 45 | 10 | 39 | 28 | 40 | > | 37 | 32 | 33 | > | 33 | 36 |
| | | | V/C | 0.72 | 0.47 | > | | 0.45 | 0.87 | 0.26 | | 0.60 | 0.57 | > | | 0.74 | 0.63 | > | | |
| | | | Q | 48 | 71 | > | | 38 | 171 | 23 | | 44 | 75 | > | | 72 | 89 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | B | < | C | B | C | C | C | > | C | C |
| | | | Delay | 18 | 24 | > | 24 | 38 | 15 | > | 20 | < | 34 | 19 | 21 | 34 | 23 | > | 30 | 21 |
| | | | V/C | 0.02 | 0.55 | > | | 0.89 | 0.69 | > | | < | 0.19 | 0.75 | | 0.19 | 0.08 | > | | |
| | | | Q | 2 | 100 | > | | 103 | 146 | > | | < | 25 | 74 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | B | > | B | D | C | > | C | < | D | > | D | < | D | > | D | C |
| | | | Delay | 49 | 14 | > | 17 | 48 | 21 | > | 21 | < | 51 | > | 51 | < | 42 | > | 42 | 25 |
| | | | V/C | 0.37 | 0.44 | > | | 0.09 | 0.49 | > | | < | 0.74 | > | | < | 0.85 | > | | |
| | | | Q | 28 | 84 | > | | 9 | 87 | > | | < | 65 | > | | < | 116 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 21 | 37 | > | 34 | 47 | 31 | > | 36 | 22 | 29 | > | 28 | 21 | 32 | 7 | 24 | 31 |
| | | | V/C | 0.45 | 0.67 | > | | 0.51 | 0.51 | > | | 0.39 | 0.50 | > | | 0.31 | 0.39 | 0.29 | | |
| | | | Q | 35 | 87 | > | | 41 | 68 | > | | 39 | 76 | > | | 29 | 65 | 18 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | < | 0 | > | 0 | < | 1 | > | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.05 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 2 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | C | > | C | D | A | > | D | B | C | B | C | D | C | > | C | C |
| | | | Delay | 40 | 32 | > | 33 | 47 | 7 | > | 40 | 17 | 26 | 15 | 22 | 55 | 23 | > | 26 | 27 |
| | | | V/C | 0.17 | 0.67 | > | | 0.61 | 0.13 | > | | 0.24 | 0.42 | 0.44 | | 0.44 | 0.51 | > | | |
| | | | Q | 17 | 53 | > | | 54 | 10 | > | | 18 | 86 | 83 | | 33 | 99 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | B | > | B | A | B | > | B | C |
| | | | Delay | | | | | 28 | | 0 | 28 | | 11 | > | 11 | 0 | 15 | > | 15 | 23 |
| | | | V/C | | | | | 0.20 | | 0.00 | | | 0.38 | > | | 0.00 | 0.64 | > | | |
| | | | Q | | | | | 27 | | 0 | | | 50 | > | | 0 | 120 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | B | B | D | | C | C | | A | > | A | A | A | > | A | A |
| | | | Delay | 31 | 29 | 19 | 20 | 47 | | 25 | 33 | | 7 | 2 | 5 | 7 | 7 | 3 | 6 | 10 |
| | | | V/C | 0.07 | 0 | 0.52 | | 1 | | 1 | | | 0 | 0 | | 0 | 0 | 1 | | |
| | | | Q | 11 | 1.5 | 35 | | 54 | | 56 | | | 58 | 10 | | 5 | 68 | 13 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*





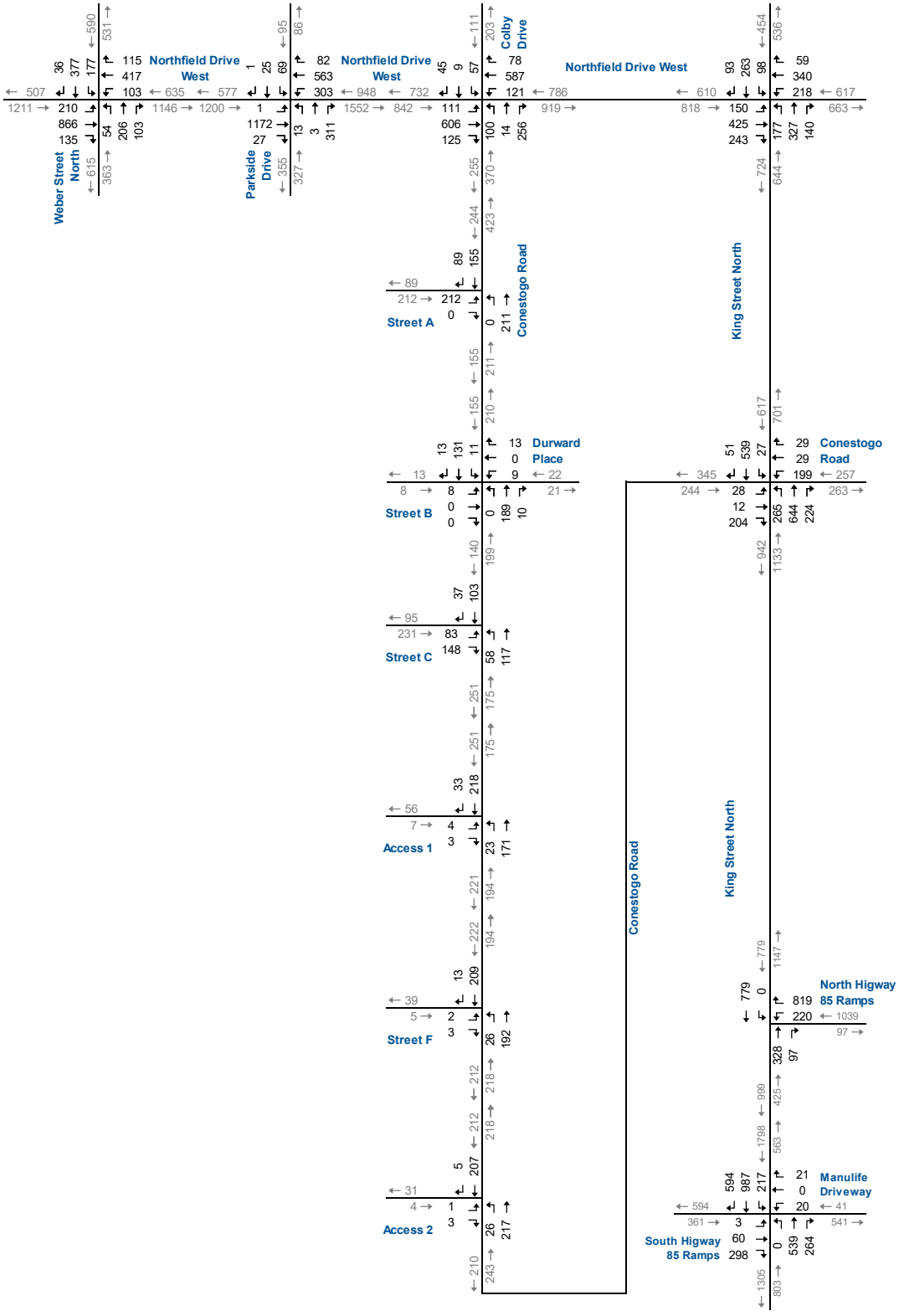
### 4.2.2 Total Traffic Operations

The forecast 2027 total traffic volumes, including both background traffic and development traffic, are shown in **Figure 4.4a** and **Figure 4.4b** for the AM and PM peaks, respectively.

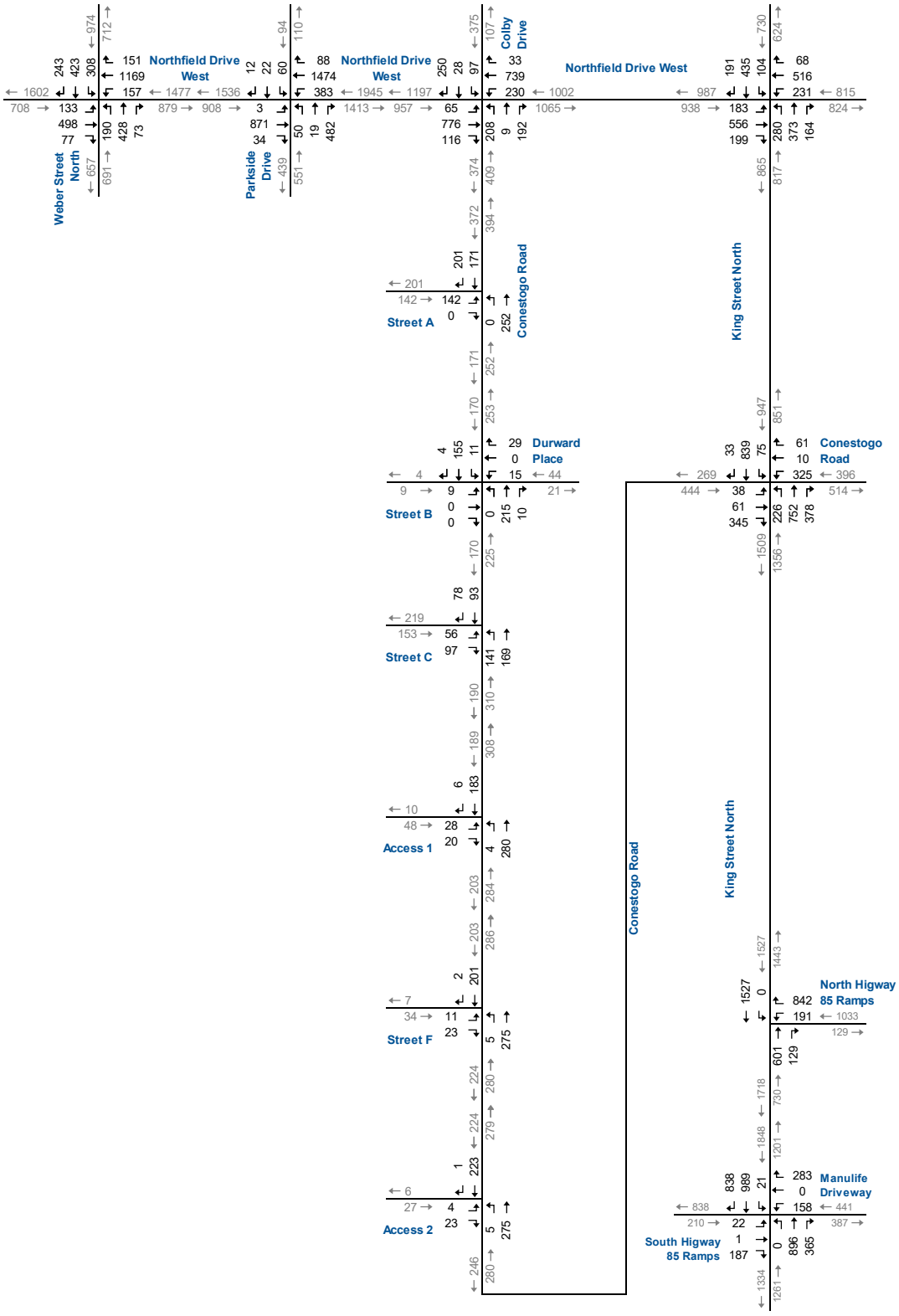
Similar to background traffic conditions, Level of Service analysis was undertaken, and the results are summarized in **Table 4.5a** and **Table 4.5b** . As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements:

- **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the AM peak hour, and LOS F with a v/c greater than 1.0 during the PM peak hour. Overall, the intersection is forecast to operate at a LOS E during the PM peak hour;
- **King Street North and Conestogo Road:** The westbound left movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

**Appendix H** includes the detailed Synchro 10 reports.




# 2027 Total Traffic Forecasts – AM Peak Hour




# 2027 Total Traffic Forecasts – PM Peak Hour

# TABLE 4.5A: 2027 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | C | D | > | D | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 23 | 38 | > | 35 | 30 | 30 | 1 | 25 | 21 | 27 | > | 26 | 23 | 27 | > | 26 | 30 |
| | | | V/C | 0.50 | 0.80 | > | | 0.56 | 0.35 | 0.19 | | 0.16 | 0.34 | > | | 0.41 | 0.34 | > | | |
| | | | Q | 48 | 142 | > | | 25 | 55 | 0 | | 15 | 38 | > | | 42 | 52 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | C | A | > | B | < | D | A | B | D | D | > | D | C |
| | | | Delay | 18 | 26 | > | 26 | 30 | 5 | > | 13 | < | 40 | 10 | 11 | 45 | 39 | > | 43 | 20 |
| | | | V/C | 0.00 | 0.71 | > | | 0.74 | 0.27 | > | | < | 0.06 | 0.59 | | 0.30 | 0.08 | > | | |
| | | | Q | 1 | 168 | > | | 67 | 30 | > | | < | 10 | 26 | | 29 | 13 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | D | C | > | C | D | B | > | C | < | E | > | E | < | C | > | C | C |
| | | | Delay | 48 | 21 | > | 24 | 48 | 19 | > | 24 | < | 62 | > | 62 | < | 26 | > | 26 | 31 |
| | | | V/C | 0.52 | 0.51 | > | | 0.56 | 0.46 | > | | < | 0.95 | > | | < | 0.41 | > | | |
| | | | Q | 38 | 76 | > | | 40 | 65 | > | | < | 120 | > | | < | 31 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | B | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 20 | 35 | > | 32 | 50 | 28 | > | 36 | 24 | 30 | > | 28 | 22 | 32 | 1 | 24 | 31 |
| | | | V/C | 0.37 | 0.72 | > | | 0.52 | 0.39 | > | | 0.41 | 0.46 | > | | 0.27 | 0.25 | 0.18 | | |
| | | | Q | 32 | 90 | > | | 40 | 51 | > | | 49 | 69 | > | | 29 | 42 | 1 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 11 | > | 11 | < | 10 | > | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | |
| | | | V/C | < | 0.01 | > | | < | 0.03 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 0 | > | | < | 1 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | D | B | > | B | D | B | > | D | B | B | A | B | D | B | > | C | B |
| | | | Delay | 39 | 14 | > | 16 | 44 | 14 | > | 37 | 17 | 15 | 7 | 14 | 47 | 19 | > | 20 | 19 |
| | | | V/C | 0.17 | 0.59 | > | | 0.50 | 0.13 | > | | 0.60 | 0.34 | 0.24 | | 0.25 | 0.41 | > | | |
| | | | Q | 13 | 24 | > | | 32 | 13 | > | | 43 | 66 | 35 | | 14 | 60 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | D | D | | B | > | B | A | B | | B | C |
| | | | Delay | | | | | 24 | | 48 | 43 | | 11 | > | 11 | 0 | 15 | | 15 | 27 |
| | | | V/C | | | | | 0.19 | | 1.00 | | | 0.25 | > | | 0.00 | 0.42 | | | |
| | | | Q | | | | | 28 | | 214 | | | 33 | > | | 0 | 69 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | D | D | C | | A | B | | B | A | A | A | A | A | A | B |
| | | | Delay | 30 | 33 | 36 | 36 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 8 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.16 | 0.78 | | 0.08 | | 0.07 | | | 0.28 | 0.28 | | 0.41 | 0.43 | 0.55 | | |
| | | | Q | 3 | 23 | 73 | | 10 | | 0 | | | 46 | 12 | | 29 | 70 | 12 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.40 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 14 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 12 | | > | 12 | | | | | 8 | 0 | | 2 | | 0 | 0 | 0 | |
| | | | V/C | 0.33 | | > | | | | | | 0.04 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*





# TABLE 4.5B: 2027 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| PM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | D | C | > | C | C | D | A | C | D | D | > | D | D | C | > | D | D |
| | | | Delay | 53 | 29 | > | 33 | 21 | 39 | 9 | 34 | 35 | 39 | > | 38 | 47 | 35 | > | 39 | 36 |
| | | | V/C | 0.78 | 0.47 | > | | 0.45 | 0.83 | 0.24 | | 0.68 | 0.56 | > | | 0.85 | 0.66 | > | | |
| | | | Q | 50 | 72 | > | | 34 | 165 | 20 | | 46 | 73 | > | | 85 | 88 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | C | < | C | B | C | C | C | > | C | C |
| | | | Delay | 18 | 25 | > | 25 | 46 | 16 | > | 22 | < | 34 | 20 | 22 | 34 | 23 | > | 30 | 23 |
| | | | V/C | 0.03 | 0.59 | > | | 0.92 | 0.72 | > | | < | 0.19 | 0.76 | | 0.19 | 0.08 | > | | |
| | | | Q | 2 | 108 | > | | 112 | 158 | > | | < | 25 | 77 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | E | D | > | D | F | C | > | E | < | F | > | F | < | C | > | C | E |
| | | | Delay | 69 | 39 | > | 41 | 229 | 29 | > | 75 | < | 90 | > | 90 | < | 27 | > | 27 | 59 |
| | | | V/C | 0.54 | 0.78 | > | | 1.35 | 0.57 | > | | < | 1.05 | > | | < | 0.70 | > | | |
| | | | Q | 31 | 125 | > | | 123 | 97 | > | | < | 165 | > | | < | 93 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | C | D | > | D | D | C | > | D | D | C | > | C | C | D | A | C | C |
| | | | Delay | 23 | 40 | > | 37 | 52 | 32 | > | 38 | 38 | 32 | > | 34 | 24 | 37 | 7 | 27 | 34 |
| | | | V/C | 0.52 | 0.76 | > | | 0.53 | 0.54 | > | | 0.74 | 0.51 | > | | 0.32 | 0.43 | 0.34 | | |
| | | | Q | 39 | 110 | > | | 42 | 77 | > | | 80 | 81 | > | | 31 | 69 | 19 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 12 | > | 12 | < | 10 | > | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | |
| | | | V/C | < | 0.02 | > | | < | 0.06 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 1 | > | | < | 2 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | C | C | > | C | F | A | > | F | C | C | B | C | E | C | > | C | C |
| | | | Delay | 34 | 32 | > | 32 | 103 | 8 | > | 86 | 25 | 24 | 17 | 22 | 60 | 30 | > | 32 | 35 |
| | | | V/C | 0.14 | 0.83 | > | | 1.01 | 0.14 | > | | 0.68 | 0.46 | 0.46 | | 0.49 | 0.64 | > | | |
| | | | Q | 16 | 80 | > | | 78 | 11 | > | | 48 | 94 | 86 | | 34 | 121 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | F | F | | B | > | B | A | B | | B | E |
| | | | Delay | | | | | 28 | | 184 | 155 | | 11 | > | 11 | 0 | 18 | | 18 | 59 |
| | | | V/C | | | | | 0.19 | | 1.33 | | | 0.37 | > | | 0.00 | 0.75 | | | |
| | | | Q | | | | | 27 | | 305 | | | 54 | > | | 0 | 160 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | C | C | | A | A | A | A | A | A | A | B |
| | | | Delay | 24 | 23 | 23 | 23 | 34 | | 29 | 31 | | 8 | 2 | 6 | 7 | 8 | 4 | 6 | 10 |
| | | | V/C | 0.06 | 0.00 | 0.50 | | 0.52 | | 0.69 | | | 0.41 | 0.34 | | 0.07 | 0.46 | 0.70 | | |
| | | | Q | 9 | 1 | 40 | | 45 | | 62 | | | 64 | 11 | | 5 | 72 | 15 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.32 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 13 | | > | 13 | | | | | 8 | 0 | | 4 | | 0 | 0 | 0 | |
| | | | V/C | 0.27 | | > | | | | | | 0.11 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 8 | | > | | | | | | 3 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.09 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.05 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.04 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 1 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m, < / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*

### 4.2.3 Conestogo Road/Colby Drive and Northfield Drive West Queuing

In addition to the Synchro 10 analysis, MTO requested queue length analysis for the eastbound movements at the intersection of **Conestogo Road/Colby Drive and Northfield Drive West** to determine potential impacts to the Highway 85 ramp on Northfield Drive. This analysis was carried out using the MTO Geometric Design Standards[5], Table B7 - 4 under Level of Service (LOS) A conditions, assuming a vehicle length of 7.5 meters.

The distance between Conestogo Road / Colby Drive and the Highway 85 Southbound ramp on Northfield Drive is 340 metres. The results indicate that the eastbound movements are not forecast to reach the Highway 85 Southbound ramp. **Table 4.6** summarizes the queuing analysis under the 2027 background and total traffic conditions.

**TABLE 4.6: QUEUING ANALYSIS SUMMARY**

| Scenario | Movement | Cycle Length | | Movement Counts (per lane) | | $m_u$ max | Calc'd Length (per lane) |
|---|---|---|---|---|---|---|---|
| | | AM Peak | PM Peak | AM Peak | PM Peak | | |
| Background 2027 | EBL | 102 | 117 | 114 | 66 | 3.2 | 45.0 |
| | EBTR | | | 341 | 424 | 13.8 | 150.0 |
| Total 2027 | EBL | 102 | 117 | 114 | 66 | 3.2 | 45.0 |
| | EBTR | | | 379 | 461 | 15.0 | 165.0 |

[5] Geometric Design Standards for Ontario Highways, *Ministry of Transportation,* 1985

## 4.3 2032 Horizon

### 4.3.1 Background Traffic Operations

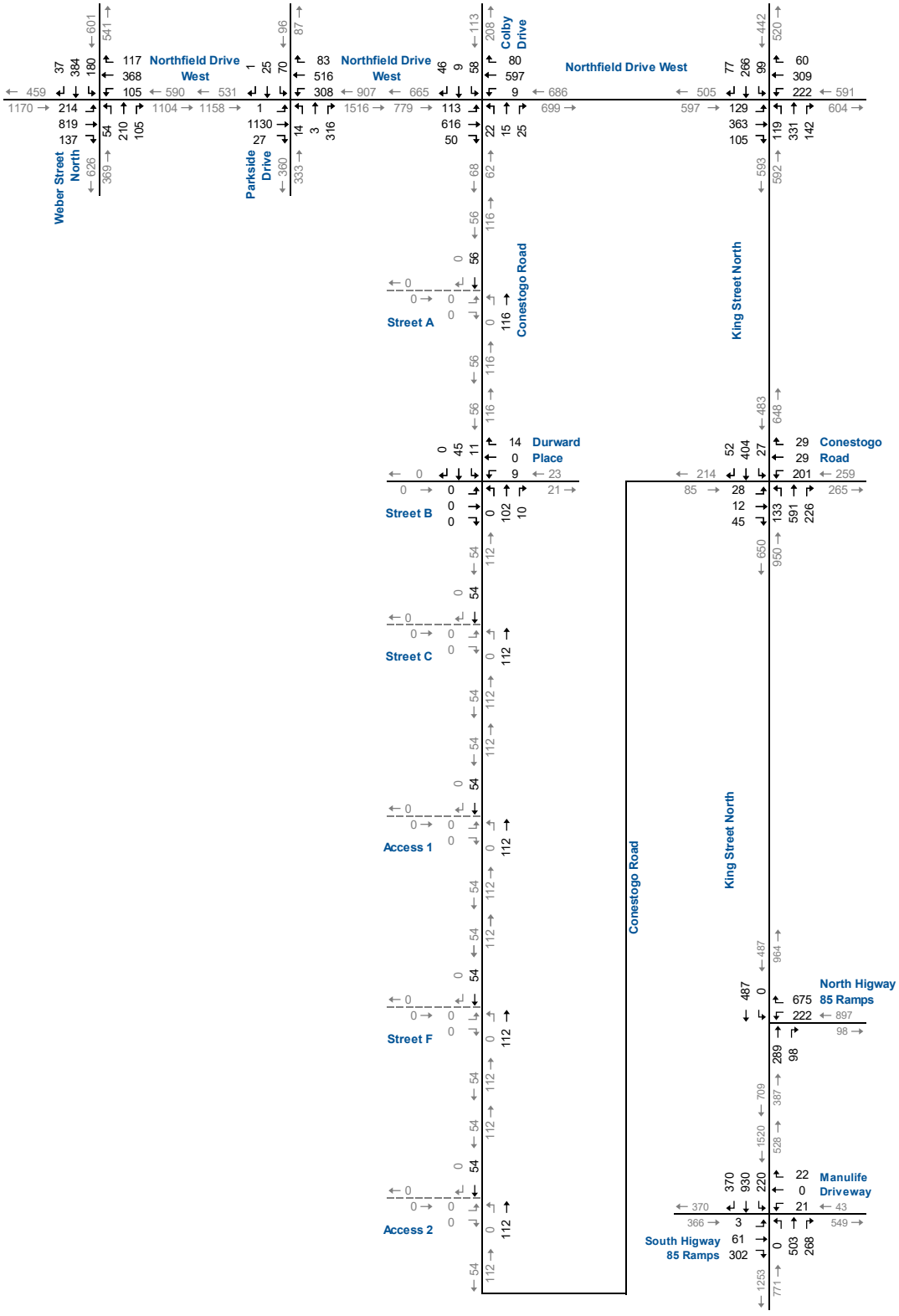
Based on the estimated 2032 background traffic volumes, Level of Service analyses have been conducted using Synchro 10, for the weekday AM and PM peak hour conditions for the intersections in the study area. Signalized intersections were optimized for movement splits, no other improvements were considered.

**Figure 4.5a** and **Figure 4.5b** displays the 2032 background traffic volumes for the weekday AM and PM peak hours, respectively.

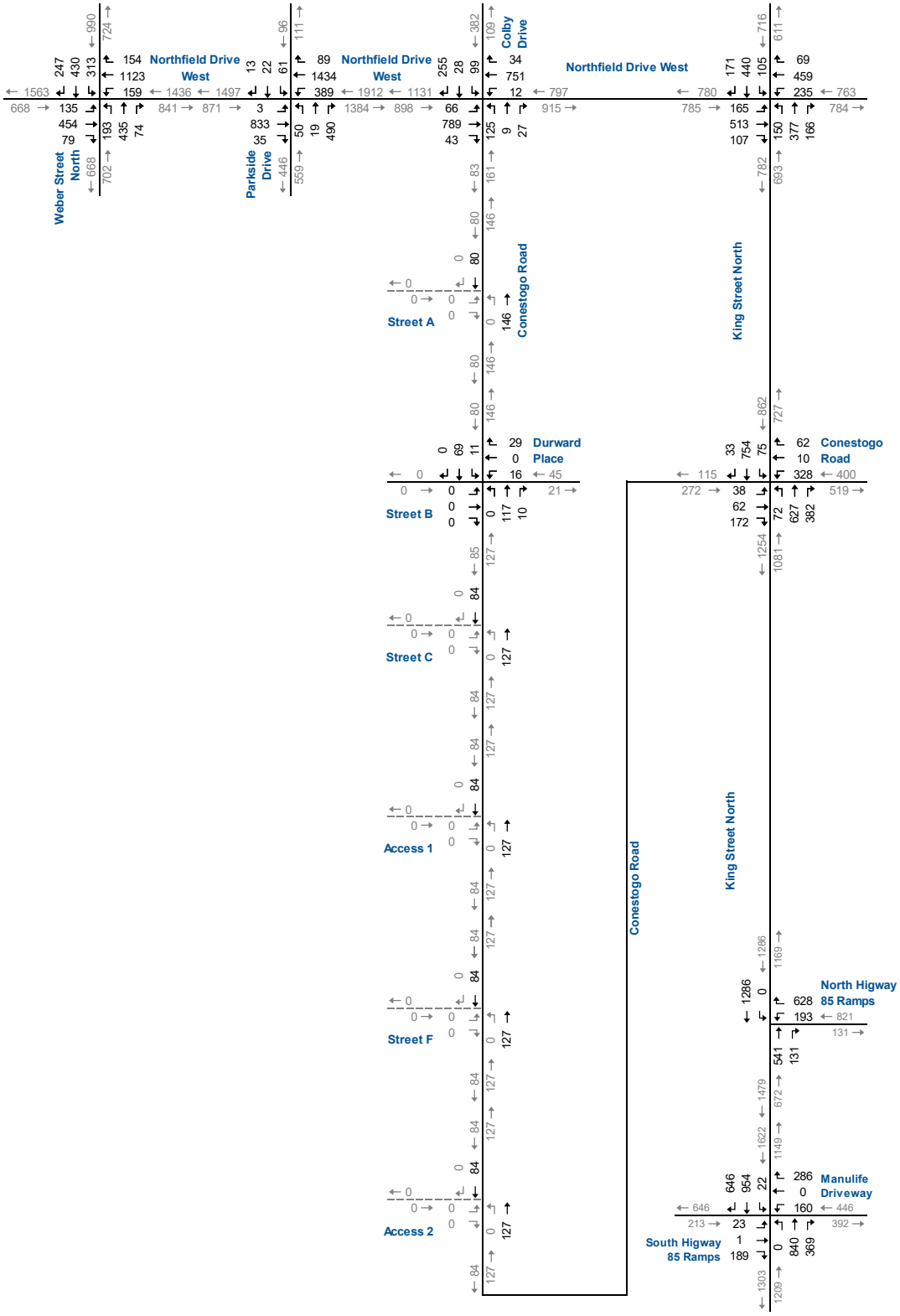
The results of the analysis are summarized in **Table 4.7** indicating the levels of service (LOS), volume to capacity ratios (V/C) and 95th percentile queues experienced at the study area intersections.

All intersections within the study area are forecast to operate with adequate levels of service.

**Appendix I** includes the detailed Synchro 10 reports.




# 2032 Background Traffic Forecasts – AM Peak Hour




# 2032 Background Traffic Forecasts – PM Peak Hour

# TABLE 4.7: 2032 BACKGROUND TRAFFIC OPERATION

| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 23 | 36 | > | 34 | 29 | 30 | 1 | 24 | 21 | 27 | > | 26 | 23 | 27 | > | 26 | 29 |
| | | | V/C | 0.48 | 0.76 | > | | 0.54 | 0.31 | 0.19 | | 0.16 | 0.34 | > | | 0.42 | 0.35 | > | | |
| | | | Q | 48 | 134 | > | | 25 | 49 | 0 | | 15 | 39 | > | | 43 | 53 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | C | C | > | C | D | A | > | C | < | C | A | A | D | C | > | D | C |
| | | | Delay | 20 | 33 | > | 33 | 44 | 8 | > | 20 | < | 33 | 7 | 9 | 37 | 33 | > | 36 | 25 |
| | | | V/C | 0.00 | 0.78 | > | | 0.82 | 0.28 | > | | < | 0.05 | 0.53 | | 0.23 | 0.06 | > | | |
| | | | Q | 1 | 165 | > | | 83 | 36 | > | | < | 9 | 24 | | 27 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | C | > | C | B |
| | | | Delay | 38 | 6 | > | 11 | 38 | 12 | > | 12 | < | 23 | > | 23 | < | 30 | > | 30 | 13 |
| | | | V/C | 0.45 | 0.28 | > | | 0.06 | 0.35 | > | | < | 0.27 | > | | < | 0.49 | > | | |
| | | | Q | 35 | 46 | > | | 6 | 58 | > | | < | 17 | > | | < | 29 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | C | C |
| | | | Delay | 20 | 34 | > | 31 | 44 | 28 | > | 34 | 18 | 26 | > | 24 | 18 | 27 | 1 | 20 | 28 |
| | | | V/C | 0.32 | 0.58 | > | | 0.50 | 0.39 | > | | 0.27 | 0.45 | > | | 0.26 | 0.24 | 0.14 | | |
| | | | Q | 29 | 64 | > | | 37 | 47 | > | | 29 | 60 | > | | 24 | 37 | 0 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | < | 0 | > | 0 | < | 2 | > | 2 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 1 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | B | > | C | D | B | > | D | A | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 18 | > | 25 | 41 | 15 | > | 35 | 10 | 14 | 6 | 11 | 46 | 16 | > | 18 | 17 |
| | | | V/C | 0.17 | 0.24 | > | | 0.45 | 0.14 | > | | 0.25 | 0.30 | 0.23 | | 0.23 | 0.30 | > | | |
| | | | Q | 14 | 14 | > | | 31 | 13 | > | | 20 | 55 | 30 | | 14 | 41 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | A | > | A | A | A | > | A | B |
| | | | Delay | | | | | 27 | | 0 | 27 | | 8 | > | 8 | 0 | 10 | > | 10 | 18 |
| | | | V/C | | | | | 0.25 | | 0.00 | | | 0.20 | > | | 0.00 | 0.24 | > | | |
| | | | Q | | | | | 28 | | 0 | | | 29 | > | | 0 | 41 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 30 | 33 | 34 | 34 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 7 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.17 | 0.77 | | 0 | | 0 | | | 0 | 0 | | 0 | 0 | 0 | | |
| | | | Q | 3 | 22.9 | 70 | | 11 | | 0 | | | 42 | 12 | | 30 | 65 | 11 | | |
| PM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | D | C | > | D | C | D | B | D | C | D | > | D | C | C | > | C | D |
| | | | Delay | 48 | 32 | > | 36 | 24 | 46 | 11 | 40 | 29 | 41 | > | 38 | 33 | 33 | > | 33 | 37 |
| | | | V/C | 0.74 | 0.48 | > | | 0.46 | 0.88 | 0.27 | | 0.61 | 0.58 | > | | 0.75 | 0.64 | > | | |
| | | | Q | 50 | 73 | > | | 38 | 182 | 23 | | 44 | 77 | > | | 74 | 91 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | C | < | C | C | C | C | C | > | C | C |
| | | | Delay | 18 | 24 | > | 24 | 43 | 16 | > | 21 | < | 34 | 20 | 22 | 34 | 23 | > | 30 | 22 |
| | | | V/C | 0.02 | 0.56 | > | | 0.91 | 0.71 | > | | < | 0.19 | 0.76 | | 0.19 | 0.08 | > | | |
| | | | Q | 2 | 102 | > | | 110 | 151 | > | | < | 25 | 78 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | B | > | B | D | C | > | C | < | D | > | D | < | D | > | D | C |
| | | | Delay | 49 | 14 | > | 17 | 48 | 21 | > | 22 | < | 51 | > | 51 | < | 43 | > | 43 | 25 |
| | | | V/C | 0.38 | 0.45 | > | | 0.10 | 0.50 | > | | < | 0.74 | > | | < | 0.85 | > | | |
| | | | Q | 28 | 86 | > | | 9 | 89 | > | | < | 66 | > | | < | 120 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 22 | 38 | > | 34 | 48 | 31 | > | 36 | 22 | 30 | > | 28 | 22 | 32 | 7 | 25 | 31 |
| | | | V/C | 0.46 | 0.68 | > | | 0.51 | 0.52 | > | | 0.40 | 0.51 | > | | 0.32 | 0.40 | 0.30 | | |
| | | | Q | 36 | 89 | > | | 42 | 69 | > | | 40 | 78 | > | | 29 | 67 | 18 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | < | 0 | > | 0 | < | 1 | > | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.05 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 2 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | C | > | C | D | A | > | D | B | C | B | C | D | C | > | C | C |
| | | | Delay | 40 | 32 | > | 33 | 47 | 7 | > | 40 | 17 | 26 | 15 | 22 | 55 | 24 | > | 26 | 27 |
| | | | V/C | 0.17 | 0.67 | > | | 0.61 | 0.13 | > | | 0.24 | 0.43 | 0.45 | | 0.44 | 0.52 | > | | |
| | | | Q | 17 | 55 | > | | 54 | 10 | > | | 18 | 87 | 84 | | 33 | 101 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | B | > | B | A | B | > | B | C |
| | | | Delay | | | | | 28 | | 0 | 28 | | 11 | > | 11 | 0 | 16 | > | 16 | 26 |
| | | | V/C | | | | | 0.21 | | 0.00 | | | 0.38 | > | | 0.00 | 0.65 | > | | |
| | | | Q | | | | | 27 | | 0 | | | 50 | > | | 0 | 122 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | B | C | D | | C | C | | A | > | A | A | A | > | A | A |
| | | | Delay | 30 | 29 | 20 | 21 | 46 | | 26 | 33 | | 7 | 2 | 5 | 7 | 7 | 3 | 6 | 10 |
| | | | V/C | 0.07 | 0 | 0.53 | | 1 | | 1 | | | 0 | 0 | | 0 | 0 | 1 | | |
| | | | Q | 11 | 1.5 | 36 | | 54 | | 58 | | | 60 | 11 | | 5 | 70 | 13 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*

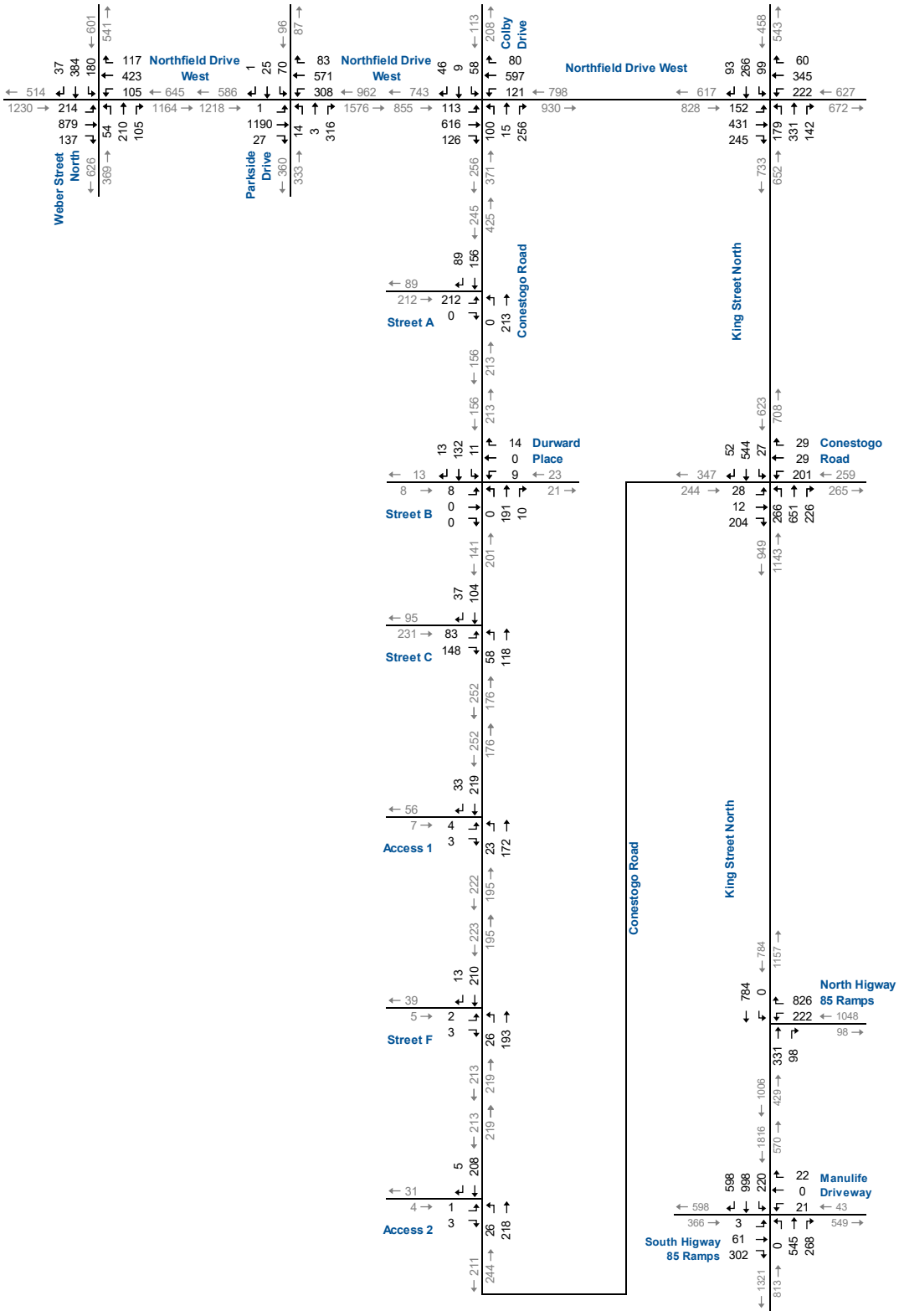
### 4.3.2 Total Traffic Operations

The forecast 2032 total traffic volumes, including both background traffic and development traffic, are shown in **Figure 4.6a** and **Figure 4.6b** for the AM and PM peaks, respectively.

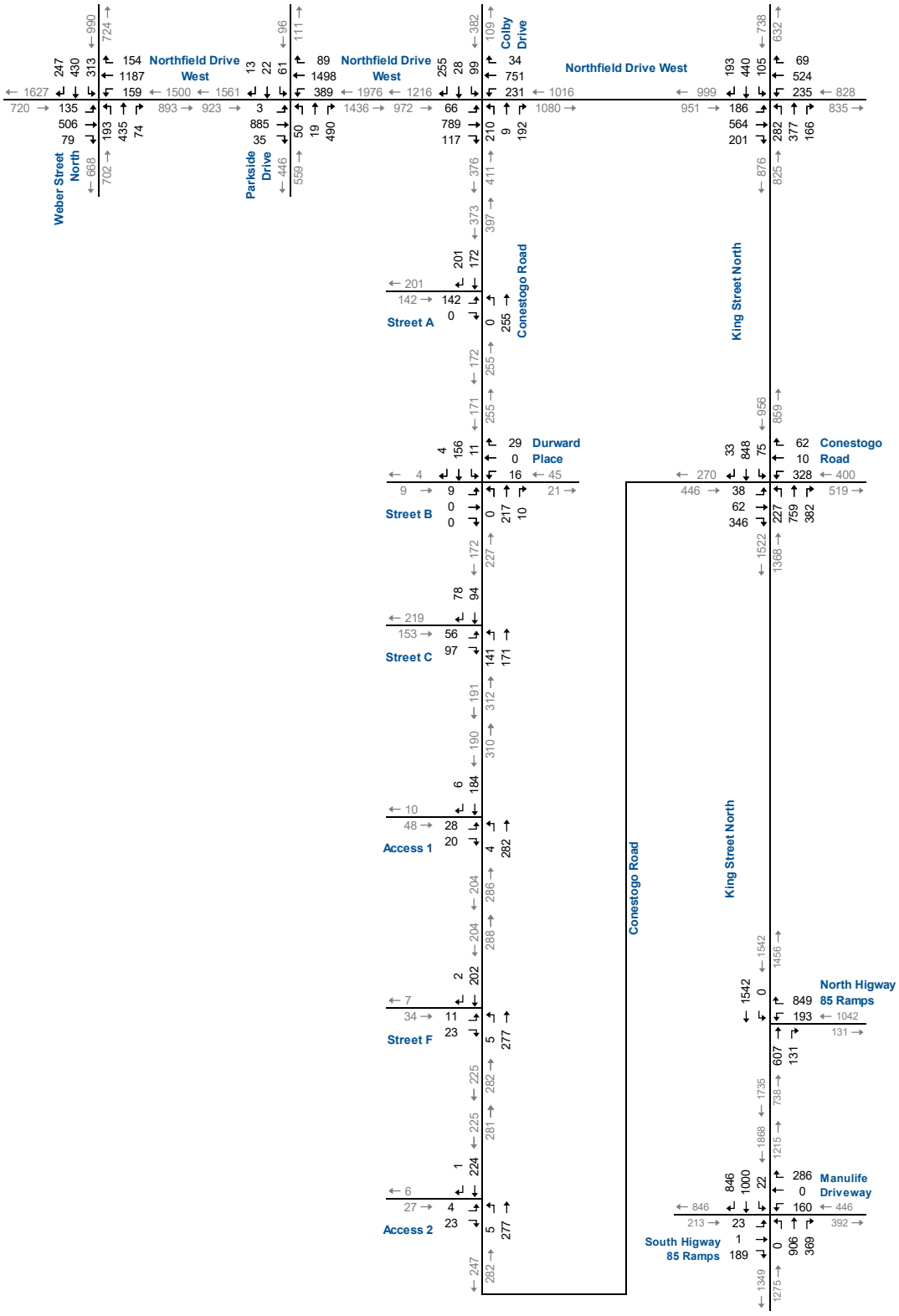
Similar to background traffic conditions, Level of Service analysis was undertaken, and the results are summarized in **Table 4.8a** and **Table 4.8b**. As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements:

- **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the AM peak hour, and LOS F with a v/c greater than 1.0 during the PM peak hour. Overall, the intersection is forecast to operate at a LOS E during the PM peak hour;
- **King Street North and Conestogo Road:** The westbound left movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

**Appendix J** includes the detailed Synchro 10 reports.




# 2032 Total Traffic Forecasts – AM Peak Hour




# 2032 Total Traffic Forecasts – PM Peak Hour

# TABLE 4.8A: 2032 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | C | D | > | D | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 23 | 38 | > | 36 | 33 | 30 | 1 | 25 | 21 | 27 | > | 26 | 23 | 27 | > | 26 | 30 |
| | | | V/C | 0.51 | 0.81 | > | | 0.59 | 0.36 | 0.19 | | 0.16 | 0.34 | > | | 0.42 | 0.35 | > | | |
| | | | Q | 48 | 145 | > | | 26 | 56 | 0 | | 15 | 39 | > | | 43 | 53 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | C | A | > | B | < | D | A | B | D | D | > | D | C |
| | | | Delay | 18 | 27 | > | 27 | 32 | 5 | > | 14 | < | 40 | 10 | 11 | 45 | 39 | > | 44 | 21 |
| | | | V/C | 0.00 | 0.73 | > | | 0.75 | 0.28 | > | | < | 0.06 | 0.60 | | 0.30 | 0.08 | > | | |
| | | | Q | 1 | 173 | > | | 70 | 30 | > | | < | 10 | 26 | | 30 | 13 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | D | C | > | C | D | B | > | C | < | E | > | E | < | C | > | C | C |
| | | | Delay | 49 | 21 | > | 25 | 48 | 19 | > | 24 | < | 63 | > | 63 | < | 27 | > | 27 | 31 |
| | | | V/C | 0.53 | 0.52 | > | | 0.56 | 0.47 | > | | < | 0.96 | > | | < | 0.42 | > | | |
| | | | Q | 39 | 78 | > | | 40 | 66 | > | | < | 121 | > | | < | 31 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | B | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 20 | 36 | > | 33 | 50 | 28 | > | 36 | 24 | 30 | > | 28 | 22 | 32 | 1 | 24 | 31 |
| | | | V/C | 0.37 | 0.73 | > | | 0.52 | 0.39 | > | | 0.42 | 0.47 | > | | 0.28 | 0.26 | 0.18 | | |
| | | | Q | 33 | 92 | > | | 41 | 52 | > | | 50 | 71 | > | | 29 | 43 | 1 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 11 | > | 11 | < | 10 | > | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | |
| | | | V/C | < | 0.01 | > | | < | 0.03 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 0 | > | | < | 1 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | D | B | > | B | D | B | > | D | B | B | A | B | D | B | > | C | B |
| | | | Delay | 39 | 14 | > | 17 | 44 | 14 | > | 37 | 17 | 15 | 7 | 14 | 47 | 19 | > | 20 | 19 |
| | | | V/C | 0.17 | 0.59 | > | | 0.50 | 0.13 | > | | 0.60 | 0.35 | 0.24 | | 0.25 | 0.42 | > | | |
| | | | Q | 13 | 24 | > | | 32 | 13 | > | | 43 | 67 | 35 | | 14 | 60 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | D | D | | B | > | B | A | B | | B | C |
| | | | Delay | | | | | 24 | | 51 | 46 | | 11 | > | 11 | 0 | 15 | | 15 | 28 |
| | | | V/C | | | | | 0.19 | | 1.01 | | | 0.25 | > | | 0.00 | 0.43 | | | |
| | | | Q | | | | | 28 | | 219 | | | 33 | > | | 0 | 70 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | D | D | C | | A | B | | B | A | A | A | A | A | A | B |
| | | | Delay | 30 | 33 | 37 | 36 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 8 | 2 | 6 | 10 |
| | | | V/C | 0.01 | 0.16 | 0.78 | | 0.08 | | 0.07 | | | 0.29 | 0.28 | | 0.42 | 0.44 | 0.55 | | |
| | | | Q | 3 | 23 | 75 | | 11 | | 0 | | | 46 | 12 | | 30 | 71 | 12 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.41 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 15 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 12 | | > | 12 | | | | | 8 | 0 | | 2 | | 0 | 0 | 0 | |
| | | | V/C | 0.33 | | > | | | | | | 0.04 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*





# TABLE 4.8B: 2032 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| PM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | D | C | > | C | C | D | A | C | D | D | > | D | D | D | > | D | D |
| | | | Delay | 55 | 29 | > | 34 | 22 | 40 | 9 | 34 | 36 | 39 | > | 39 | 50 | 35 | > | 40 | 36 |
| | | | V/C | 0.79 | 0.48 | > | | 0.46 | 0.84 | 0.25 | | 0.70 | 0.57 | > | | 0.87 | 0.67 | > | | |
| | | | Q | 52 | 73 | > | | 35 | 168 | 21 | | 47 | 74 | > | | 89 | 89 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | C | < | C | C | C | C | C | > | C | C |
| | | | Delay | 19 | 25 | > | 25 | 52 | 16 | > | 23 | < | 34 | 21 | 23 | 34 | 23 | > | 30 | 24 |
| | | | V/C | 0.03 | 0.60 | > | | 0.95 | 0.74 | > | | < | 0.19 | 0.77 | | 0.19 | 0.08 | > | | |
| | | | Q | 2 | 110 | > | | 119 | 163 | > | | < | 25 | 81 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | E | D | > | D | F | C | > | E | < | F | > | F | < | C | > | C | E |
| | | | Delay | 69 | 39 | > | 41 | 232 | 29 | > | 75 | < | 95 | > | 95 | < | 28 | > | 28 | 60 |
| | | | V/C | 0.55 | 0.79 | > | | 1.35 | 0.57 | > | | < | 1.07 | > | | < | 0.71 | > | | |
| | | | Q | 31 | 127 | > | | 124 | 99 | > | | < | 167 | > | | < | 96 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | C | D | > | D | D | C | > | D | D | C | > | D | C | D | A | C | C |
| | | | Delay | 23 | 40 | > | 37 | 52 | 32 | > | 38 | 39 | 33 | > | 35 | 25 | 37 | 7 | 28 | 35 |
| | | | V/C | 0.53 | 0.77 | > | | 0.54 | 0.54 | > | | 0.75 | 0.52 | > | | 0.33 | 0.44 | 0.35 | | |
| | | | Q | 40 | 112 | > | | 43 | 78 | > | | 83 | 82 | > | | 31 | 70 | 19 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 12 | > | 12 | < | 11 | > | 11 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | |
| | | | V/C | < | 0.02 | > | | < | 0.07 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 1 | > | | < | 2 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | C | C | > | C | F | A | > | F | C | C | B | C | E | C | > | C | D |
| | | | Delay | 34 | 33 | > | 33 | 106 | 8 | > | 88 | 26 | 24 | 17 | 22 | 60 | 30 | > | 32 | 35 |
| | | | V/C | 0.14 | 0.84 | > | | 1.02 | 0.14 | > | | 0.69 | 0.47 | 0.47 | | 0.49 | 0.65 | > | | |
| | | | Q | 16 | 81 | > | | 79 | 11 | > | | 50 | 96 | 88 | | 34 | 123 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | F | F | | B | > | B | A | B | | B | E |
| | | | Delay | | | | | 28 | | 191 | 161 | | 11 | > | 11 | 0 | 18 | | 18 | 61 |
| | | | V/C | | | | | 0.19 | | 1.35 | | | 0.38 | > | | 0.00 | 0.76 | | | |
| | | | Q | | | | | 27 | | 310 | | | 55 | > | | 0 | 163 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | C | C | | A | A | A | A | A | A | A | B |
| | | | Delay | 24 | 23 | 24 | 24 | 34 | | 30 | 31 | | 8 | 2 | 6 | 8 | 9 | 4 | 6 | 10 |
| | | | V/C | 0.06 | 0.00 | 0.51 | | 0.52 | | 0.70 | | | 0.42 | 0.35 | | 0.08 | 0.46 | 0.70 | | |
| | | | Q | 9 | 1 | 41 | | 45 | | 63 | | | 65 | 11 | | 6 | 75 | 15 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.32 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 13 | | > | 13 | | | | | 8 | 0 | | 4 | | 0 | 0 | 0 | |
| | | | V/C | 0.27 | | > | | | | | | 0.11 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 8 | | > | | | | | | 3 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.09 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.05 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.04 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 1 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*

### 4.3.3 Conestogo Road/Colby Drive and Northfield Drive West Queuing

In addition to the Synchro 10 analysis, MTO requested queue length analysis for the eastbound movements at the intersection of **Conestogo Road/Colby Drive and Northfield Drive West** to determine potential impacts to the Highway 85 ramp on Northfield Drive. This analysis was carried out using the MTO Geometric Design Standards[6], Table B7 - 4 under Level of Service (LOS) A conditions, assuming a vehicle length of 7.5 meters.

The distance between Conestogo Road / Colby Drive and the Highway 85 Southbound ramp on Northfield Drive is 340 metres. The results indicate that the eastbound movements are not forecast to reach the Highway 85 Southbound ramp. **Table 4.9** summarizes the queuing analysis under the 2032 background and total traffic conditions.

**TABLE 4.9: QUEUING ANALYSIS SUMMARY**

| Scenario | Movement | Cycle Length | | Movement Counts (per lane) | | $m_u$ max | Calc'd Length (per lane) |
|---|---|---|---|---|---|---|---|
| | | AM Peak | PM Peak | AM Peak | PM Peak | | |
| Background 2032 | EBL | 102 | 117 | 116 | 67 | 3.3 | 52.5 |
| | EBTR | | | 346.5 | 431 | 14.0 | 150.0 |
| Total 2032 | EBL | 102 | 117 | 116 | 67 | 3.3 | 52.5 |
| | EBTR | | | 385 | 468 | 15.2 | 165.0 |

[6] Geometric Design Standards for Ontario Highways, *Ministry of Transportation,* 1985

## 4.4 2037 Horizon

### 4.4.1 Background Traffic Operations

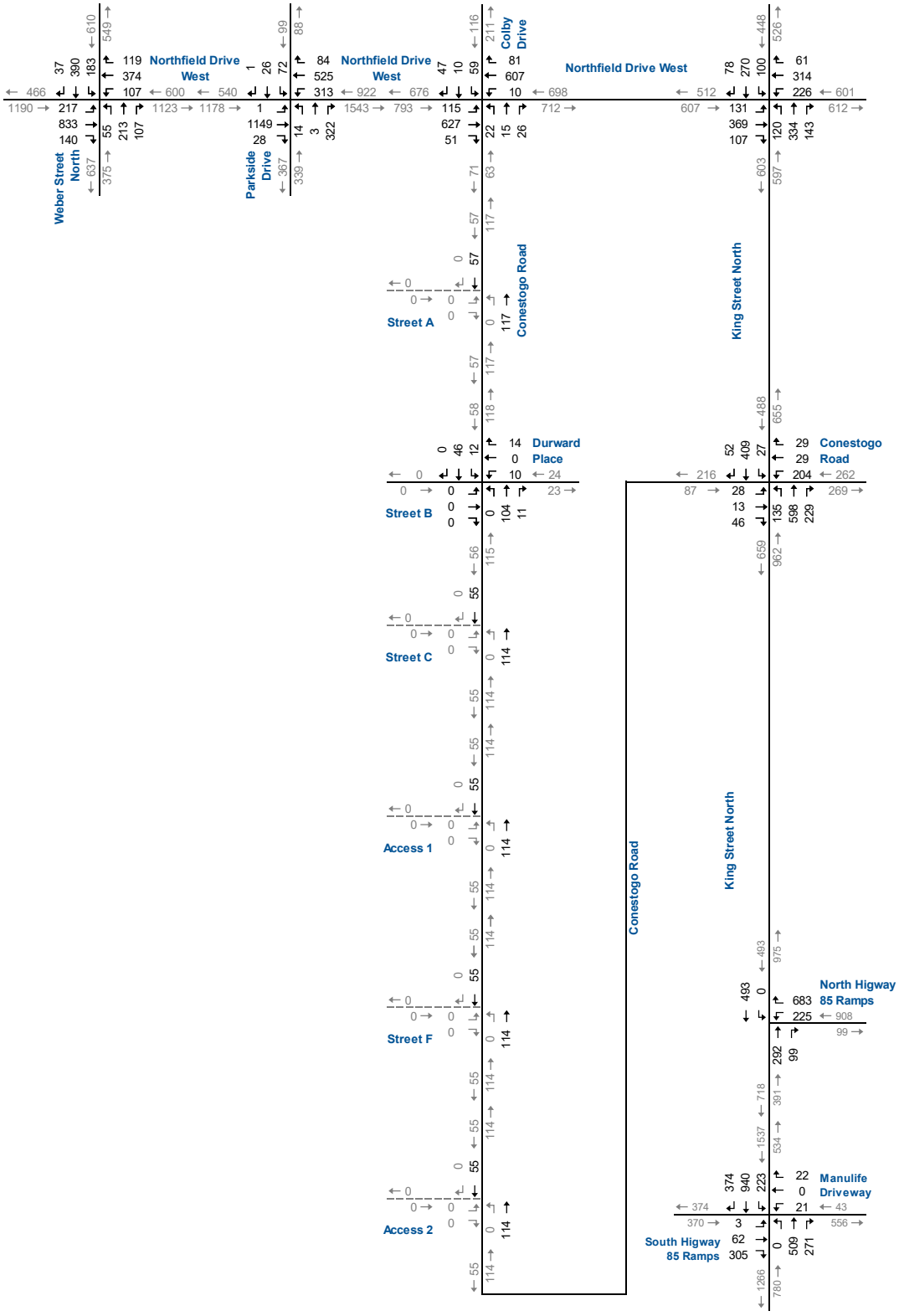
Based on the estimated 2037 background traffic volumes, Level of Service analyses have been conducted using Synchro 10, for the weekday AM and PM peak hour conditions for the intersections in the study area. Signalized intersections were optimized for movement splits, no other improvements were considered.

**Figure 4.7a** and **Figure 4.7b** displays the 2037 background traffic volumes for the weekday AM and PM peak hours, respectively.

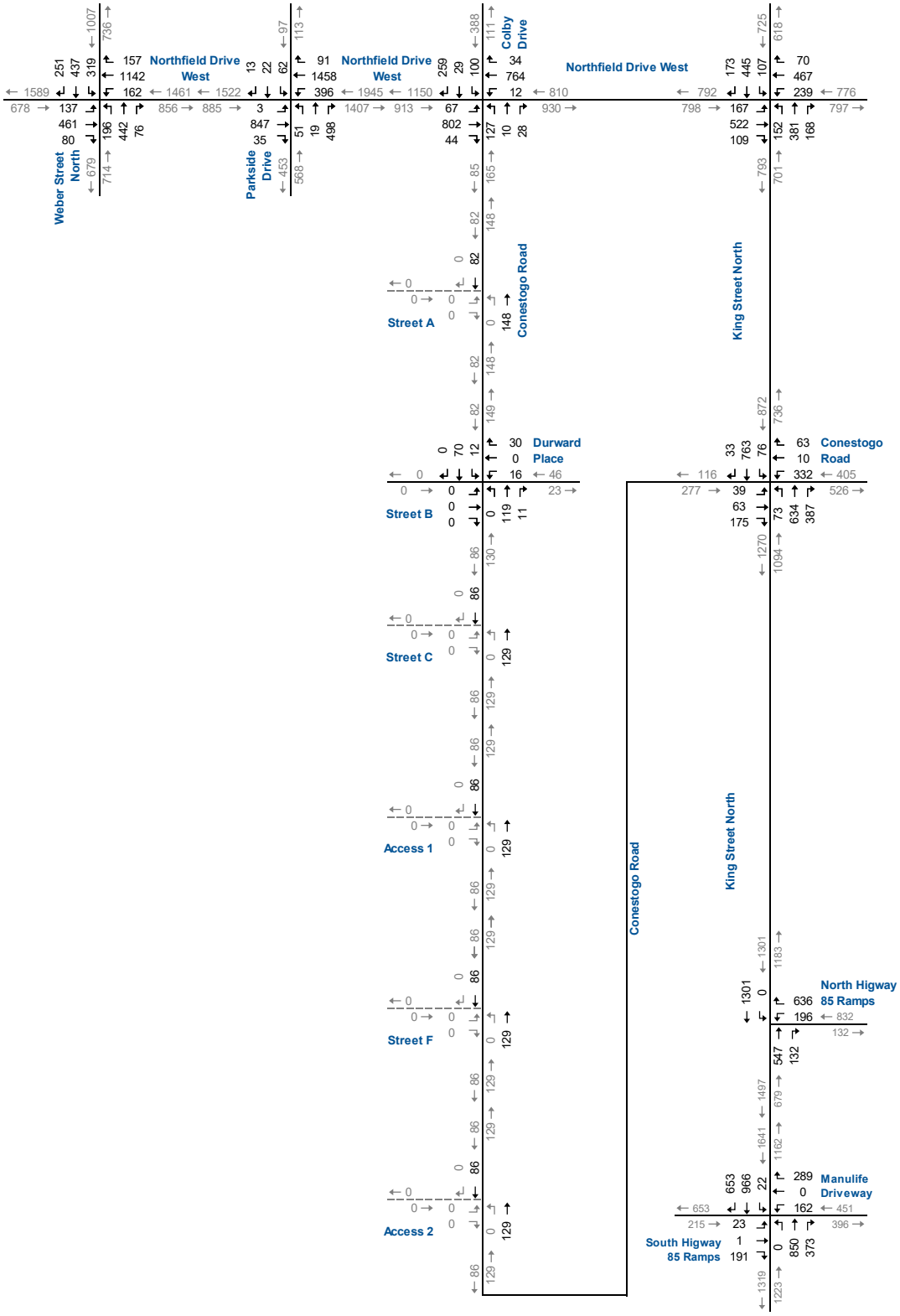
The results of the analysis are summarized in **Table 4.10** indicating the levels of service (LOS), volume to capacity ratios (V/C) and 95th percentile queues experienced at the study area intersections.

All intersections within the study area are forecast to operate with adequate levels of service.

**Appendix K** includes the detailed Synchro 10 reports.




# 2037 Background Traffic Forecasts – AM Peak Hour




# 2037 Background Traffic Forecasts – PM Peak Hour

# TABLE 4.10: 2037 BACKGROUND TRAFFIC OPERATION

| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | C | D | > | C | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 23 | 37 | > | 34 | 30 | 30 | 1 | 24 | 21 | 28 | > | 27 | 24 | 27 | > | 26 | 29 |
| | | | V/C | 0.49 | 0.78 | > | | 0.56 | 0.32 | 0.20 | | 0.16 | 0.35 | > | | 0.42 | 0.35 | > | | |
| | | | Q | 49 | 137 | > | | 26 | 50 | 1 | | 16 | 40 | > | | 44 | 54 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | C | C | > | C | D | A | > | C | < | C | A | A | D | C | > | D | C |
| | | | Delay | 20 | 34 | > | 34 | 48 | 8 | > | 22 | < | 33 | 7 | 9 | 37 | 33 | > | 36 | 26 |
| | | | V/C | 0.00 | 0.80 | > | | 0.84 | 0.28 | > | | < | 0.05 | 0.53 | | 0.23 | 0.06 | > | | |
| | | | Q | 1 | 169 | > | | 88 | 37 | > | | < | 9 | 24 | | 27 | 13 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | A | > | B | D | B | > | B | < | C | > | C | < | C | > | C | B |
| | | | Delay | 38 | 6 | > | 11 | 38 | 12 | > | 13 | < | 23 | > | 23 | < | 31 | > | 31 | 13 |
| | | | V/C | 0.45 | 0.28 | > | | 0.07 | 0.36 | > | | < | 0.27 | > | | < | 0.50 | > | | |
| | | | Q | 36 | 48 | > | | 7 | 60 | > | | < | 17 | > | | < | 30 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | B | C | > | C | D | C | > | C | B | C | > | C | B | C | A | C | C |
| | | | Delay | 20 | 35 | > | 32 | 45 | 29 | > | 35 | 18 | 26 | > | 25 | 18 | 27 | 1 | 21 | 28 |
| | | | V/C | 0.33 | 0.59 | > | | 0.51 | 0.40 | > | | 0.27 | 0.46 | > | | 0.27 | 0.24 | 0.14 | | |
| | | | Q | 29 | 66 | > | | 38 | 48 | > | | 29 | 61 | > | | 25 | 38 | 0 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 9 | > | 9 | < | 0 | > | 0 | < | 2 | > | 2 | |
| | | | V/C | < | 0.00 | > | | < | 0.03 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 1 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | B | > | C | D | B | > | D | A | B | A | B | D | B | > | B | B |
| | | | Delay | 40 | 18 | > | 25 | 41 | 15 | > | 35 | 10 | 14 | 6 | 11 | 46 | 16 | > | 18 | 17 |
| | | | V/C | 0.17 | 0.25 | > | | 0.46 | 0.14 | > | | 0.26 | 0.31 | 0.23 | | 0.23 | 0.30 | > | | |
| | | | Q | 14 | 14 | > | | 31 | 13 | > | | 20 | 55 | 31 | | 14 | 41 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | A | > | A | A | A | > | A | B |
| | | | Delay | | | | | 27 | | 0 | 27 | | 8 | > | 8 | 0 | 10 | > | 10 | 19 |
| | | | V/C | | | | | 0.25 | | 0.00 | | | 0.20 | > | | 0.00 | 0.24 | > | | |
| | | | Q | | | | | 29 | | 0 | | | 29 | > | | 0 | 41 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | A | B | | B | > | A | A | A | > | A | B |
| | | | Delay | 30 | 33 | 35 | 35 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 7 | 2 | 6 | 11 |
| | | | V/C | 0.01 | 0.17 | 0.78 | | 0 | | 0 | | | 0 | 0 | | 0 | 0 | 0 | | |
| | | | Q | 3 | 23.3 | 72 | | 11 | | 0 | | | 43 | 12 | | 30 | 66 | 11 | | |
| PM Peak Hour | Weber Street North and Northfield Drive West | TCS | LOS | D | C | > | D | C | D | B | D | C | D | > | D | C | C | > | C | D |
| | | | Delay | 49 | 33 | > | 36 | 25 | 48 | 11 | 41 | 30 | 41 | > | 38 | 34 | 34 | > | 34 | 38 |
| | | | V/C | 0.75 | 0.49 | > | | 0.48 | 0.90 | 0.27 | | 0.63 | 0.59 | > | | 0.77 | 0.65 | > | | |
| | | | Q | 51 | 74 | > | | 39 | 187 | 24 | | 45 | 78 | > | | 75 | 93 | > | | |
| | Parkside Drive and Northfield Drive West | TCS | LOS | B | C | > | C | D | B | > | C | < | C | C | C | C | C | > | C | C |
| | | | Delay | 18 | 25 | > | 25 | 48 | 16 | > | 22 | < | 34 | 21 | 23 | 34 | 23 | > | 30 | 23 |
| | | | V/C | 0.03 | 0.57 | > | | 0.94 | 0.72 | > | | < | 0.19 | 0.78 | | 0.20 | 0.08 | > | | |
| | | | Q | 2 | 104 | > | | 117 | 156 | > | | < | 25 | 83 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive and Northfield Drive West | TCS | LOS | D | B | > | B | D | C | > | C | < | D | > | D | < | D | > | D | C |
| | | | Delay | 50 | 15 | > | 17 | 48 | 22 | > | 22 | < | 51 | > | 51 | < | 43 | > | 43 | 26 |
| | | | V/C | 0.39 | 0.46 | > | | 0.10 | 0.51 | > | | < | 0.75 | > | | < | 0.85 | > | | |
| | | | Q | 29 | 88 | > | | 9 | 91 | > | | < | 69 | > | | < | 124 | > | | |
| | King Street North and Northfield Drive West | TCS | LOS | C | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 22 | 38 | > | 34 | 48 | 31 | > | 36 | 23 | 31 | > | 29 | 22 | 33 | 7 | 25 | 31 |
| | | | V/C | 0.46 | 0.68 | > | | 0.52 | 0.52 | > | | 0.41 | 0.52 | > | | 0.33 | 0.41 | 0.30 | | |
| | | | Q | 36 | 91 | > | | 43 | 70 | > | | 41 | 80 | > | | 30 | 68 | 18 | | |
| | Conestogo Road and Access 2/Durward Place | TWSC | LOS | < | A | > | A | < | A | > | A | < | A | > | A | < | A | > | A | |
| | | | Delay | < | 0 | > | 0 | < | 10 | > | 10 | < | 0 | > | 0 | < | 1 | > | 1 | |
| | | | V/C | < | 0.00 | > | | < | 0.06 | > | | < | 0.00 | > | | < | 0.01 | > | | |
| | | | Q | < | 0 | > | | < | 2 | > | | < | 0 | > | | < | 0 | > | | |
| | King Street North and Conestogo Road | TCS | LOS | D | C | > | C | D | A | > | D | B | C | B | C | E | C | > | C | C |
| | | | Delay | 40 | 33 | > | 34 | 47 | 7 | > | 40 | 17 | 27 | 15 | 22 | 55 | 24 | > | 27 | 27 |
| | | | V/C | 0.17 | 0.68 | > | | 0.62 | 0.13 | > | | 0.25 | 0.43 | 0.45 | | 0.44 | 0.53 | > | | |
| | | | Q | 18 | 56 | > | | 55 | 10 | > | | 18 | 88 | 86 | | 33 | 102 | > | | |
| | King Street North and North Highway 85 Ramps | TCS | LOS | | | | | C | | A | C | | B | > | B | A | B | > | B | C |
| | | | Delay | | | | | 28 | | 0 | 28 | | 11 | > | 11 | 0 | 16 | > | 16 | 27 |
| | | | V/C | | | | | 0.21 | | 0.00 | | | 0.38 | > | | 0.00 | 0.66 | > | | |
| | | | Q | | | | | 28 | | 0 | | | 51 | > | | 0 | 124 | > | | |
| | King Street North and South Highway 85 Ramps | TCS | LOS | C | C | C | C | D | | C | C | | A | > | A | A | A | > | A | B |
| | | | Delay | 31 | 29 | 20 | 21 | 47 | | 27 | 34 | | 7 | 2 | 5 | 7 | 8 | 3 | 6 | 10 |
| | | | V/C | 0.07 | 0 | 0.54 | | 1 | | 1 | | | 0 | 0 | | 0 | 0 | 1 | | |
| | | | Q | 11 | 1.5 | 38 | | 56 | | 59 | | | 61 | 11 | | 5 | 72 | 13 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*

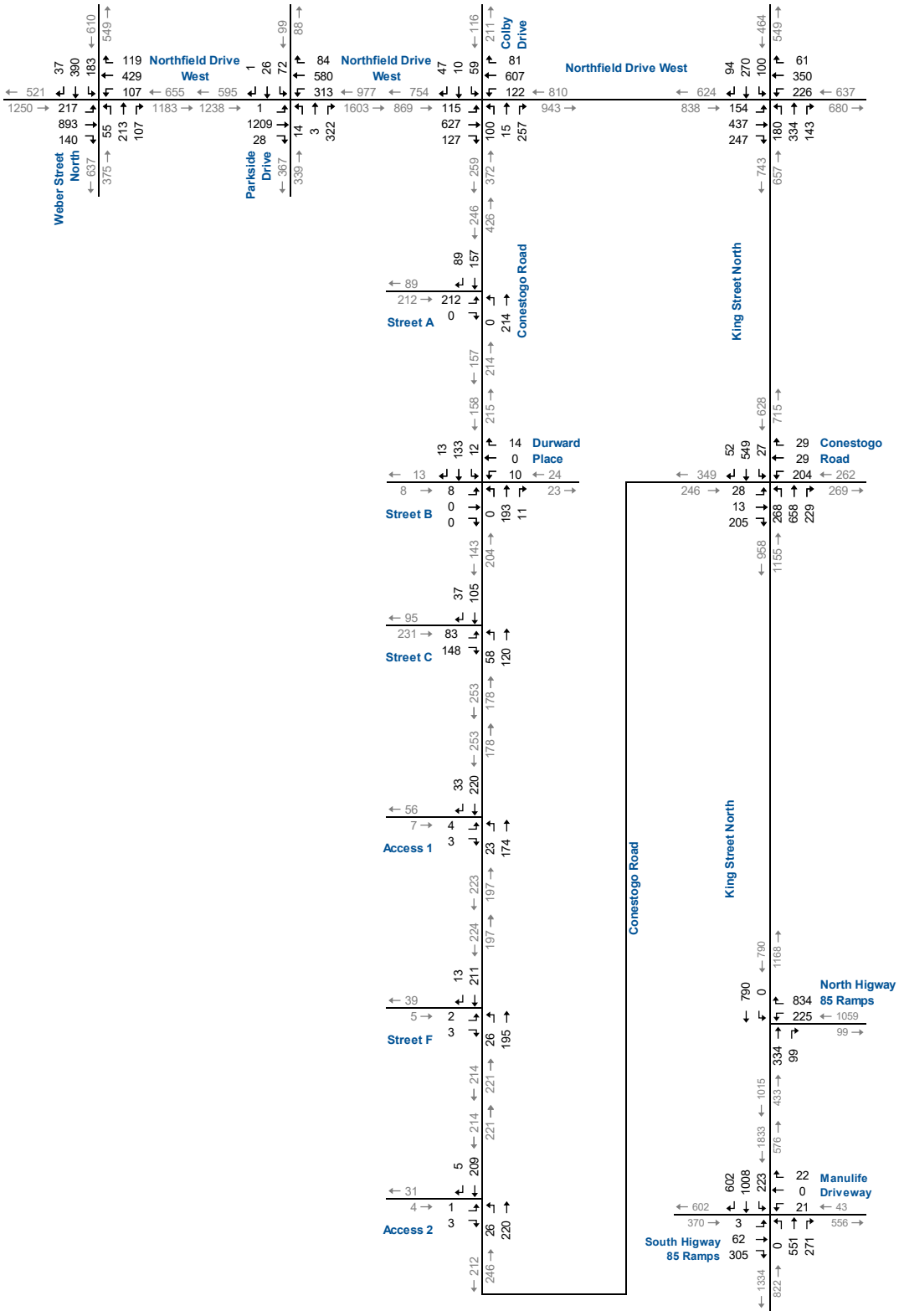
### 4.4.2 Total Traffic Operations

The forecast 2037 total traffic volumes, including both background traffic and development traffic, are shown in **Figure 4.8a** and **Figure 4.8b** for the AM and PM peaks, respectively.

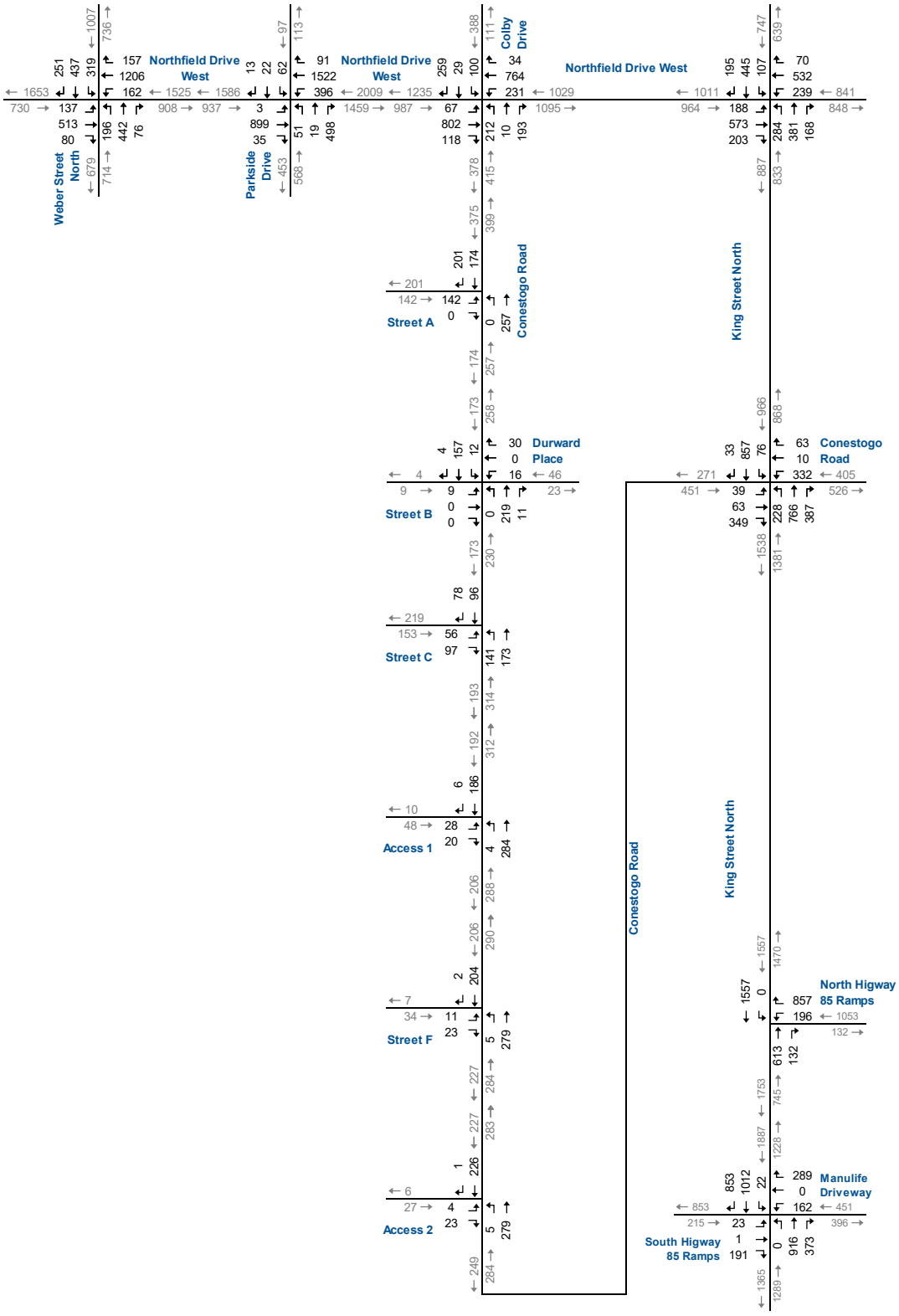
Similar to background traffic conditions, Level of Service analysis was undertaken, and the results are summarized in **Table 4.11a** and **Table 4.11b**. As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements:

- **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the AM peak hour, and LOS F with a v/c greater than 1.0 during the PM peak hour. Overall, the intersection is forecast to operate at a LOS E during the PM peak hour;
- **King Street North and Conestogo Road:** The westbound left movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

**Appendix L** includes the detailed Synchro 10 reports.




# 2037 Total Traffic Forecasts – AM Peak Hour




# 2037 Total Traffic Forecasts – PM Peak Hour

# TABLE 4.11A: 2037 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | C | D | > | D | C | C | A | C | C | C | > | C | C | C | > | C | C |
| | | | Delay | 24 | 39 | > | 37 | 35 | 30 | 1 | 26 | 21 | 28 | > | 26 | 24 | 27 | > | 26 | 31 |
| | | | V/C | 0.52 | 0.82 | > | | 0.61 | 0.36 | 0.20 | | 0.16 | 0.35 | > | | 0.42 | 0.35 | > | | |
| | | | Q | 49 | 149 | > | | 30 | 57 | 1 | | 16 | 40 | > | | 44 | 54 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | C | A | > | B | < | D | A | B | D | D | > | D | C |
| | | | Delay | 18 | 28 | > | 28 | 35 | 5 | > | 15 | < | 40 | 10 | 11 | 45 | 39 | > | 44 | 22 |
| | | | V/C | 0.00 | 0.74 | > | | 0.77 | 0.28 | > | | < | 0.06 | 0.61 | | 0.31 | 0.08 | > | | |
| | | | Q | 1 | 177 | > | | 74 | 31 | > | | < | 10 | 27 | | 30 | 14 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | D | C | > | C | D | B | > | C | < | E | > | E | < | C | > | C | C |
| | | | Delay | 49 | 21 | > | 25 | 49 | 20 | > | 24 | < | 64 | > | 64 | < | 27 | > | 27 | 31 |
| | | | V/C | 0.53 | 0.53 | > | | 0.56 | 0.47 | > | | < | 0.96 | > | | < | 0.44 | > | | |
| | | | Q | 40 | 79 | > | | 40 | 68 | > | | < | 121 | > | | < | 32 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | B | D | > | C | D | C | > | D | C | C | > | C | C | C | A | C | C |
| | | | Delay | 20 | 36 | > | 33 | 50 | 28 | > | 36 | 25 | 31 | > | 29 | 23 | 33 | 1 | 24 | 31 |
| | | | V/C | 0.38 | 0.73 | > | | 0.53 | 0.39 | > | | 0.42 | 0.47 | > | | 0.28 | 0.26 | 0.18 | | |
| | | | Q | 33 | 93 | > | | 42 | 52 | > | | 51 | 72 | > | | 30 | 44 | 1 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 11 | > | 11 | < | 10 | > | 10 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | |
| | | | V/C | < | 0.01 | > | | < | 0.03 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 0 | > | | < | 1 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | D | B | > | B | D | B | > | D | B | B | A | B | D | B | > | C | B |
| | | | Delay | 39 | 14 | > | 17 | 44 | 14 | > | 38 | 18 | 15 | 7 | 14 | 47 | 19 | > | 20 | 19 |
| | | | V/C | 0.17 | 0.59 | > | | 0.50 | 0.13 | > | | 0.61 | 0.35 | 0.24 | | 0.25 | 0.42 | > | | |
| | | | Q | 13 | 24 | > | | 33 | 13 | > | | 44 | 68 | 36 | | 14 | 61 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | E | D | | B | > | B | A | B | | B | C |
| | | | Delay | | | | | 24 | | 55 | 49 | | 11 | > | 11 | 0 | 15 | | 15 | 30 |
| | | | V/C | | | | | 0.19 | | 1.03 | | | 0.25 | > | | 0.00 | 0.43 | | | |
| | | | Q | | | | | 29 | | 224 | | | 33 | > | | 0 | 70 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | D | D | C | | A | B | | B | A | A | A | A | A | A | B |
| | | | Delay | 30 | 33 | 38 | 37 | 32 | | 0 | 16 | | 11 | 2 | 8 | 8 | 8 | 2 | 6 | 11 |
| | | | V/C | 0.01 | 0.16 | 0.79 | | 0.08 | | 0.07 | | | 0.29 | 0.29 | | 0.43 | 0.45 | 0.55 | | |
| | | | Q | 3 | 23 | 77 | | 11 | | 0 | | | 47 | 12 | | 30 | 72 | 12 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.41 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 15 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 12 | | > | 12 | | | | | 8 | 0 | | 2 | | 0 | 0 | 0 | |
| | | | V/C | 0.33 | | > | | | | | | 0.04 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 1 | | 0 | 0 | 0 | |
| | | | V/C | 0.01 | | > | | | | | | 0.02 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 0 | | > | | | | | | 1 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*< / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*





# TABLE 4.11B: 2037 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

| Analysis Period | Intersection | Control Type | MOE | Direction/Movement/Approach | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| PM Peak Hour | Weber Street North & Northfield Drive West | TCS | LOS | E | C | > | C | C | D | A | D | D | D | > | D | D | D | > | D | D |
| | | | Delay | 57 | 29 | > | 34 | 22 | 40 | 9 | 35 | 38 | 40 | > | 39 | 53 | 36 | > | 41 | 37 |
| | | | V/C | 0.81 | 0.48 | > | | 0.47 | 0.85 | 0.25 | | 0.71 | 0.58 | > | | 0.89 | 0.69 | > | | |
| | | | Q | 53 | 74 | > | | 36 | 172 | 22 | | 50 | 76 | > | | 94 | 91 | > | | |
| | Parkside Drive & Northfield Drive West | TCS | LOS | B | C | > | C | E | B | > | C | < | C | C | C | C | C | > | C | C |
| | | | Delay | 19 | 25 | > | 25 | 59 | 17 | > | 25 | < | 34 | 23 | 24 | 34 | 23 | > | 30 | 25 |
| | | | V/C | 0.03 | 0.61 | > | | 0.98 | 0.75 | > | | < | 0.19 | 0.79 | | 0.20 | 0.08 | > | | |
| | | | Q | 2 | 112 | > | | 125 | 168 | > | | < | 25 | 86 | | 23 | 12 | > | | |
| | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | E | D | > | D | F | C | > | E | < | F | > | F | < | C | > | C | E |
| | | | Delay | 70 | 40 | > | 42 | 232 | 29 | > | 75 | < | 100 | > | 100 | < | 29 | > | 29 | 61 |
| | | | V/C | 0.55 | 0.81 | > | | 1.35 | 0.58 | > | | < | 1.08 | > | | < | 0.73 | > | | |
| | | | Q | 32 | 130 | > | | 124 | 101 | > | | < | 170 | > | | < | 99 | > | | |
| | King Street North & Northfield Drive West | TCS | LOS | C | D | > | D | D | C | > | D | D | C | > | D | C | D | A | C | D |
| | | | Delay | 23 | 40 | > | 37 | 53 | 32 | > | 38 | 41 | 34 | > | 36 | 25 | 38 | 7 | 28 | 35 |
| | | | V/C | 0.54 | 0.77 | > | | 0.54 | 0.54 | > | | 0.77 | 0.53 | > | | 0.34 | 0.45 | 0.35 | | |
| | | | Q | 40 | 114 | > | | 44 | 80 | > | | 86 | 84 | > | | 31 | 71 | 19 | | |
| | Conestogo Road & Access 2/Durward Place | TWSC | LOS | < | B | > | B | < | B | > | B | A | A | A | A | A | A | A | A | |
| | | | Delay | < | 12 | > | 12 | < | 11 | > | 11 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | |
| | | | V/C | < | 0.02 | > | | < | 0.07 | > | | 0.00 | 0.00 | 0.00 | | 0.01 | 0.00 | 0.00 | | |
| | | | Q | < | 1 | > | | < | 2 | > | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| | King Street North & Conestogo Road | TCS | LOS | C | C | > | C | F | A | > | F | C | C | B | C | E | C | > | C | D |
| | | | Delay | 34 | 34 | > | 34 | 110 | 8 | > | 91 | 27 | 24 | 18 | 23 | 61 | 30 | > | 33 | 36 |
| | | | V/C | 0.14 | 0.84 | > | | 1.04 | 0.14 | > | | 0.70 | 0.47 | 0.48 | | 0.50 | 0.66 | > | | |
| | | | Q | 16 | 83 | > | | 80 | 11 | > | | 52 | 96 | 89 | | 35 | 125 | > | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | | | | | C | | F | F | | B | > | B | A | B | | B | E |
| | | | Delay | | | | | 28 | | 198 | 167 | | 11 | > | 11 | 0 | 18 | | 18 | 63 |
| | | | V/C | | | | | 0.20 | | 1.37 | | | 0.38 | > | | 0.00 | 0.76 | | | |
| | | | Q | | | | | 28 | | 315 | | | 55 | > | | 0 | 166 | | | |
| | King Street North & Highway 85 Ramps | TCS | LOS | C | C | C | C | C | | C | C | | A | A | A | A | A | A | A | B |
| | | | Delay | 24 | 23 | 24 | 24 | 34 | | 30 | 31 | | 8 | 2 | 6 | 8 | 9 | 4 | 7 | 10 |
| | | | V/C | 0.06 | 0.00 | 0.51 | | 0.52 | | 0.70 | | | 0.43 | 0.35 | | 0.08 | 0.47 | 0.71 | | |
| | | | Q | 9 | 1 | 42 | | 46 | | 64 | | | 67 | 11 | | 6 | 77 | 15 | | |
| | Conestogo Road & Street A | TWSC | LOS | C | | > | C | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 16 | | > | 16 | | | | | 0 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.32 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 10 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street C | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 13 | | > | 13 | | | | | 8 | 0 | | 4 | | 0 | 0 | 0 | |
| | | | V/C | 0.28 | | > | | | | | | 0.11 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 8 | | > | | | | | | 3 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 1 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 12 | | > | 12 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.09 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Street F | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 11 | | > | 11 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.05 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 2 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |
| | Conestogo Road & Access 2 | TWSC | LOS | B | | > | B | | | | | A | A | | A | | A | A | A | |
| | | | Delay | 10 | | > | 10 | | | | | 8 | 0 | | 0 | | 0 | 0 | 0 | |
| | | | V/C | 0.04 | | > | | | | | | 0.00 | 0.00 | | | | 0.00 | 0.00 | | |
| | | | Q | 1 | | > | | | | | | 0 | 0 | | | | 0 | 0 | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m, < / > - Shared with through movement*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*

### 4.4.3 Conestogo Road/Colby Drive and Northfield Drive West Queuing

In addition to the Synchro 10 analysis, MTO requested queue length analysis for the eastbound movements at the intersection of **Conestogo Road/Colby Drive and Northfield Drive West** to determine potential impacts to the Highway 85 ramp on Northfield Drive. This analysis was carried out using the MTO Geometric Design Standards[7], Table B7 - 4 under Level of Service (LOS) A conditions, assuming a vehicle length of 7.5 meters.

The distance between Conestogo Road / Colby Drive and the Highway 85 Southbound ramp on Northfield Drive is 340 metres. The results indicate that the eastbound movements are not forecast to reach the Highway 85 Southbound ramp. **Table 4.12** summarizes the queuing analysis under the 2037 background and total traffic conditions.

**TABLE 4.12: QUEUING ANALYSIS SUMMARY**

| Scenario | Movement | Cycle Length | | Movement Counts (per lane) | | $m_u$ max | Calc'd Length (per lane) |
|---|---|---|---|---|---|---|---|
| | | AM Peak | PM Peak | AM Peak | PM Peak | | |
| Background 2037 | EBL | 102 | 117 | 118 | 68 | 3.3 | 52.5 |
| | EBTR | | | 352.5 | 438 | 14.2 | 157.5 |
| Total 2037 | EBL | 102 | 117 | 118 | 68 | 3.3 | 52.5 |
| | EBTR | | | 391 | 475 | 15.4 | 165.0 |

[7] Geometric Design Standards for Ontario Highways, *Ministry of Transportation,* 1985

# 5 Remedial Measures

Remedial measures were determined using the five-year beyond buildout horizon (2032) as requested in the pre-study conferency by MTO staff.

## 5.1 Left-Turn Lanes

The need for designated left-turning lanes at unsignalized intersections within the study area was assessed using MTO procedures detailed in the Geometric Design Manual[8]. With the posted speed limit of 50 km/h, standard practice in the Region of Waterloo considers a design speed of 60 km/h considering the urban characteristics of the immediate area and the restricted flow of traffic.

Turn lane warrants were assessed for the following intersections under 2032 total traffic conditions:

- **Conestogo Road at Street B:** a northbound or southbound left-turn lane is not forecast to be warranted;
- **Conestogo Road at Street C:** a northbound left-turn lane with 15 metres of storage length is forecast to be warranted during the PM peak hour;
- **Conestogo Road at Access 1:** a northbound left-turn lane is not forecast to be warranted;
- **Conestogo Road at Street F:** a northbound left-turn lane is not forecast to be warranted; and
- **Conestogo Road at Access 2:** a northbound left-turn lane is not forecast to be warranted.

**Figure 5.1 – Figure 5.5** displays the left-turn lane warrant nomographs for the intersections.

## 5.2 Signalized Intersections

The three intersections of **Northfield Drive and Conestogo Road / Colby Drive**, **King Street North and Northfield Drive**, and **King Street North and Conestogo Road** were all recently redesigned and reconstructed to accommodate ION LRT tracks and signals. Minimizing operational delays for automobiles was de-prioritized in favour of increasing capacity for all travellers, including those riding the LRT. ION vehicles receive priority signalization at these intersections.

[8] Geometric Design Standards For Ontario Highways, *Ministry of Transportation,* 1986

Therefore, major improvements to the major streets at these intersections were not considered and delays during the peak periods for automobiles are being considered as tolerable. Given the close proximity of the subject site to ION stations and other transit options, transit usage may become seen as more desirable by residents or employees of the subject development.

## 5.3 Additional Intersection Improvements

Due to the increase in traffic caused by the proposed development, the following intersections are forecast to have poor operations:

- Conestogo Road/Colby Drive and Northfield Drive West; and
- King Street North and Conestogo Road.

To remedy this, additional turn lanes may be added to provide additional capacity, discussed in more detail below.

### 5.4.1 Conestogo Road/Colby Drive and Northfield Drive West

As the eastbound left-turn, westbound left-turn and northbound shared movements are forecast to operate inadequately, the addition of a dedicated northbound and southbound left-turn lane, along with a northbound and southbound left-turn protected-permissive phase was analysed as a mitigating measure to this issue.

As this is a signalized intersection, the storage length requirement for this intersection was determined using the Synchro 10 95$^{th}$ percentile queue for this movement. Based on this a storage length of 115 metres and X metres for the northbound and southbound left-turn lanes, respectively, is required. The current road width would likely be able to accommodate this requirement.

Additionally, it was found that the storage length of the eastbound left-turn movement was insufficient under the existing conditions and is forecast to be insufficeient under all future conditions as per the MTO queue analysis. To accommodate this the eastbound left-turn lane storgage would need to be extended to 52.5 metres.

### 5.4.2 King Street North and Conestogo Road

The northbound left-turn and southbound movements are forecast to operate inadequately, so the reconfiguration of the eastbound lanes to be a shared left-through movement and right turn lane was analysed as a mitigating measure to this issue.





Based on the current intersection geometry, the reconfiguration could be accommodated without roadway improvements.

### 5.4.4 2032 Total Traffic Operations with Improvements

The traffic operations under the 2032 total traffic horizon were reanalysed with the following remedial measures in place:

- **Conestogo Road/Colby Drive and Northfield Drive West:** addition of a dedicated northbound and southbound left-turn lane, with a shared through-right turn lane. Additionally, a protected/ permissive phase is to be added to the north-south phases; and
- **King Street North and Conestogo Road:** reconfiguration of the eastbound turning lanes to have a shared left-through and dedicated right-turn lane.

**Table 5.1** summarizes the results of the LOS analysis. All intersections in the study area are forecast to have acceptable operational values except for the following critical movements:

- **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS E during the PM peak hour.

This is an improvement to the delays at all four intersections, however the traffic volumes are still forecast to cause LOS E on specific movements during the PM peak hour.

**Appendix M** contains the supporting detailed Synchro 10 reports.



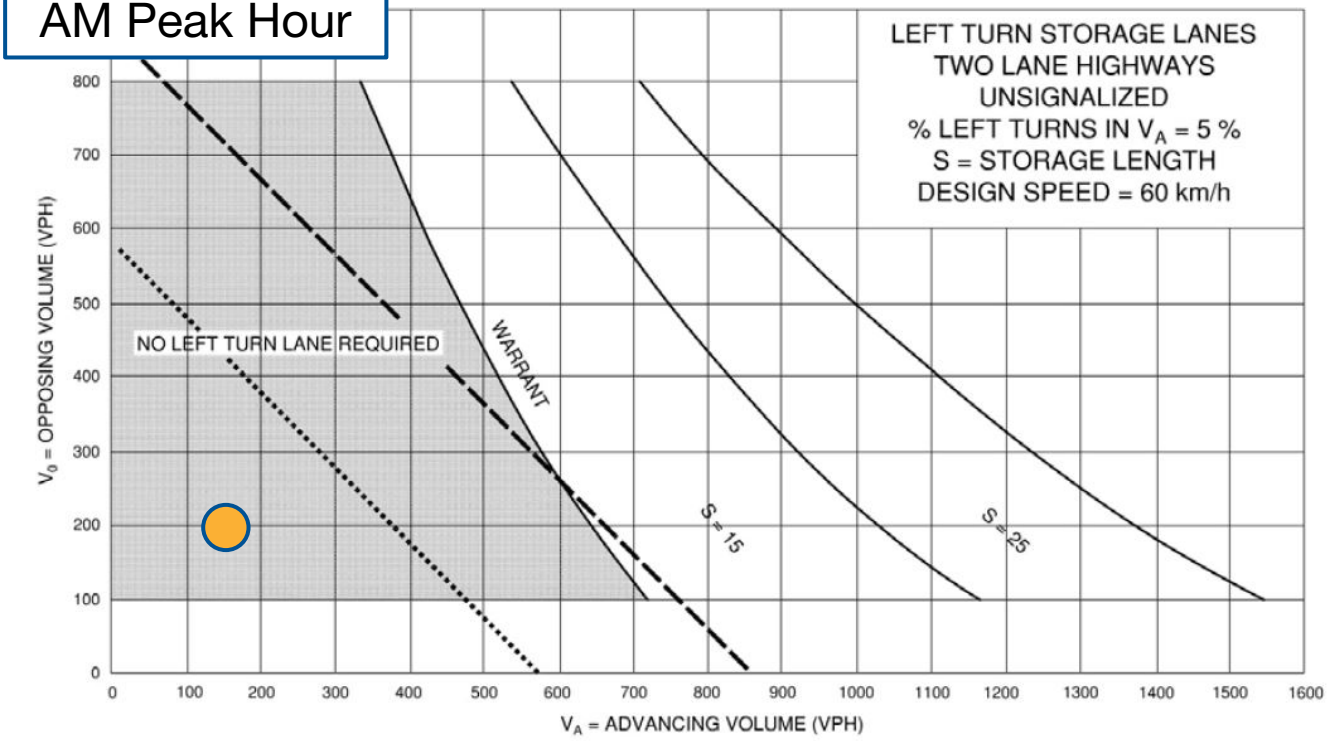


# TABLE 5.1: 2032 TOTAL TRAFFIC OPERATIONS WITH IMPROVEMENTS

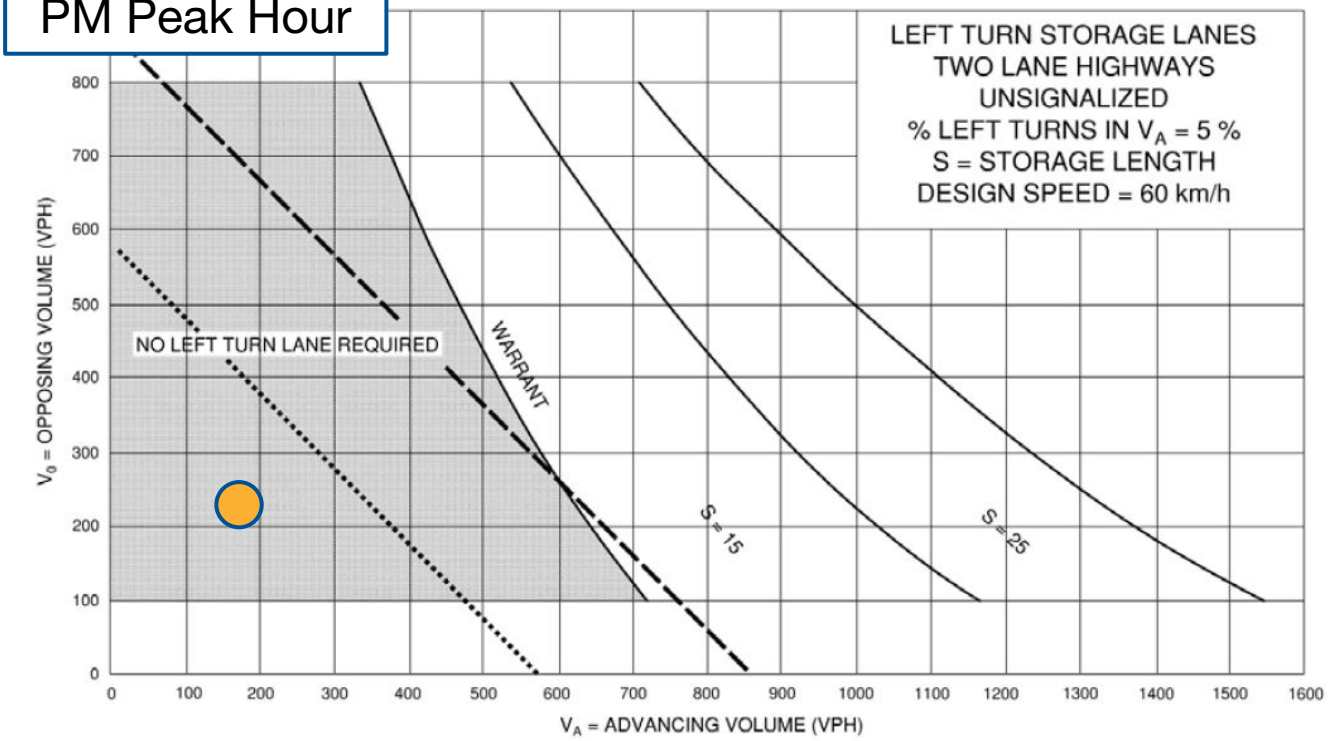
| Analysis Period | Intersection | Control Type | MOE | Direction / Movement / Approach | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Eastbound | | | | Westbound | | | | Northbound | | | | Southbound | | | | Overall |
| | | | | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | Left | Through | Right | Approach | |
| AM Peak Hour | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | D | B | > | C | D | B | > | C | C | B | > | C | C | B | > | C | C |
| | | | Delay | 48 | 18 | > | 22 | 52 | 16 | > | 22 | 31 | 16 | > | 20 | 31 | 15 | > | 24 | 22 |
| | | | V/C | 0.54 | 0.48 | > | | 0.60 | 0.41 | > | | 0.39 | 0.70 | > | | 0.35 | 0.24 | > | | |
| | | | Q | 40 | 76 | > | | 47 | 70 | > | | 28 | 28 | > | | 18 | 12 | > | | |
| | King Street North & Conestogo Road | TCS | LOS | < | D | B | B | D | B | > | D | B | B | A | B | D | B | > | C | B |
| | | | Delay | < | 41 | 15 | 19 | 44 | 14 | > | 37 | 17 | 15 | 7 | 14 | 47 | 19 | > | 20 | 19 |
| | | | V/C | < | 0.23 | 0.62 | | 0.50 | 0.13 | > | | 0.60 | 0.35 | 0.24 | | 0.25 | 0.42 | > | | |
| | | | Q | < | 17 | 22 | | 32 | 13 | > | | 42 | 65 | 34 | | 14 | 59 | > | | |
| PM Peak Hour | Conestogo Road/Colby Drive & Northfield Drive West | TCS | LOS | E | C | > | C | E | B | > | C | D | B | > | C | D | C | > | C | C |
| | | | Delay | 60 | 32 | > | 34 | 65 | 19 | > | 30 | 47 | 10 | > | 29 | 36 | 21 | > | 25 | 30 |
| | | | V/C | 0.47 | 0.72 | > | | 0.81 | 0.46 | > | | 0.74 | 0.49 | > | | 0.44 | 0.74 | > | | |
| | | | Q | 31 | 127 | > | | 94 | 87 | > | | 64 | 22 | > | | 30 | 35 | > | | |
| | King Street North & Conestogo Road | TCS | LOS | < | D | C | C | D | A | > | D | C | C | B | C | D | D | > | D | C |
| | | | Delay | < | 42 | 28 | 32 | 46 | 7 | > | 39 | 34 | 28 | 15 | 25 | 55 | 35 | > | 37 | 31 |
| | | | V/C | < | 0.40 | 0.82 | | 0.61 | 0.13 | > | | 0.72 | 0.52 | 0.45 | | 0.45 | 0.74 | > | | |
| | | | Q | < | 36 | 55 | | 55 | 10 | > | | 75 | 108 | 86 | | 34 | 142 | > | | |

*MOE - Measure of Effectiveness*
*LOS - Level of Service*
*Delay - Average Delay per Vehicle in Seconds*
*Q - 95th Percentile Queue Length (m)*
*TCS - Traffic Control Signal*
*TWSC - Two-Way Stop Control*
*< / > - Shared with through movement*

AM Peak Hour



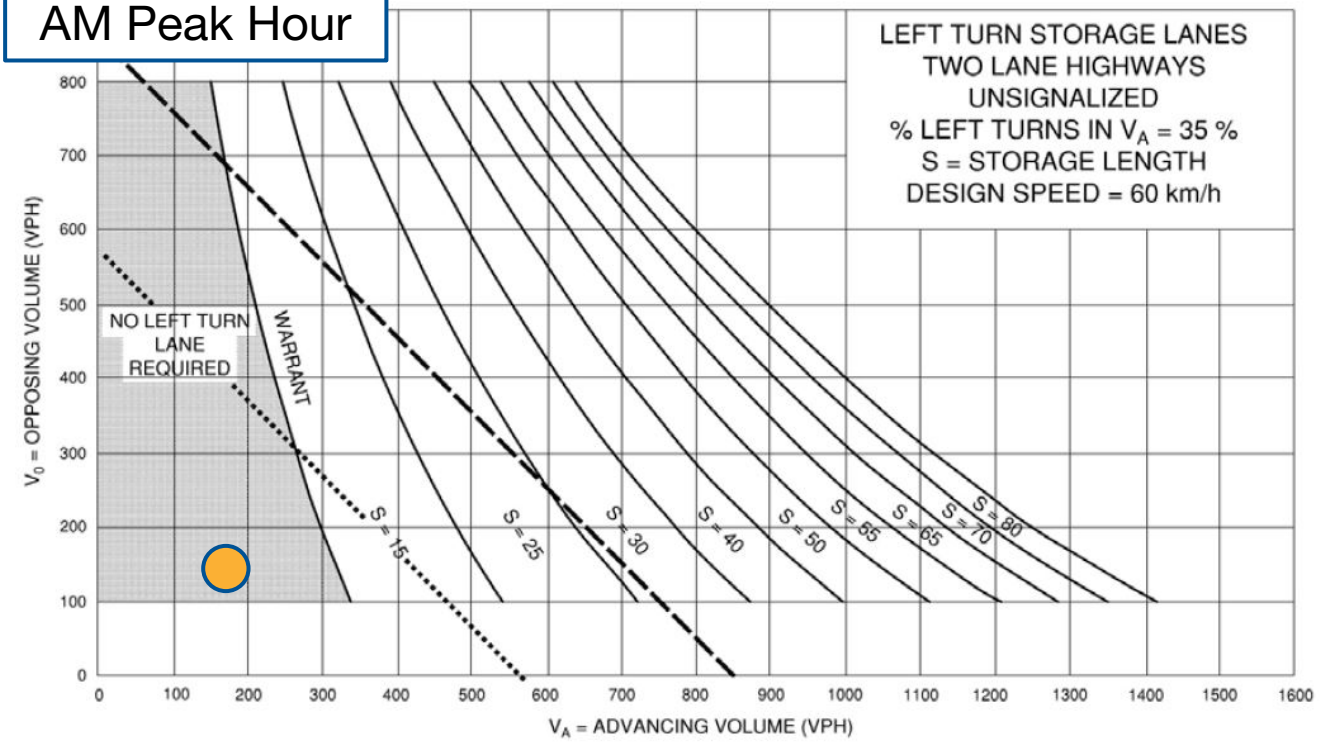

PM Peak Hour



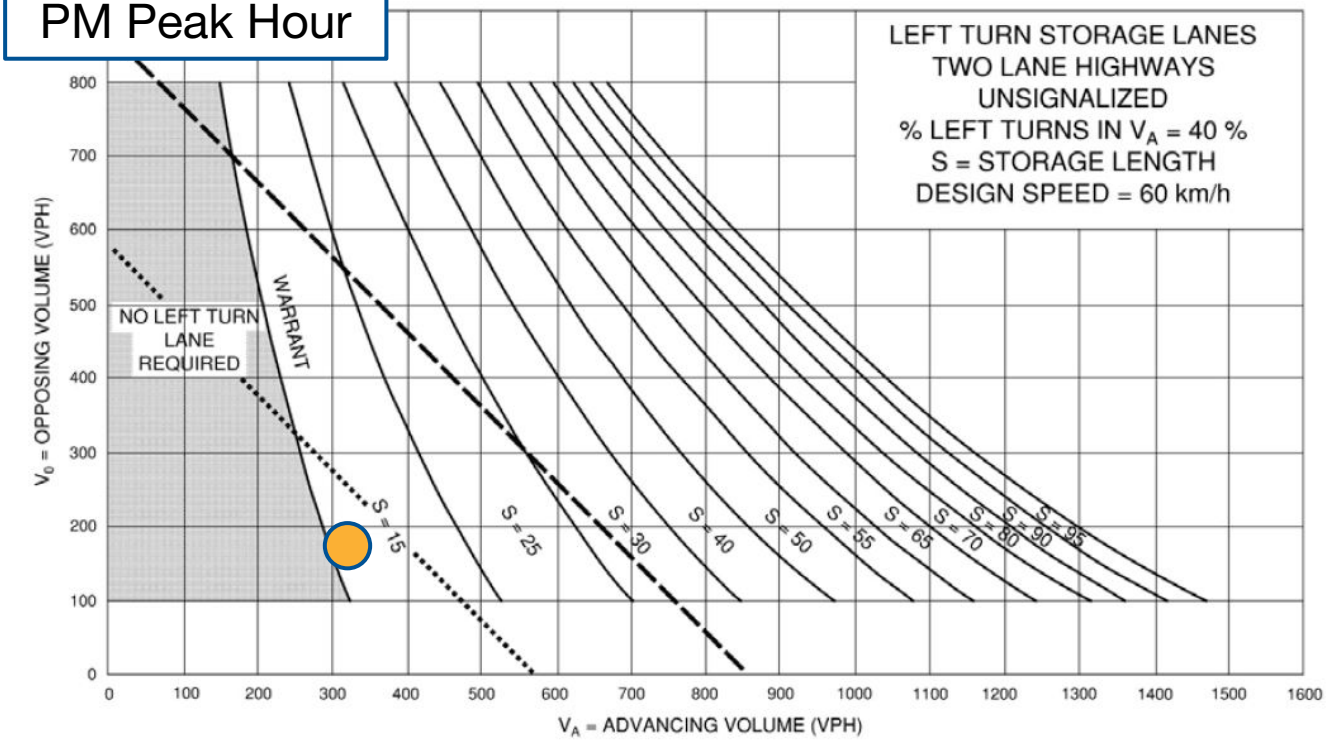

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# Southbound Left-turn Lane Warrant on Conestogo Road at Access 2

AM Peak Hour



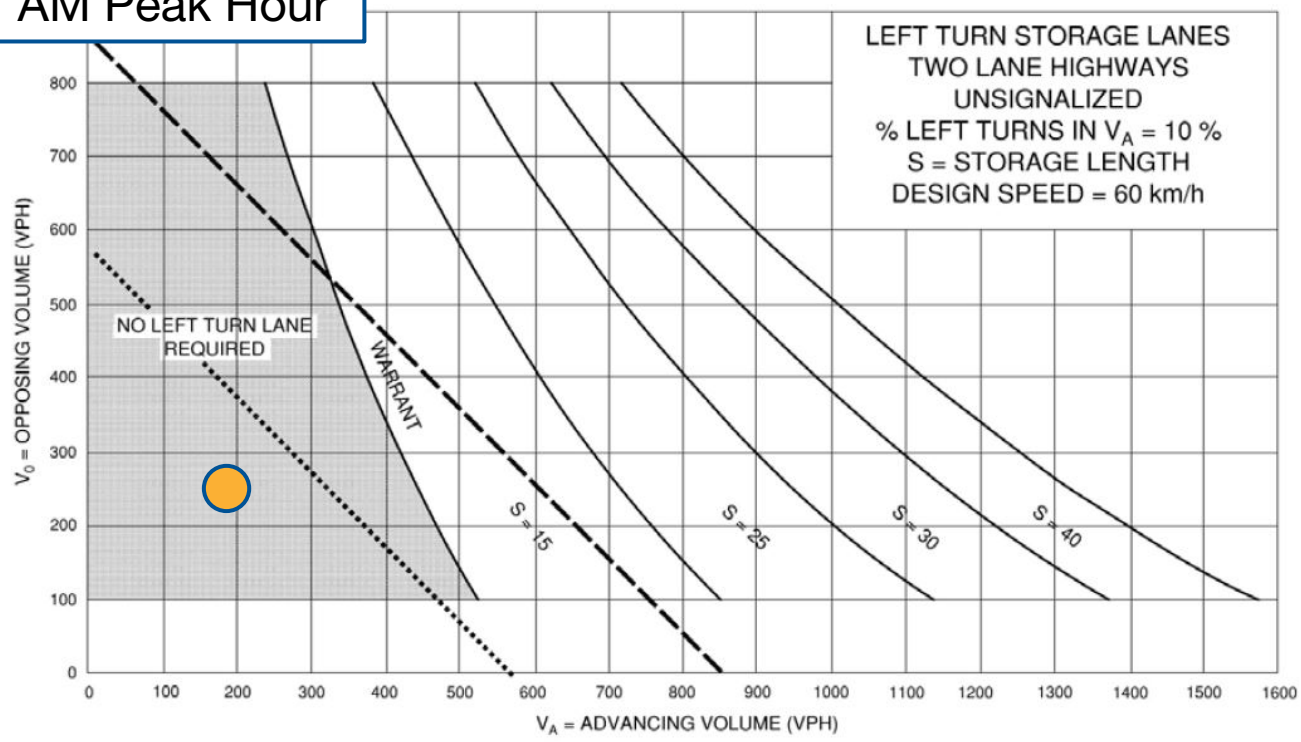

PM Peak Hour




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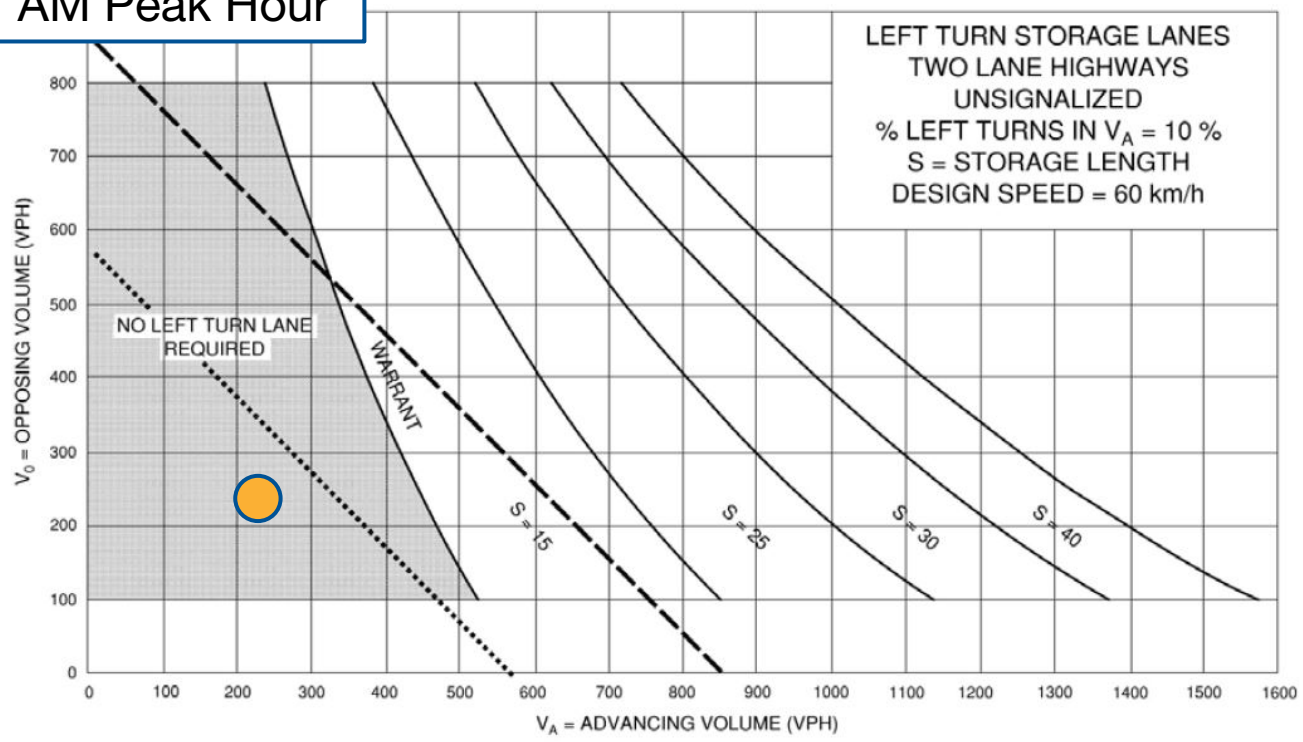
# Northbound Left-turn Lane Warrant on Conestogo Road at Street C

AM Peak Hour



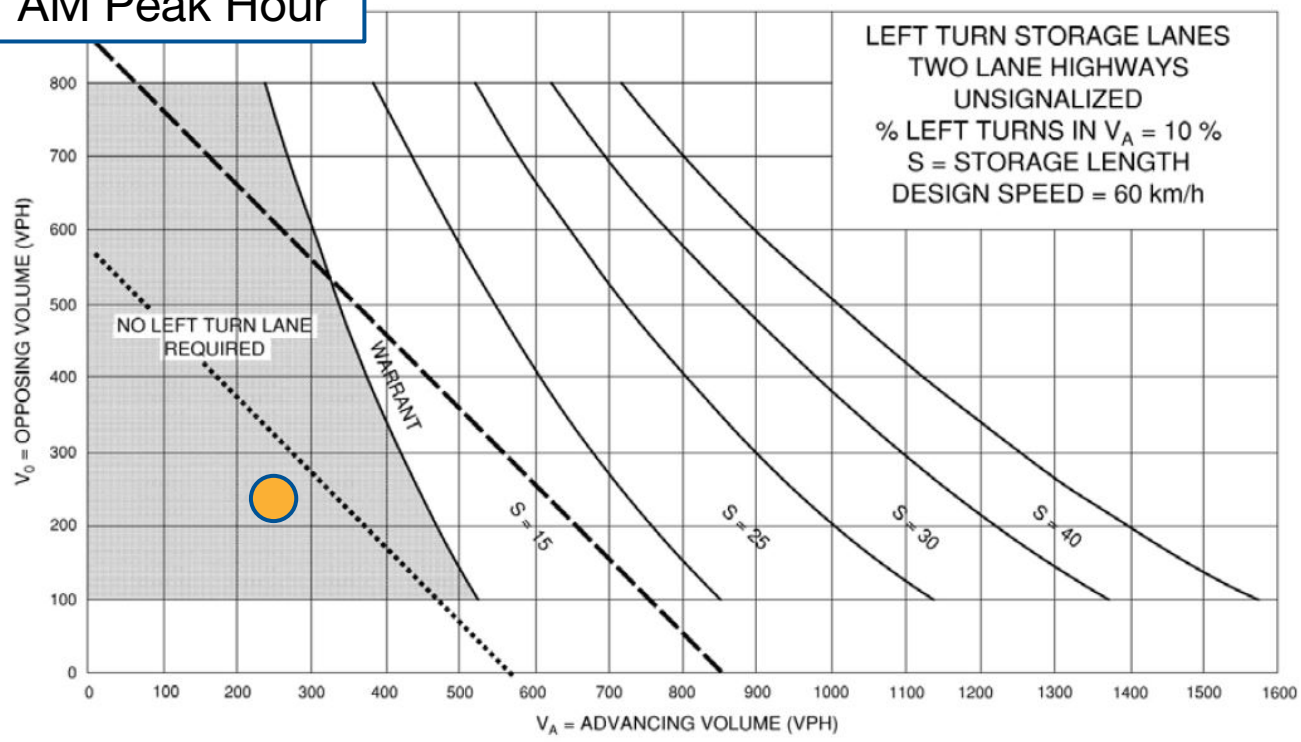

# Northbound Left-turn Lane Warrant on Conestogo Road at Access 1

AM Peak Hour




# Northbound Left-turn Lane Warrant on Conestogo Road at Street F

AM Peak Hour




# Northbound Left-turn Lane Warrant on Conestogo Road at Access 2

# 6 Transportation Demand Management

## 6.1 Transportation Demand Management Techniques

Transportation Demand Management (TDM) refers to ways of making the capacity of our roads more efficient by reducing vehicle demand. TDM approaches consider how people's choices of travel mode are affected by land use patterns, development design, parking availability, parking cost, and the relative cost, convenience and availability of alternative modes of travel. Various TDM strategies are used to influence those factors so that the alternatives are more competitive with driving alone and potentially reduce reliance on motor vehicles.

TDM strategies at a development can be divided into two basic categories:

- Pre-occupancy: things that need to be done while a development is being designed and built; and
- Post-occupancy: things that can be done once people are using the development.

The pre-occupancy actions are critical as they are most likely to determine how attractive, convenient, and safe alternative travel will be once the site is occupied. Before a site is occupied, it can be designed to be convenient and safe for pedestrians and cyclists, and vehicle parking can be provided to meet but not exceed demand.

After the development is built, incentives can be offered, but those incentives will not work as well if the site and its surroundings are oriented to cars. The incentives generally include subsidies to use transit, access to rideshare programs, and information about where and how to use alternatives.

## 6.2 Pre-Occupancy Strategies

The owner may want to observe following TDM strategies as they will help to lower the required-on site parking from the existing Zoning By-Law requirements:

### 6.2.1 Transit Support

The development facilitates on-site pedestrian access to the greater sidewalk network, which in turn, provides access to the transit stops. The development is located near two ION LRT stations, which also connect to multiple bus routes, described in **Section 2.2**.





The Region of Waterloo has implementing the Ion Rapid Transit system that connects Conestoga Mall in the north to Fairview Mall in the south and traverse the University area as well as Uptown Waterloo and Downtown Kitchener. Nearby ION stations are located at Northfield Drive, between Highway 85 and Parkside Drive, and at Conestoga Mall. **Figure 6.1** displays the ION Rapid Transit Network. A pedestrian walkway connecting across Highway 85 to the Northfield ION station is planned to be constructed.

This is very beneficial to encouraging residents to utilize transit, by providing easy access to multiple locations. The provision of high-capacity, high-frequency transit service will be a significant factor contributing to a reduction of automobile trips to/from the site.

### 6.2.2 Cycling Support

The development is recommended to provide bicycle parking through secure storage lockers for residents and office / retail employees.

Near the development site, cycling lanes are present on Northfield Drive. Also, as mentioned previously, a active transportation bridge is planned to cross Highway 85 to connect to the Northfield ION station from the subject development.

### 6.2.3 Shower and Change Facilities

The development is recommended to provide shower and change facilities within the office component to encourage active modes of transportation for employees. The provision of these facilities addresses a major work-related barrier to cycling. These facilities help to encourage an active lifestyle.

### 6.2.4 Shared Parking

To optimise use of the parking within the multiple parking structures, shared parking between office, retail and residential uses should be considered, as each land use experiences peak demand at different times of the day.

## 6.3 Post-Occupancy Strategies

### 6.3.1 Travelwise Membership

The future occupants of the development should consider becoming a member of the Travelwise program, offered by the Region of Waterloo. The Travelwise program is usually offered to companies to coordinate TDM services for employees. Services include: ride matching for carpoolers, emergency rides home, and Grand River Transit corporate

pass. Usually, an employer whose offices are part of the development would join Travelwise, but it is possible for a condominium corporation to act as the “company” and the residents to be the “employees”. Of particular benefit to residents would be the discounted transit passes. The details of how the occupants could join the Travelwise membership program and the benefits they will receive would need to be worked out with the Region of Waterloo. Additionally, the companies established within the commercial component of the development could look to join Travelwise as part of the same application as the residential component providing added benefit to their employees.

### 6.3.2 On-Site Transit Support

The owner should investigate the feasibility of providing access to real-time transit information for area transit routes, including ION LRT and that this information is readily available in public areas of the development.

### 6.3.3 TDM Coordinator

The building owner should look to delegate an interested individual or require the property manager to act as a coordinator for the TDM measures. The TDM coordinator will handle the membership in Travelwise, provide information for the Community Car Share program, and administer access to the secured bicycle parking. It is expected that a representative of the City of Waterloo or Region of Waterloo will be available to assist the TDM coordinator to help get the programs started during the early stages of operations.

### 6.3.4 Car Share Program

Community CarShare is a co-operative which provides a car share service within Waterloo Region. The availability of a shared vehicle will allow residents who normally would not need a vehicle for their daily activities to be comfortable with the decision to not own a vehicle. The owner should consider providing a parking space as a designated Community CarShare space, pending demand. The owner should liaise with the “CarShare Anywhere” program, to determine the feasibility of providing a vehicle stored on site in a surface lot space.

### 6.3.5 Unbundled Parking

Unbundled parking is the supply of parking as a separate charge to the occupants. For residential units, this means parking spaces would be sold separately from the units.

### 6.3.6 Paid Parking

For non-residential uses, the cost for parking on-site could be set at a price which would be greater than a monthly transit pass.

## 6.4 TDM Checklist Assessment

The site has been designed to be supportive of the TDM objectives of the City and Region by providing and incorporating the design objectives in the Master Plan document for the site development. Most important of these is flexibility of the plan to evolve over time to increase development density and reduce parking.

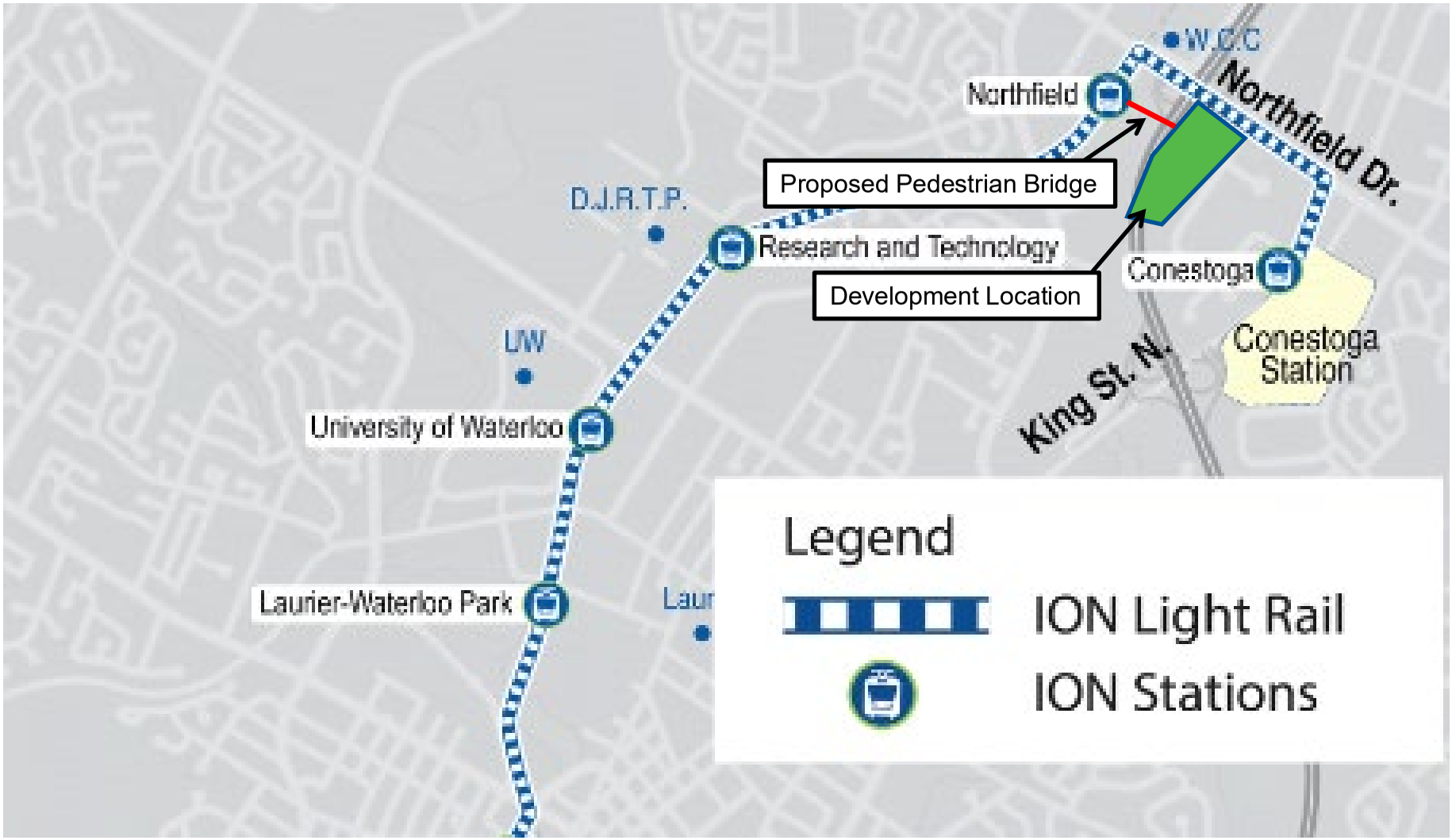
The Region of Waterloo has developed a “TDM Checklist” as part of their Zoning By-Law (ZBL) application process. it was created to assist in assessing whether developments are planned in such a manner to support the overall objectives of the City to increase transit use and to reduce single occupant vehicle (SOV) travel.

Under the ZBL, the development is considered to be in an intensification corridor (IC) area and is eligible for a parking reduction based on the mixed-use nature of the site and the possible inclusion of TDM measures described in the previous sections.

Overall, the site is eligible for an approximate 25% reduction, requiring a total of 2327 parking spaces, with 760 Type A and 1037 Type B bicycle spaces. For comparison, the site is providing 2648 spaces.

**Appendix N** contains the Region of Waterloo TDM Checklist.

The TDM measures used in the TDM Checklist were unknown at the time of this study and were only used as an example of available reductions to the developer. The amount of reduction per available feature is shown in the TDM Checklist. However, if these features can be confirmed by the developer, this score could be achieved.




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## ION Rapid Transit Network

# 7 Conclusions and Recommendations

## 7.1 Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** The analyses indicate that all intersections and individual movements within the study area are currently operating at acceptable levels of service with the exception of the eastbound left-turn movement at **Conestogo Road/Colby Drive and Northfield Drive West** which exceeds the available queue length.
- The development is forecast to generate 787 and 861 new trips during the AM and PM peak hours, respectively at full build out. These values include reductions for internal capture, pass-by reductions and the Region of Waterloo mode split.
  - **Background Traffic Operations:** All intersections within the study area are forecast to operate with adequate levels of service at the 2032 Background horizon with the exception of the eastbound left-turn movement at **Conestogo Road/Colby Drive and Northfield Drive West** which exceeds the available queue length.
- **Total Traffic Operations:** As under background traffic conditions, all observed intersections have acceptable operational values except for the following critical movements at the 2032 Total horizon:
  - **Conestogo Road/Colby Drive and Northfield Drive West:** The eastbound left-turn movement is forecast to operate at a LOS E during the PM peak hour. The westbound left-turn movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The nortbound shared movement is forecast to operate at a LOS E with a v/c greater than 0.85 during the AM peak hour, and LOS F with a v/c greater than 1.0 during the PM peak hour. Overall, the intersection is forecast to operate at a LOS E during the PM peak hour;
  - **King Street North and Conestogo Road:** The westbound left movement is forecast to operate at a LOS F with a v/c greater than 1.0 during the PM peak hour. The southbound left movement is forecast to operate at a LOS E during the PM peak hour.

  The queuing of the eastbound shared through-right movement at **Conestogo Road/Colby Drive and Northfield Drive West** is

not forecast to exceed the storage length available between the intersection and the Highway 85 southbound off ramp;

- **TDM / Parking Conclusions:** Using the Region of Waterloo's TDM Checklist, the subject development is rated as a TDM Supportive Development. According to the checklist, TDM measure could result in approximately 25% reduction in parking demand;
- A northbound left-turn lane is warranted on **Conestogo Road at Street C**;
- The addition of a northbound and southbound left-turn lane, and protected/permissive signal phasing for the north and south movements on Conestogo Road at the signalized intersection with Northfield Drive will improve operations at this intersection; and
- The reconfiguration of the eastbound lanes on Conestogo Road at the signalized intersection with King Street North will improve operations at this intersection.

## 7.2 Recommendations

Based on the findings of this study, it is recommended that:

- A northbound left-turn lane with 15 m of storage length be constructed on **Conestogo Road at Street C**;
- A northbound and southbound left-turn lane with protected/permissive signal phasing be constructed on **Conestogo Road and Northfield Drive**; and
- The eastbound approach of **Conestogo Road and King Street North** be reconfigured to:
  - a dedicated right-turn lane; and
  - a shared left-through lane.





# Appendix A

## Pre-Study Conference Form

# 525-565 Conestogo Road (Former Kraus Flooring)
# PRE-STUDY CONFERENCE FORM

| Item | Description | Details |
|---|---|---|
| **ISSUES** | | |
| 1 | List any issues expected that may impact the content or recommendations of the subject Transportation | • Pedestrian crossing connecting site to Northfield LRT Station |
| **INTRODUCTION** | | |
| 2 | Nature of application (Attach a drawing) | ○ Official Plan Amendment<br>○ Zoning Amendment<br>○ Site Plan Control Application<br>○ Plan of Subdivision<br>○ Community Plan<br>○ Other |
| 3 | TIS process, and relevant policies, procedures and approvals | ○ Guidelines for the preparation of Transportation Impact Studies in Support of Development Applications<br>○ Transportation Impact Studies Requirements for Capacity Analysis, Roundabouts, Turn Lanes<br>○ Safety Analysis Checklist<br>○ Policy and Procedures for Access onto Regional Roads |
| 4 | Public Meeting | ~~○ Required~~<br>○ Not Required |
| **CONTEXT** | | |
| 5 | Study intersections (Intersections to be analyzed)<br><br>Note: the consultant is responsible to identify any further intersections impacted as the study progresses. | • Northfield Dr W & Weber St N<br>• Northfield Dr W & Parkside Dr<br>• Northfield Dr W & Conestogo Rd / Colby Dr<br>• Northfield Dr W & King St N<br>• King St N & Conestogo Rd<br>• Conestogo Rd & Durward Pl<br>• King St N & Highway 85 Ramps (North and South)<br>• Site Driveways on Conestogo Rd |
| 6 | Size and number of phases of development | • North of Hydro Corridor: Blocks 1-7<br>  • 2077 residential units<br>  • 9,527 $m^2$ Retail GFA<br>  • 59,581 $m^2$ Office GFA<br>• South of Hydro Corridor: Block 8<br>  • 100 residential units<br>  • 2,045 $m^2$ Retail GFA<br>  • 10,854 $m^2$ Office GFA |
| 7 | Approved and pending approval development applications | ○ |
| 8 | Planned transportation system improvements | • Potential pedestrian crossing to Northfield LRT station over Highway 85 |
| **TRAVEL DEMAND** | | |

| | | |
|---|---|---|
| 9 | Horizon years | • Region of Waterloo and MTO Guidelines<br>• Phase “1”, Full Buildout (2027), +5 years, +10 years<br>  ○ MTO requested recommendations based on the +5 years horizon<br>• TIS updates required after Phase 1 |

| It | Description | Details |
|---|---|---|
| 10 | Peak hour determination | ○ AM weekday peak hour of adjacent roadway<br>○ PM weekday peak hour of adjacent roadway |
| 11 | Background | ○ Historical traffic/transit counts<br>○ ROW travel demand forecasts<br>○ Approved and pending approval development applications<br>○ Other… |
| 12 | Trip generation | • ITE fitted equation, if appropriate. Otherwise, average rates |
| 13 | Trip reductions<br>(TDM, internal, pass-by) | ○ Transportation Demand Management Checklist<br>~~○ Published Travel Demand Management reductions~~<br>~~○ Observed Travel Demand Management reductions~~<br>○ ITE internal capture reductions for mixed-use developments<br>~~○ Observed internal capture reductions for mixed-use developments~~<br>○ ITE pass-by reductions<br>~~○ Observed pass-by reductions for similar developments~~<br>~~○ Other…~~ |
| 14 | Trip distribution | ○ ITE trip distribution IN/OUT split<br>○ Regional travel demand<br>○ Population and employment distribution<br>○ Market analysis of catchment area<br>○ Transportation Tomorrow Survey |
| 15 | Trip assignment | ○ Local traffic pattern<br>○ Site layout and access design<br>○ Existing turning movements<br>~~○ Other…~~ |
| **EVALUATION OF IMPACTS** | | |
| 16 | Traffic impact analysis<br>(Use approved software) | ○ Unsignalized intersections<br>○ left turn warrant analysis<br>○ signal warrant analysis<br>○ Signalized intersections<br>○ LOS, v/c, delay, queuing<br>○ ROW saturation flow rates<br>○ Existing signal timings for existing conditions<br>○ Optimize signal timings for future conditions<br>○ Use existing cycle length to respect coordinated corridor<br>○ Queuing analysis<br>○ Roundabouts<br>○ Other… |

| It | Description | Details |
|---|---|---|
| 17 | Roundabout feasibility<br>(Use approved software) | ○ Initial screening<br>○ Intersection control study (10 year horizon) |
| 18 | Transit assessment | ○ Frequency and hours of service<br>○ Presence of bus stops<br>○ Reliability of service<br>○ Passenger loads<br>○ Travel time<br>○ Other |
| 19 | Pedestrian assessment | ○ Presence, connectivity, and width of sidewalks<br>○ Barriers and buffers from traffic<br>○ Crossing opportunities at intersections<br>○ Delay at intersections<br>○ Number of driveways and traffic volumes at the driveways<br>○ Presence of illumination<br>○ Future needs (desire lines / policy / accessibility / demand)<br>○ Other |
| 20 | Cycling assessment | ○ Presence of a dedicated facility<br>○ Network connectivity<br>○ Number and width of travel lanes adjacent to the route<br>○ Volume and speed of traffic<br>○ Percentage of trucks and buses encountered<br>○ Pavement condition<br>○ Presence of parking /showers/change rooms<br>○ Future needs (desire lines / policy / demand)<br>○ Other |
| 21 | Safety analysis | ○ Road safety review<br>○ Collision risk analysis<br>○ Access conflict evaluation |
| 22 | Site access and circulation | ○ Review sight distances at all new access points<br>○ Internal traffic controls<br>○ Loading facilities and access<br>○ Service/maintenance vehicle access<br>○ Emergency vehicle access |
| 23 | Submission format | ○ Three hard copies of main report including appendices (other than analysis results/output e.g. Synchro reports)<br>○ Minimum one original hard copy must be sealed by a professional engineer<br>○ Electronic copy of complete report and all appendices<br>○ Electronic copy of operational analysis files (e.g. Synchro, Arcady<br>○ Electronic copy of all signal warrant calculation files<br>○ Other |

# Appendix B

## Existing Count Data

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: King Street N & 500 King Street
Site Code:
Start Date: 11/06/2018


# Turning Movement Data

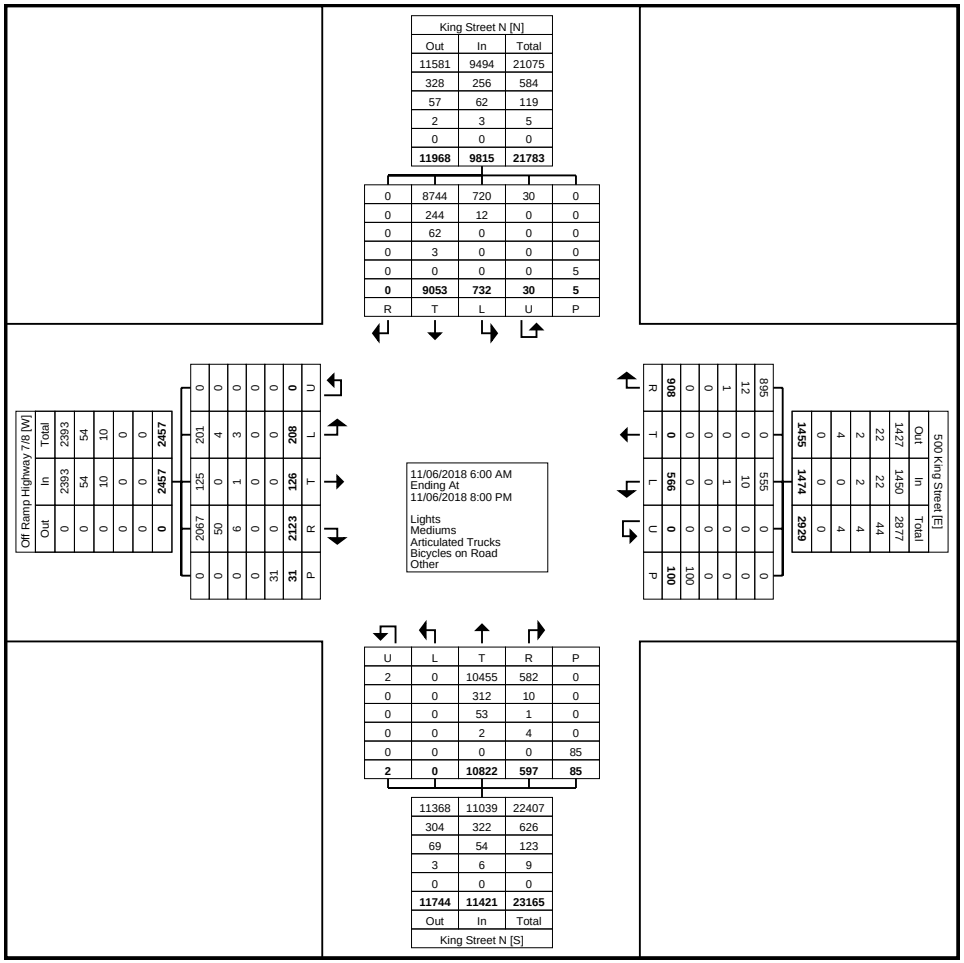
| Start Time | Off Ramp Highway 7/8 Eastbound | | | | | | 500 King Street Westbound | | | | | | King Street N Northbound | | | | | | King Street N Southbound | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 6:00 AM | 0 | 1 | 11 | 0 | 0 | 12 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 68 | 1 | 0 | 1 | 69 | 3 | 41 | 0 | 0 | 0 | 44 | 126 |
| 6:15 AM | 1 | 0 | 19 | 0 | 0 | 20 | 0 | 0 | 1 | 0 | 3 | 1 | 0 | 96 | 4 | 0 | 3 | 100 | 6 | 39 | 0 | 0 | 0 | 45 | 166 |
| 6:30 AM | 0 | 3 | 25 | 0 | 1 | 28 | 1 | 0 | 3 | 0 | 0 | 4 | 0 | 118 | 8 | 0 | 1 | 126 | 13 | 63 | 0 | 0 | 0 | 76 | 234 |
| 6:45 AM | 0 | 3 | 29 | 0 | 0 | 32 | 2 | 0 | 2 | 0 | 0 | 4 | 0 | 99 | 16 | 0 | 1 | 115 | 25 | 110 | 0 | 0 | 0 | 135 | 286 |
| Hourly Total | 1 | 7 | 84 | 0 | 1 | 92 | 3 | 0 | 7 | 0 | 4 | 10 | 0 | 381 | 29 | 0 | 6 | 410 | 47 | 253 | 0 | 0 | 0 | 300 | 812 |
| 7:00 AM | 0 | 4 | 36 | 0 | 0 | 40 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 82 | 18 | 0 | 0 | 100 | 30 | 82 | 0 | 0 | 0 | 112 | 254 |
| 7:15 AM | 1 | 6 | 36 | 0 | 2 | 43 | 1 | 0 | 2 | 0 | 1 | 3 | 0 | 138 | 21 | 0 | 0 | 159 | 35 | 124 | 0 | 0 | 0 | 159 | 364 |
| 7:30 AM | 1 | 9 | 44 | 0 | 0 | 54 | 3 | 0 | 4 | 0 | 1 | 7 | 0 | 154 | 30 | 0 | 2 | 184 | 40 | 164 | 0 | 1 | 0 | 205 | 450 |
| 7:45 AM | 0 | 11 | 63 | 0 | 1 | 74 | 4 | 0 | 4 | 0 | 5 | 8 | 0 | 186 | 39 | 0 | 0 | 225 | 57 | 210 | 0 | 0 | 2 | 267 | 574 |
| Hourly Total | 2 | 30 | 179 | 0 | 3 | 211 | 9 | 0 | 11 | 0 | 8 | 20 | 0 | 560 | 108 | 0 | 2 | 668 | 162 | 580 | 0 | 1 | 2 | 743 | 1642 |
| 8:00 AM | 1 | 15 | 64 | 0 | 0 | 80 | 2 | 0 | 3 | 0 | 0 | 5 | 0 | 164 | 36 | 0 | 0 | 200 | 58 | 191 | 0 | 0 | 0 | 249 | 534 |
| 8:15 AM | 4 | 10 | 67 | 0 | 0 | 81 | 5 | 0 | 3 | 0 | 1 | 8 | 0 | 159 | 46 | 1 | 1 | 206 | 52 | 242 | 0 | 0 | 0 | 294 | 589 |
| 8:30 AM | 2 | 13 | 72 | 0 | 0 | 87 | 2 | 0 | 3 | 0 | 0 | 5 | 0 | 145 | 49 | 0 | 1 | 194 | 66 | 257 | 0 | 0 | 0 | 323 | 609 |
| 8:45 AM | 0 | 10 | 55 | 0 | 0 | 65 | 6 | 0 | 4 | 0 | 3 | 10 | 0 | 178 | 45 | 0 | 3 | 223 | 53 | 204 | 0 | 0 | 0 | 257 | 555 |
| Hourly Total | 7 | 48 | 258 | 0 | 0 | 313 | 15 | 0 | 13 | 0 | 4 | 28 | 0 | 646 | 176 | 1 | 5 | 823 | 229 | 894 | 0 | 0 | 0 | 1123 | 2287 |
| 9:00 AM | 0 | 9 | 44 | 0 | 1 | 53 | 7 | 0 | 2 | 0 | 0 | 9 | 0 | 154 | 34 | 0 | 2 | 188 | 42 | 204 | 0 | 0 | 0 | 246 | 496 |
| 9:15 AM | 10 | 4 | 28 | 0 | 0 | 42 | 3 | 0 | 3 | 0 | 0 | 6 | 0 | 142 | 31 | 0 | 0 | 173 | 29 | 179 | 0 | 0 | 0 | 208 | 429 |
| 9:30 AM | 3 | 0 | 38 | 0 | 0 | 41 | 3 | 0 | 1 | 0 | 2 | 4 | 0 | 141 | 10 | 0 | 0 | 151 | 24 | 159 | 0 | 1 | 0 | 184 | 380 |
| 9:45 AM | 2 | 1 | 43 | 0 | 1 | 46 | 8 | 0 | 6 | 0 | 7 | 14 | 0 | 163 | 13 | 0 | 0 | 176 | 7 | 154 | 0 | 3 | 0 | 164 | 400 |
| Hourly Total | 15 | 14 | 153 | 0 | 2 | 182 | 21 | 0 | 12 | 0 | 9 | 33 | 0 | 600 | 88 | 0 | 2 | 688 | 102 | 696 | 0 | 4 | 0 | 802 | 1705 |
| 10:00 AM | 2 | 2 | 31 | 0 | 0 | 35 | 3 | 0 | 5 | 0 | 0 | 8 | 0 | 154 | 8 | 0 | 1 | 162 | 9 | 145 | 0 | 0 | 0 | 154 | 359 |
| 10:15 AM | 3 | 1 | 34 | 0 | 0 | 38 | 1 | 0 | 9 | 0 | 1 | 10 | 0 | 164 | 2 | 0 | 0 | 166 | 8 | 116 | 0 | 0 | 0 | 124 | 338 |
| 10:30 AM | 1 | 0 | 36 | 0 | 0 | 37 | 2 | 0 | 3 | 0 | 0 | 5 | 0 | 182 | 5 | 0 | 0 | 187 | 5 | 157 | 0 | 1 | 0 | 163 | 392 |
| 10:45 AM | 4 | 1 | 37 | 0 | 0 | 42 | 5 | 0 | 2 | 0 | 3 | 7 | 0 | 190 | 3 | 0 | 0 | 193 | 9 | 129 | 0 | 0 | 1 | 138 | 380 |
| Hourly Total | 10 | 4 | 138 | 0 | 0 | 152 | 11 | 0 | 19 | 0 | 4 | 30 | 0 | 690 | 18 | 0 | 1 | 708 | 31 | 547 | 0 | 1 | 1 | 579 | 1469 |
| 11:00 AM | 4 | 0 | 38 | 0 | 0 | 42 | 7 | 0 | 9 | 0 | 0 | 16 | 0 | 187 | 5 | 1 | 0 | 193 | 4 | 152 | 0 | 0 | 0 | 156 | 407 |
| 11:15 AM | 6 | 1 | 38 | 0 | 2 | 45 | 4 | 0 | 10 | 0 | 1 | 14 | 0 | 218 | 3 | 0 | 1 | 221 | 0 | 142 | 0 | 1 | 0 | 143 | 423 |
| 11:30 AM | 2 | 2 | 29 | 0 | 0 | 33 | 11 | 0 | 18 | 0 | 1 | 29 | 0 | 214 | 5 | 0 | 0 | 219 | 5 | 147 | 0 | 0 | 0 | 152 | 433 |
| 11:45 AM | 3 | 1 | 23 | 0 | 0 | 27 | 17 | 0 | 18 | 0 | 2 | 35 | 0 | 209 | 7 | 0 | 0 | 216 | 8 | 181 | 0 | 0 | 0 | 189 | 467 |
| Hourly Total | 15 | 4 | 128 | 0 | 2 | 147 | 39 | 0 | 55 | 0 | 4 | 94 | 0 | 828 | 20 | 1 | 1 | 849 | 17 | 622 | 0 | 1 | 0 | 640 | 1730 |
| 12:00 PM | 4 | 3 | 23 | 0 | 2 | 30 | 23 | 0 | 23 | 0 | 0 | 46 | 0 | 228 | 4 | 0 | 4 | 232 | 12 | 175 | 0 | 0 | 0 | 187 | 495 |
| 12:15 PM | 5 | 2 | 26 | 0 | 0 | 33 | 9 | 0 | 10 | 0 | 6 | 19 | 0 | 213 | 5 | 0 | 0 | 218 | 15 | 171 | 0 | 1 | 0 | 187 | 457 |
| 12:30 PM | 2 | 0 | 27 | 0 | 1 | 29 | 4 | 0 | 10 | 0 | 1 | 14 | 0 | 208 | 8 | 0 | 1 | 216 | 10 | 184 | 0 | 1 | 0 | 195 | 454 |
| 12:45 PM | 2 | 1 | 30 | 0 | 0 | 33 | 7 | 0 | 8 | 0 | 4 | 15 | 0 | 202 | 19 | 0 | 2 | 221 | 25 | 186 | 0 | 0 | 0 | 211 | 480 |
| Hourly Total | 13 | 6 | 106 | 0 | 3 | 125 | 43 | 0 | 51 | 0 | 11 | 94 | 0 | 851 | 36 | 0 | 7 | 887 | 62 | 716 | 0 | 2 | 0 | 780 | 1886 |
| 1:00 PM | 3 | 2 | 27 | 0 | 2 | 32 | 5 | 0 | 4 | 0 | 4 | 9 | 0 | 244 | 16 | 0 | 1 | 260 | 10 | 178 | 0 | 0 | 0 | 188 | 489 |
| 1:15 PM | 2 | 0 | 20 | 0 | 0 | 22 | 3 | 0 | 3 | 0 | 1 | 6 | 0 | 237 | 12 | 0 | 2 | 249 | 5 | 179 | 0 | 0 | 0 | 184 | 461 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1:30 PM | 5 | 0 | 35 | 0 | 0 | 40 | 2 | 0 | 5 | 0 | 2 | 7 | 0 | 228 | 8 | 0 | 0 | 236 | 5 | 184 | 0 | 0 | 0 | 189 | 472 |
| 1:45 PM | 6 | 1 | 26 | 0 | 1 | 33 | 6 | 0 | 2 | 0 | 1 | 8 | 0 | 237 | 3 | 0 | 0 | 240 | 2 | 189 | 0 | 0 | 0 | 191 | 472 |
| Hourly Total | 16 | 3 | 108 | 0 | 3 | 127 | 16 | 0 | 14 | 0 | 8 | 30 | 0 | 946 | 39 | 0 | 3 | 985 | 22 | 730 | 0 | 0 | 0 | 752 | 1894 |
| 2:00 PM | 2 | 0 | 25 | 0 | 1 | 27 | 1 | 0 | 17 | 0 | 2 | 18 | 0 | 228 | 7 | 0 | 2 | 235 | 4 | 177 | 0 | 0 | 0 | 181 | 461 |
| 2:15 PM | 4 | 0 | 32 | 0 | 2 | 36 | 6 | 0 | 13 | 0 | 0 | 19 | 0 | 251 | 5 | 0 | 1 | 256 | 6 | 159 | 0 | 2 | 1 | 167 | 478 |
| 2:30 PM | 4 | 0 | 28 | 0 | 1 | 32 | 6 | 0 | 10 | 0 | 6 | 16 | 0 | 264 | 6 | 0 | 1 | 270 | 6 | 147 | 0 | 1 | 0 | 154 | 472 |
| 2:45 PM | 0 | 1 | 38 | 0 | 0 | 39 | 11 | 0 | 10 | 0 | 2 | 21 | 0 | 195 | 3 | 0 | 0 | 198 | 7 | 150 | 0 | 1 | 0 | 158 | 416 |
| Hourly Total | 10 | 1 | 123 | 0 | 4 | 134 | 24 | 0 | 50 | 0 | 10 | 74 | 0 | 938 | 21 | 0 | 4 | 959 | 23 | 633 | 0 | 4 | 1 | 660 | 1827 |
| 3:00 PM | 2 | 0 | 25 | 0 | 0 | 27 | 25 | 0 | 48 | 0 | 2 | 73 | 0 | 236 | 4 | 0 | 4 | 240 | 1 | 154 | 0 | 0 | 0 | 155 | 495 |
| 3:15 PM | 2 | 0 | 24 | 0 | 0 | 26 | 16 | 0 | 27 | 0 | 0 | 43 | 0 | 236 | 5 | 0 | 1 | 241 | 2 | 164 | 0 | 0 | 0 | 166 | 476 |
| 3:30 PM | 4 | 1 | 26 | 0 | 0 | 31 | 20 | 0 | 36 | 0 | 4 | 56 | 0 | 252 | 4 | 0 | 4 | 256 | 3 | 187 | 0 | 2 | 0 | 192 | 535 |
| 3:45 PM | 2 | 1 | 32 | 0 | 1 | 35 | 12 | 0 | 30 | 0 | 2 | 42 | 0 | 242 | 7 | 0 | 0 | 249 | 6 | 190 | 0 | 1 | 0 | 197 | 523 |
| Hourly Total | 10 | 2 | 107 | 0 | 1 | 119 | 73 | 0 | 141 | 0 | 8 | 214 | 0 | 966 | 20 | 0 | 9 | 986 | 12 | 695 | 0 | 3 | 0 | 710 | 2029 |
| 4:00 PM | 6 | 0 | 42 | 0 | 3 | 48 | 35 | 0 | 78 | 0 | 2 | 113 | 0 | 265 | 8 | 0 | 10 | 273 | 0 | 189 | 0 | 0 | 0 | 189 | 623 |
| 4:15 PM | 4 | 2 | 50 | 0 | 0 | 56 | 41 | 0 | 69 | 0 | 2 | 110 | 0 | 253 | 2 | 0 | 6 | 255 | 0 | 209 | 0 | 0 | 0 | 209 | 630 |
| 4:30 PM | 5 | 1 | 59 | 0 | 3 | 65 | 49 | 0 | 87 | 0 | 5 | 136 | 0 | 284 | 1 | 0 | 4 | 285 | 0 | 209 | 0 | 1 | 0 | 210 | 696 |
| 4:45 PM | 12 | 0 | 129 | 0 | 1 | 141 | 45 | 0 | 54 | 0 | 5 | 99 | 0 | 245 | 2 | 0 | 7 | 247 | 2 | 242 | 0 | 1 | 1 | 245 | 732 |
| Hourly Total | 27 | 3 | 280 | 0 | 7 | 310 | 170 | 0 | 288 | 0 | 14 | 458 | 0 | 1047 | 13 | 0 | 27 | 1060 | 2 | 849 | 0 | 2 | 1 | 853 | 2681 |
| 5:00 PM | 20 | 1 | 105 | 0 | 0 | 126 | 42 | 0 | 71 | 0 | 3 | 113 | 0 | 241 | 9 | 0 | 7 | 250 | 5 | 211 | 0 | 4 | 0 | 220 | 709 |
| 5:15 PM | 21 | 3 | 93 | 0 | 0 | 117 | 41 | 0 | 50 | 0 | 4 | 91 | 0 | 235 | 4 | 0 | 1 | 239 | 8 | 236 | 0 | 6 | 0 | 250 | 697 |
| 5:30 PM | 4 | 0 | 51 | 0 | 0 | 55 | 14 | 0 | 31 | 0 | 2 | 45 | 0 | 235 | 2 | 0 | 2 | 237 | 0 | 189 | 0 | 0 | 0 | 189 | 526 |
| 5:45 PM | 8 | 0 | 41 | 0 | 0 | 49 | 15 | 0 | 21 | 0 | 2 | 36 | 0 | 234 | 2 | 0 | 5 | 236 | 1 | 169 | 0 | 0 | 0 | 170 | 491 |
| Hourly Total | 53 | 4 | 290 | 0 | 0 | 347 | 112 | 0 | 173 | 0 | 11 | 285 | 0 | 945 | 17 | 0 | 15 | 962 | 14 | 805 | 0 | 10 | 0 | 829 | 2423 |
| 6:00 PM | 3 | 0 | 35 | 0 | 1 | 38 | 10 | 0 | 24 | 0 | 2 | 34 | 0 | 219 | 0 | 0 | 1 | 219 | 3 | 168 | 0 | 0 | 0 | 171 | 462 |
| 6:15 PM | 2 | 0 | 27 | 0 | 3 | 29 | 5 | 0 | 20 | 0 | 0 | 25 | 0 | 221 | 3 | 0 | 0 | 224 | 1 | 127 | 0 | 0 | 0 | 128 | 406 |
| 6:30 PM | 5 | 0 | 21 | 0 | 0 | 26 | 7 | 0 | 9 | 0 | 1 | 16 | 0 | 189 | 3 | 0 | 1 | 192 | 0 | 149 | 0 | 0 | 0 | 149 | 383 |
| 6:45 PM | 4 | 0 | 28 | 0 | 1 | 32 | 4 | 0 | 5 | 0 | 0 | 9 | 0 | 173 | 1 | 0 | 1 | 174 | 0 | 117 | 0 | 0 | 0 | 117 | 332 |
| Hourly Total | 14 | 0 | 111 | 0 | 5 | 125 | 26 | 0 | 58 | 0 | 3 | 84 | 0 | 802 | 7 | 0 | 3 | 809 | 4 | 561 | 0 | 0 | 0 | 565 | 1583 |
| 7:00 PM | 8 | 0 | 16 | 0 | 0 | 24 | 2 | 0 | 5 | 0 | 1 | 7 | 0 | 178 | 1 | 0 | 0 | 179 | 2 | 154 | 0 | 0 | 0 | 156 | 366 |
| 7:15 PM | 4 | 0 | 18 | 0 | 0 | 22 | 1 | 0 | 7 | 0 | 1 | 8 | 0 | 152 | 2 | 0 | 0 | 154 | 1 | 117 | 0 | 1 | 0 | 119 | 303 |
| 7:30 PM | 2 | 0 | 16 | 0 | 0 | 18 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 129 | 2 | 0 | 0 | 131 | 1 | 109 | 0 | 1 | 0 | 111 | 263 |
| 7:45 PM | 1 | 0 | 8 | 0 | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 163 | 0 | 0 | 0 | 163 | 1 | 92 | 0 | 0 | 0 | 93 | 267 |
| Hourly Total | 15 | 0 | 58 | 0 | 0 | 73 | 4 | 0 | 16 | 0 | 2 | 20 | 0 | 622 | 5 | 0 | 0 | 627 | 5 | 472 | 0 | 2 | 0 | 479 | 1199 |
| Grand Total | 208 | 126 | 2123 | 0 | 31 | 2457 | 566 | 0 | 908 | 0 | 100 | 1474 | 0 | 10822 | 597 | 2 | 85 | 11421 | 732 | 9053 | 0 | 30 | 5 | 9815 | 25167 |
| Approach % | 8.5 | 5.1 | 86.4 | 0.0 | - | - | 38.4 | 0.0 | 61.6 | 0.0 | - | - | 0.0 | 94.8 | 5.2 | 0.0 | - | - | 7.5 | 92.2 | 0.0 | 0.3 | - | - | - |
| Total % | 0.8 | 0.5 | 8.4 | 0.0 | - | 9.8 | 2.2 | 0.0 | 3.6 | 0.0 | - | 5.9 | 0.0 | 43.0 | 2.4 | 0.0 | - | 45.4 | 2.9 | 36.0 | 0.0 | 0.1 | - | 39.0 | - |
| Lights | 201 | 125 | 2067 | 0 | - | 2393 | 555 | 0 | 895 | 0 | - | 1450 | 0 | 10455 | 582 | 2 | - | 11039 | 720 | 8744 | 0 | 30 | - | 9494 | 24376 |
| % Lights | 96.6 | 99.2 | 97.4 | - | - | 97.4 | 98.1 | - | 98.6 | - | - | 98.4 | - | 96.6 | 97.5 | 100.0 | - | 96.7 | 98.4 | 96.6 | - | 100.0 | - | 96.7 | 96.9 |
| Mediums | 4 | 0 | 50 | 0 | - | 54 | 10 | 0 | 12 | 0 | - | 22 | 0 | 312 | 10 | 0 | - | 322 | 12 | 244 | 0 | 0 | - | 256 | 654 |
| % Mediums | 1.9 | 0.0 | 2.4 | - | - | 2.2 | 1.8 | - | 1.3 | - | - | 1.5 | - | 2.9 | 1.7 | 0.0 | - | 2.8 | 1.6 | 2.7 | - | 0.0 | - | 2.6 | 2.6 |
| Articulated Trucks | 3 | 1 | 6 | 0 | - | 10 | 1 | 0 | 1 | 0 | - | 2 | 0 | 53 | 1 | 0 | - | 54 | 0 | 62 | 0 | 0 | - | 62 | 128 |
| % Articulated Trucks | 1.4 | 0.8 | 0.3 | - | - | 0.4 | 0.2 | - | 0.1 | - | - | 0.1 | - | 0.5 | 0.2 | 0.0 | - | 0.5 | 0.0 | 0.7 | - | 0.0 | - | 0.6 | 0.5 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 4 | 0 | - | 6 | 0 | 3 | 0 | 0 | - | 3 | 9 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | - | 0.0 | - | - | 0.0 | - | 0.0 | 0.7 | 0.0 | - | 0.1 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 6 | - | - | - | - | - | 21 | - | - | - | - | - | 3 | - | - | - | - | - | 1 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 19.4 | - | - | - | - | - | 21.0 | - | - | - | - | - | 3.5 | - | - | - | - | - | 20.0 | - | - |
| Pedestrians | - | - | - | - | 25 | - | - | - | - | - | 79 | - | - | - | - | - | 82 | - | - | - | - | - | 4 | - | - |
| % Pedestrians | - | - | - | - | 80.6 | - | - | - | - | - | 79.0 | - | - | - | - | - | 96.5 | - | - | - | - | - | 80.0 | - | - |

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada  N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: King Street N & 500 King Street
Site Code:
Start Date: 11/06/2018


Turning Movement Data Plot

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: King Street N & 500 King Street
Site Code:
Start Date: 11/06/2018

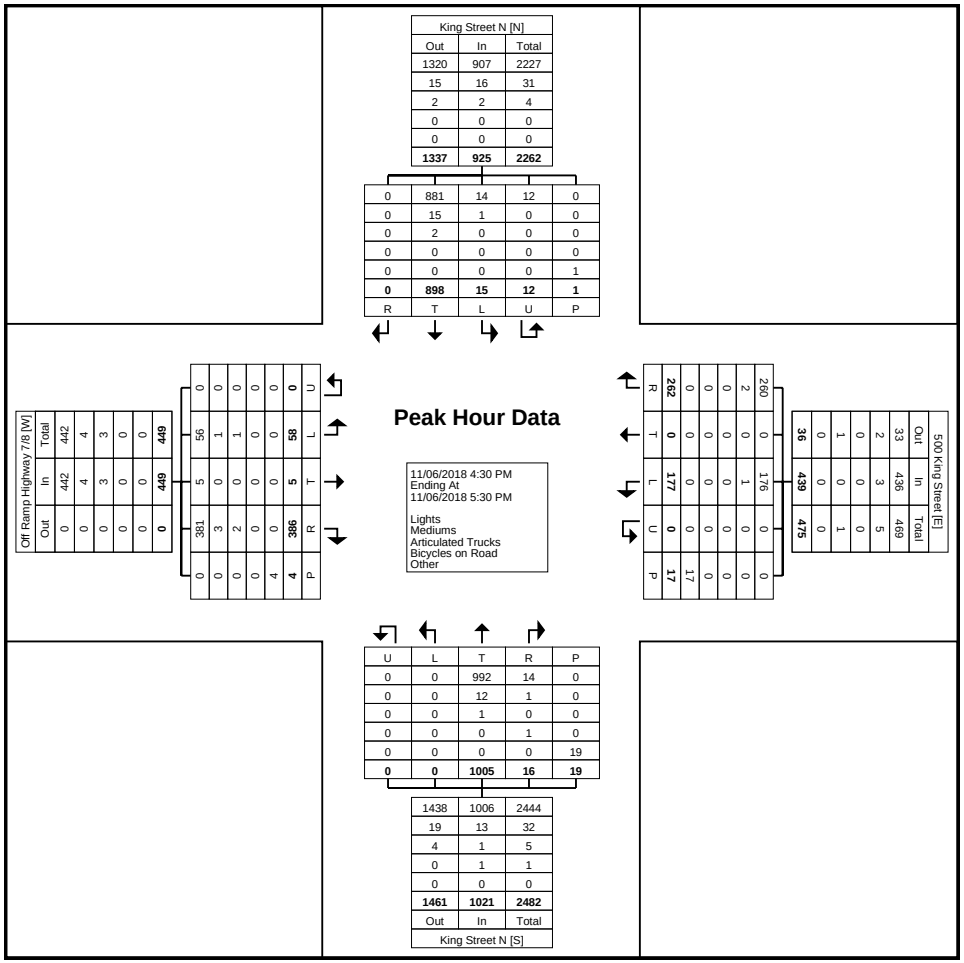

# Turning Movement Peak Hour Data (4:30 PM)

| Start Time | Off Ramp Highway 7/8 Eastbound | | | | | | 500 King Street Westbound | | | | | | King Street N Northbound | | | | | | King Street N Southbound | | | | | | Int. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 4:30 PM | 5 | 1 | 59 | 0 | 3 | 65 | 49 | 0 | 87 | 0 | 5 | 136 | 0 | 284 | 1 | 0 | 4 | 285 | 0 | 209 | 0 | 1 | 0 | 210 | 696 |
| 4:45 PM | 12 | 0 | 129 | 0 | 1 | 141 | 45 | 0 | 54 | 0 | 5 | 99 | 0 | 245 | 2 | 0 | 7 | 247 | 2 | 242 | 0 | 1 | 1 | 245 | 732 |
| 5:00 PM | 20 | 1 | 105 | 0 | 0 | 126 | 42 | 0 | 71 | 0 | 3 | 113 | 0 | 241 | 9 | 0 | 7 | 250 | 5 | 211 | 0 | 4 | 0 | 220 | 709 |
| 5:15 PM | 21 | 3 | 93 | 0 | 0 | 117 | 41 | 0 | 50 | 0 | 4 | 91 | 0 | 235 | 4 | 0 | 1 | 239 | 8 | 236 | 0 | 6 | 0 | 250 | 697 |
| Total | 58 | 5 | 386 | 0 | 4 | 449 | 177 | 0 | 262 | 0 | 17 | 439 | 0 | 1005 | 16 | 0 | 19 | 1021 | 15 | 898 | 0 | 12 | 1 | 925 | 2834 |
| Approach % | 12.9 | 1.1 | 86.0 | 0.0 | - | - | 40.3 | 0.0 | 59.7 | 0.0 | - | - | 0.0 | 98.4 | 1.6 | 0.0 | - | - | 1.6 | 97.1 | 0.0 | 1.3 | - | - | - |
| Total % | 2.0 | 0.2 | 13.6 | 0.0 | - | 15.8 | 6.2 | 0.0 | 9.2 | 0.0 | - | 15.5 | 0.0 | 35.5 | 0.6 | 0.0 | - | 36.0 | 0.5 | 31.7 | 0.0 | 0.4 | - | 32.6 | - |
| PHF | 0.690 | 0.417 | 0.748 | 0.000 | - | 0.796 | 0.903 | 0.000 | 0.753 | 0.000 | - | 0.807 | 0.000 | 0.885 | 0.444 | 0.000 | - | 0.896 | 0.469 | 0.928 | 0.000 | 0.500 | - | 0.925 | 0.968 |
| Lights | 56 | 5 | 381 | 0 | - | 442 | 176 | 0 | 260 | 0 | - | 436 | 0 | 992 | 14 | 0 | - | 1006 | 14 | 881 | 0 | 12 | - | 907 | 2791 |
| % Lights | 96.6 | 100.0 | 98.7 | - | - | 98.4 | 99.4 | - | 99.2 | - | - | 99.3 | - | 98.7 | 87.5 | - | - | 98.5 | 93.3 | 98.1 | - | 100.0 | - | 98.1 | 98.5 |
| Mediums | 1 | 0 | 3 | 0 | - | 4 | 1 | 0 | 2 | 0 | - | 3 | 0 | 12 | 1 | 0 | - | 13 | 1 | 15 | 0 | 0 | - | 16 | 36 |
| % Mediums | 1.7 | 0.0 | 0.8 | - | - | 0.9 | 0.6 | - | 0.8 | - | - | 0.7 | - | 1.2 | 6.3 | - | - | 1.3 | 6.7 | 1.7 | - | 0.0 | - | 1.7 | 1.3 |
| Articulated Trucks | 1 | 0 | 2 | 0 | - | 3 | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 2 | 0 | 0 | - | 2 | 6 |
| % Articulated Trucks | 1.7 | 0.0 | 0.5 | - | - | 0.7 | 0.0 | - | 0.0 | - | - | 0.0 | - | 0.1 | 0.0 | - | - | 0.1 | 0.0 | 0.2 | - | 0.0 | - | 0.2 | 0.2 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | - | 0.0 | - | - | 0.0 | - | 0.0 | 6.3 | - | - | 0.1 | 0.0 | 0.0 | - | 0.0 | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 1 | - | - | - | - | - | 5 | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 25.0 | - | - | - | - | - | 29.4 | - | - | - | - | - | 5.3 | - | - | - | - | - | 100.0 | - | - |
| Pedestrians | - | - | - | - | 3 | - | - | - | - | - | 12 | - | - | - | - | - | 18 | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | 75.0 | - | - | - | - | - | 70.6 | - | - | - | - | - | 94.7 | - | - | - | - | - | 0.0 | - | - |

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: King Street N & 500 King Street
Site Code:
Start Date: 11/06/2018


Turning Movement Peak Hour Data Plot (4:30 PM)

Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada  N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: King Street N & 500 King Street
Site Code:
Start Date: 11/06/2018

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020


# Turning Movement Data

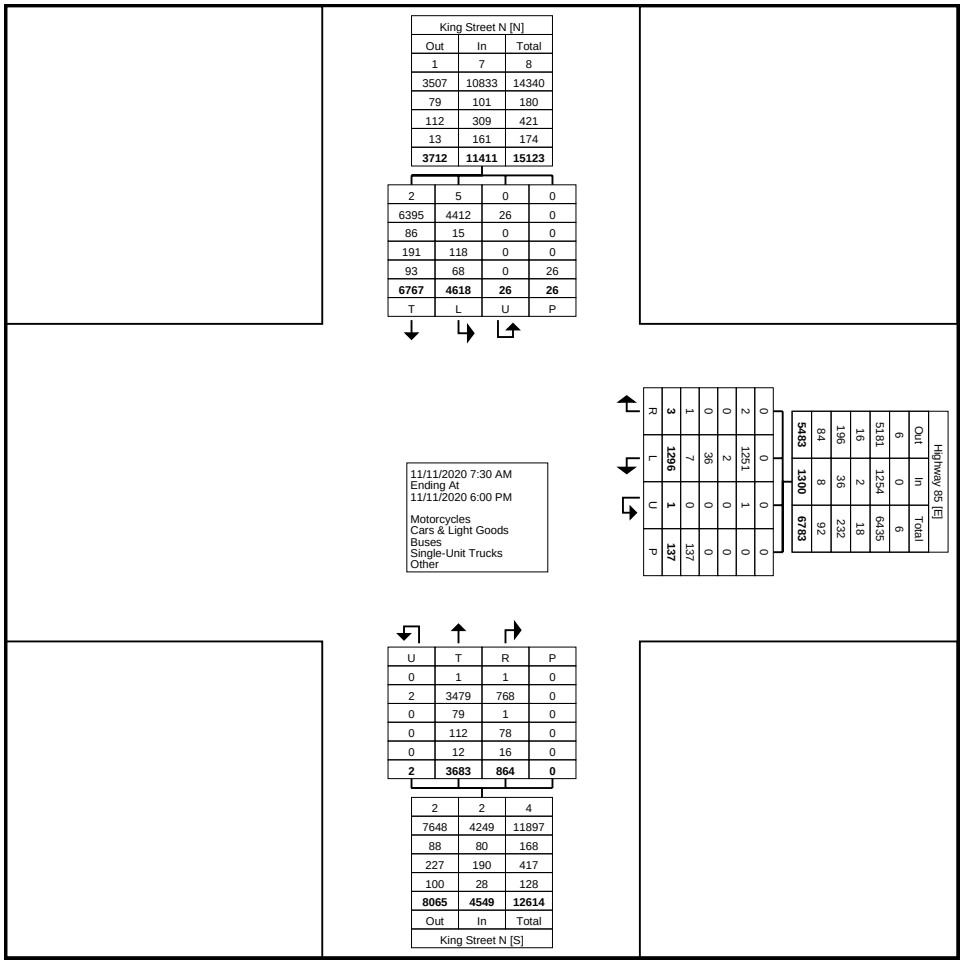
| Start Time | Highway 85 Westbound | | | | | King Street N Northbound | | | | | King Street N Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 7:30 AM | 52 | 0 | 0 | 2 | 52 | 53 | 27 | 0 | 0 | 80 | 153 | 118 | 0 | 3 | 271 | 403 |
| 7:45 AM | 64 | 1 | 0 | 2 | 65 | 74 | 27 | 1 | 0 | 102 | 201 | 121 | 0 | 0 | 322 | 489 |
| Hourly Total | 116 | 1 | 0 | 4 | 117 | 127 | 54 | 1 | 0 | 182 | 354 | 239 | 0 | 3 | 593 | 892 |
| 8:00 AM | 43 | 0 | 0 | 0 | 43 | 63 | 23 | 0 | 0 | 86 | 129 | 143 | 0 | 1 | 272 | 401 |
| 8:15 AM | 48 | 0 | 0 | 0 | 48 | 69 | 30 | 0 | 0 | 99 | 153 | 112 | 0 | 0 | 265 | 412 |
| 8:30 AM | 61 | 0 | 0 | 1 | 61 | 75 | 15 | 0 | 0 | 90 | 171 | 98 | 0 | 0 | 269 | 420 |
| 8:45 AM | 52 | 0 | 0 | 2 | 52 | 71 | 23 | 0 | 0 | 94 | 140 | 113 | 4 | 0 | 257 | 403 |
| Hourly Total | 204 | 0 | 0 | 3 | 204 | 278 | 91 | 0 | 0 | 369 | 593 | 466 | 4 | 1 | 1063 | 1636 |
| 9:00 AM | 48 | 0 | 0 | 1 | 48 | 77 | 14 | 0 | 0 | 91 | 102 | 109 | 0 | 0 | 211 | 350 |
| 9:15 AM | 34 | 0 | 0 | 2 | 34 | 91 | 23 | 0 | 0 | 114 | 116 | 125 | 0 | 0 | 241 | 389 |
| 9:30 AM | 28 | 0 | 0 | 3 | 28 | 69 | 17 | 0 | 0 | 86 | 121 | 136 | 0 | 0 | 257 | 371 |
| 9:45 AM | 45 | 0 | 0 | 0 | 45 | 94 | 28 | 0 | 0 | 122 | 131 | 124 | 0 | 1 | 255 | 422 |
| Hourly Total | 155 | 0 | 0 | 6 | 155 | 331 | 82 | 0 | 0 | 413 | 470 | 494 | 0 | 1 | 964 | 1532 |
| 10:00 AM | 29 | 0 | 0 | 2 | 29 | 102 | 16 | 1 | 0 | 119 | 124 | 140 | 2 | 0 | 266 | 414 |
| 10:15 AM | 22 | 1 | 0 | 5 | 23 | 102 | 22 | 0 | 0 | 124 | 144 | 161 | 1 | 0 | 306 | 453 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 51 | 1 | 0 | 7 | 52 | 204 | 38 | 1 | 0 | 243 | 268 | 301 | 3 | 0 | 572 | 867 |
| 12:00 PM | 41 | 0 | 0 | 1 | 41 | 165 | 33 | 0 | 0 | 198 | 153 | 225 | 1 | 0 | 379 | 618 |
| 12:15 PM | 39 | 0 | 1 | 3 | 40 | 175 | 23 | 0 | 0 | 198 | 159 | 231 | 0 | 0 | 390 | 628 |
| 12:30 PM | 39 | 0 | 0 | 3 | 39 | 157 | 32 | 0 | 0 | 189 | 172 | 238 | 1 | 1 | 411 | 639 |
| 12:45 PM | 39 | 0 | 0 | 7 | 39 | 135 | 30 | 0 | 0 | 165 | 159 | 213 | 1 | 2 | 373 | 577 |
| Hourly Total | 158 | 0 | 1 | 14 | 159 | 632 | 118 | 0 | 0 | 750 | 643 | 907 | 3 | 3 | 1553 | 2462 |
| 1:00 PM | 24 | 0 | 0 | 4 | 24 | 145 | 20 | 0 | 0 | 165 | 152 | 228 | 0 | 4 | 380 | 569 |
| 1:15 PM | 36 | 0 | 0 | 5 | 36 | 141 | 28 | 0 | 0 | 169 | 156 | 249 | 1 | 0 | 406 | 611 |
| 1:30 PM | 15 | 0 | 0 | 3 | 15 | 140 | 25 | 0 | 0 | 165 | 143 | 231 | 3 | 2 | 377 | 557 |
| 1:45 PM | 23 | 0 | 0 | 7 | 23 | 128 | 35 | 0 | 0 | 163 | 121 | 232 | 1 | 0 | 354 | 540 |
| Hourly Total | 98 | 0 | 0 | 19 | 98 | 554 | 108 | 0 | 0 | 662 | 572 | 940 | 5 | 6 | 1517 | 2277 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3:00 PM | 52 | 0 | 0 | 8 | 52 | 144 | 27 | 0 | 0 | 171 | 127 | 300 | 0 | 1 | 427 | 650 |
| 3:15 PM | 40 | 0 | 0 | 8 | 40 | 119 | 35 | 0 | 0 | 154 | 153 | 255 | 0 | 2 | 408 | 602 |
| 3:30 PM | 24 | 0 | 0 | 7 | 24 | 145 | 32 | 0 | 0 | 177 | 164 | 293 | 3 | 1 | 460 | 661 |
| 3:45 PM | 56 | 0 | 0 | 4 | 56 | 119 | 40 | 0 | 0 | 159 | 161 | 245 | 1 | 0 | 407 | 622 |
| Hourly Total | 172 | 0 | 0 | 27 | 172 | 527 | 134 | 0 | 0 | 661 | 605 | 1093 | 4 | 4 | 1702 | 2535 |
| 4:00 PM | 38 | 1 | 0 | 3 | 39 | 131 | 37 | 0 | 0 | 168 | 134 | 303 | 3 | 0 | 440 | 647 |
| 4:15 PM | 47 | 0 | 0 | 5 | 47 | 129 | 35 | 0 | 0 | 164 | 158 | 285 | 0 | 0 | 443 | 654 |
| 4:30 PM | 50 | 0 | 0 | 17 | 50 | 122 | 39 | 0 | 0 | 161 | 140 | 344 | 0 | 1 | 484 | 695 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:45 PM | 48 | 0 | 0 | 13 | 48 | 136 | 27 | 0 | 0 | 163 | 167 | 273 | 1 | 1 | 441 | 652 |
| Hourly Total | 183 | 1 | 0 | 38 | 184 | 518 | 138 | 0 | 0 | 656 | 599 | 1205 | 4 | 2 | 1808 | 2648 |
| 5:00 PM | 43 | 0 | 0 | 3 | 43 | 139 | 26 | 0 | 0 | 165 | 145 | 349 | 0 | 1 | 494 | 702 |
| 5:15 PM | 49 | 0 | 0 | 7 | 49 | 128 | 32 | 0 | 0 | 160 | 134 | 303 | 2 | 5 | 439 | 648 |
| 5:30 PM | 44 | 0 | 0 | 5 | 44 | 135 | 21 | 0 | 0 | 156 | 111 | 251 | 0 | 0 | 362 | 562 |
| 5:45 PM | 23 | 0 | 0 | 4 | 23 | 110 | 22 | 0 | 0 | 132 | 124 | 219 | 1 | 0 | 344 | 499 |
| Hourly Total | 159 | 0 | 0 | 19 | 159 | 512 | 101 | 0 | 0 | 613 | 514 | 1122 | 3 | 6 | 1639 | 2411 |
| Grand Total | 1296 | 3 | 1 | 137 | 1300 | 3683 | 864 | 2 | 0 | 4549 | 4618 | 6767 | 26 | 26 | 11411 | 17260 |
| Approach % | 99.7 | 0.2 | 0.1 | - | - | 81.0 | 19.0 | 0.0 | - | - | 40.5 | 59.3 | 0.2 | - | - | - |
| Total % | 7.5 | 0.0 | 0.0 | - | 7.5 | 21.3 | 5.0 | 0.0 | - | 26.4 | 26.8 | 39.2 | 0.2 | - | 66.1 | - |
| Motorcycles | 0 | 0 | 0 | - | 0 | 1 | 1 | 0 | - | 2 | 5 | 2 | 0 | - | 7 | 9 |
| % Motorcycles | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.1 | 0.0 | - | 0.0 | 0.1 | 0.0 | 0.0 | - | 0.1 | 0.1 |
| Cars & Light Goods | 1251 | 2 | 1 | - | 1254 | 3479 | 768 | 2 | - | 4249 | 4412 | 6395 | 26 | - | 10833 | 16336 |
| % Cars & Light Goods | 96.5 | 66.7 | 100.0 | - | 96.5 | 94.5 | 88.9 | 100.0 | - | 93.4 | 95.5 | 94.5 | 100.0 | - | 94.9 | 94.6 |
| Buses | 2 | 0 | 0 | - | 2 | 79 | 1 | 0 | - | 80 | 15 | 86 | 0 | - | 101 | 183 |
| % Buses | 0.2 | 0.0 | 0.0 | - | 0.2 | 2.1 | 0.1 | 0.0 | - | 1.8 | 0.3 | 1.3 | 0.0 | - | 0.9 | 1.1 |
| Single-Unit Trucks | 36 | 0 | 0 | - | 36 | 112 | 78 | 0 | - | 190 | 118 | 191 | 0 | - | 309 | 535 |
| % Single-Unit Trucks | 2.8 | 0.0 | 0.0 | - | 2.8 | 3.0 | 9.0 | 0.0 | - | 4.2 | 2.6 | 2.8 | 0.0 | - | 2.7 | 3.1 |
| Articulated Trucks | 7 | 1 | 0 | - | 8 | 12 | 16 | 0 | - | 28 | 68 | 92 | 0 | - | 160 | 196 |
| % Articulated Trucks | 0.5 | 33.3 | 0.0 | - | 0.6 | 0.3 | 1.9 | 0.0 | - | 0.6 | 1.5 | 1.4 | 0.0 | - | 1.4 | 1.1 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | - | 1 | 1 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 25 | - | - | - | - | 0 | - | - | - | - | 4 | - | - |
| % Bicycles on Crosswalk | - | - | - | 18.2 | - | - | - | - | - | - | - | - | - | 15.4 | - | - |
| Pedestrians | - | - | - | 112 | - | - | - | - | 0 | - | - | - | - | 22 | - | - |
| % Pedestrians | - | - | - | 81.8 | - | - | - | - | - | - | - | - | - | 84.6 | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020


Turning Movement Data Plot

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5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020

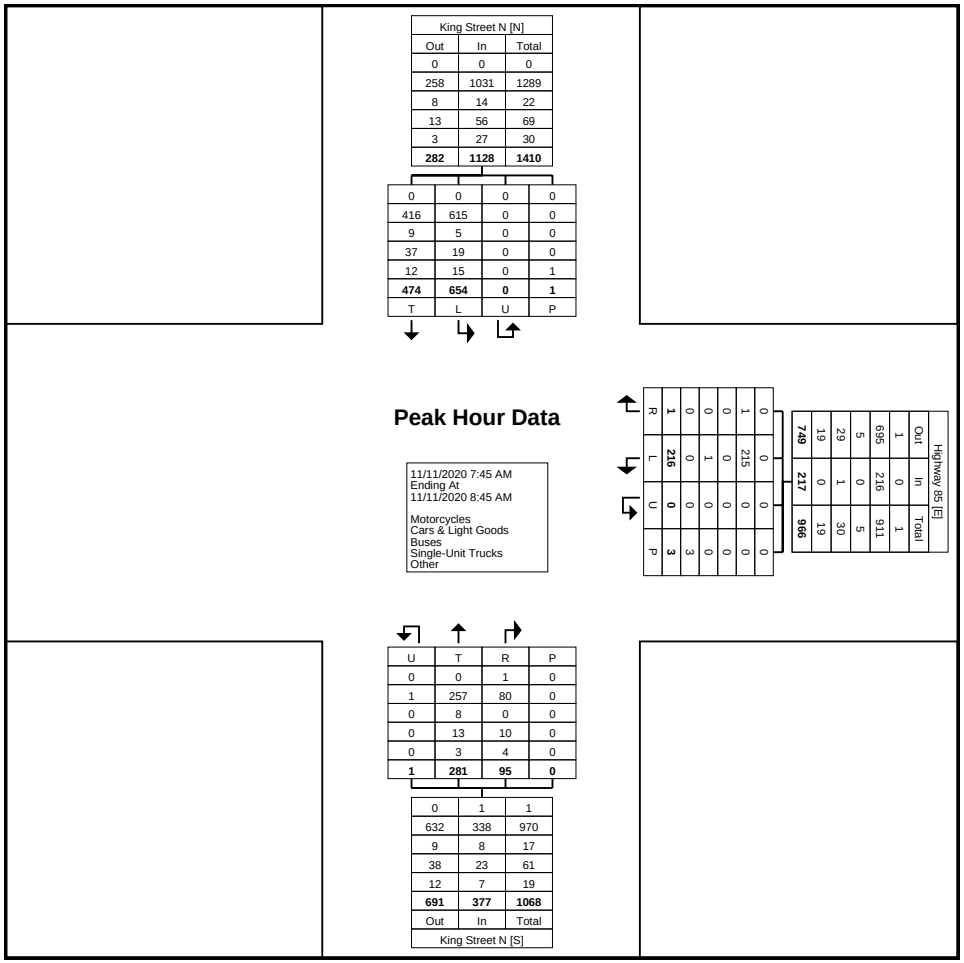

# Turning Movement Peak Hour Data (7:45 AM)

| Start Time | Highway 85 Westbound | | | | | King Street N Northbound | | | | | King Street N Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 7:45 AM | 64 | 1 | 0 | 2 | 65 | 74 | 27 | 1 | 0 | 102 | 201 | 121 | 0 | 0 | 322 | 489 |
| 8:00 AM | 43 | 0 | 0 | 0 | 43 | 63 | 23 | 0 | 0 | 86 | 129 | 143 | 0 | 1 | 272 | 401 |
| 8:15 AM | 48 | 0 | 0 | 0 | 48 | 69 | 30 | 0 | 0 | 99 | 153 | 112 | 0 | 0 | 265 | 412 |
| 8:30 AM | 61 | 0 | 0 | 1 | 61 | 75 | 15 | 0 | 0 | 90 | 171 | 98 | 0 | 0 | 269 | 420 |
| Total | 216 | 1 | 0 | 3 | 217 | 281 | 95 | 1 | 0 | 377 | 654 | 474 | 0 | 1 | 1128 | 1722 |
| Approach % | 99.5 | 0.5 | 0.0 | - | - | 74.5 | 25.2 | 0.3 | - | - | 58.0 | 42.0 | 0.0 | - | - | - |
| Total % | 12.5 | 0.1 | 0.0 | - | 12.6 | 16.3 | 5.5 | 0.1 | - | 21.9 | 38.0 | 27.5 | 0.0 | - | 65.5 | - |
| PHF | 0.844 | 0.250 | 0.000 | - | 0.835 | 0.937 | 0.792 | 0.250 | - | 0.924 | 0.813 | 0.829 | 0.000 | - | 0.876 | 0.880 |
| Motorcycles | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 1 |
| % Motorcycles | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.1 | 0.0 | - | 0.3 | 0.0 | 0.0 | - | - | 0.0 | 0.1 |
| Cars & Light Goods | 215 | 1 | 0 | - | 216 | 257 | 80 | 1 | - | 338 | 615 | 416 | 0 | - | 1031 | 1585 |
| % Cars & Light Goods | 99.5 | 100.0 | - | - | 99.5 | 91.5 | 84.2 | 100.0 | - | 89.7 | 94.0 | 87.8 | - | - | 91.4 | 92.0 |
| Buses | 0 | 0 | 0 | - | 0 | 8 | 0 | 0 | - | 8 | 5 | 9 | 0 | - | 14 | 22 |
| % Buses | 0.0 | 0.0 | - | - | 0.0 | 2.8 | 0.0 | 0.0 | - | 2.1 | 0.8 | 1.9 | - | - | 1.2 | 1.3 |
| Single-Unit Trucks | 1 | 0 | 0 | - | 1 | 13 | 10 | 0 | - | 23 | 19 | 37 | 0 | - | 56 | 80 |
| % Single-Unit Trucks | 0.5 | 0.0 | - | - | 0.5 | 4.6 | 10.5 | 0.0 | - | 6.1 | 2.9 | 7.8 | - | - | 5.0 | 4.6 |
| Articulated Trucks | 0 | 0 | 0 | - | 0 | 3 | 4 | 0 | - | 7 | 15 | 12 | 0 | - | 27 | 34 |
| % Articulated Trucks | 0.0 | 0.0 | - | - | 0.0 | 1.1 | 4.2 | 0.0 | - | 1.9 | 2.3 | 2.5 | - | - | 2.4 | 2.0 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | 3 | - | - | - | - | 0 | - | - | - | - | 1 | - | - |
| % Pedestrians | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020
Page No: 5




Turning Movement Peak Hour Data Plot (7:45 AM)

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519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020

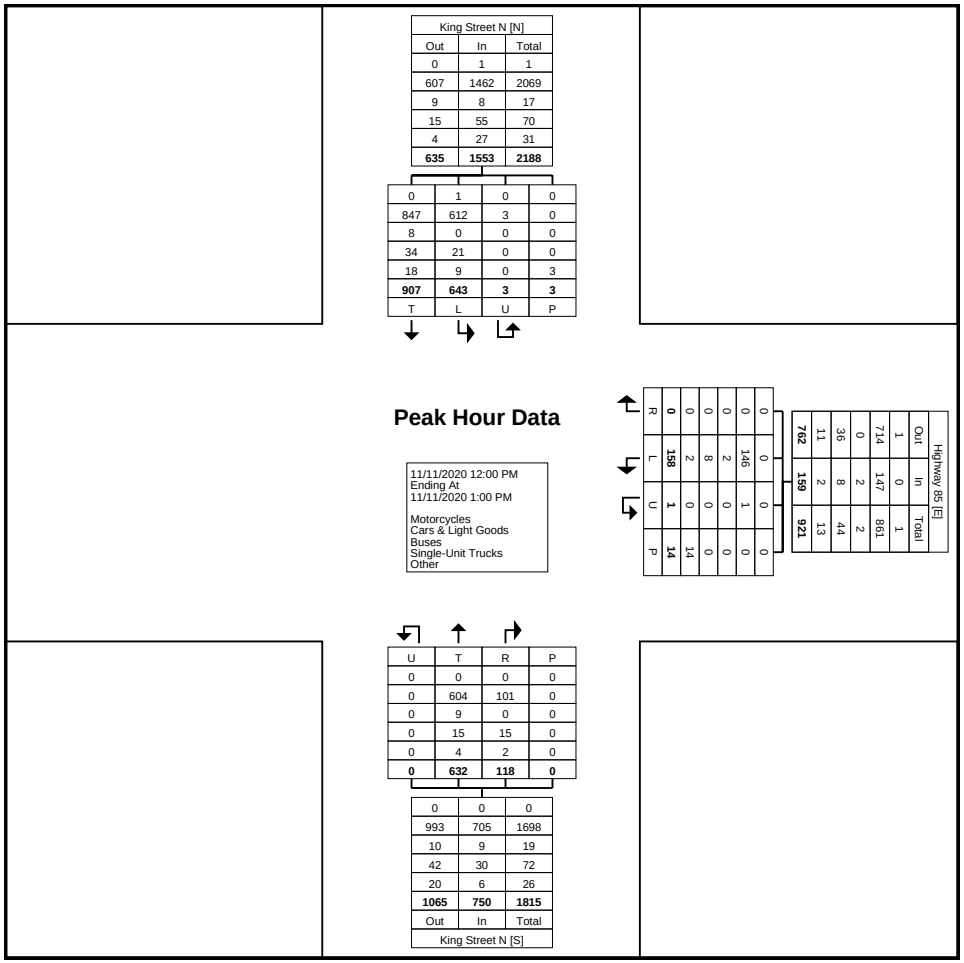

# Turning Movement Peak Hour Data (12:00 PM)

| Start Time | Highway 85 Westbound | | | | | King Street N Northbound | | | | | King Street N Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 12:00 PM | 41 | 0 | 0 | 1 | 41 | 165 | 33 | 0 | 0 | 198 | 153 | 225 | 1 | 0 | 379 | 618 |
| 12:15 PM | 39 | 0 | 1 | 3 | 40 | 175 | 23 | 0 | 0 | 198 | 159 | 231 | 0 | 0 | 390 | 628 |
| 12:30 PM | 39 | 0 | 0 | 3 | 39 | 157 | 32 | 0 | 0 | 189 | 172 | 238 | 1 | 1 | 411 | 639 |
| 12:45 PM | 39 | 0 | 0 | 7 | 39 | 135 | 30 | 0 | 0 | 165 | 159 | 213 | 1 | 2 | 373 | 577 |
| Total | 158 | 0 | 1 | 14 | 159 | 632 | 118 | 0 | 0 | 750 | 643 | 907 | 3 | 3 | 1553 | 2462 |
| Approach % | 99.4 | 0.0 | 0.6 | - | - | 84.3 | 15.7 | 0.0 | - | - | 41.4 | 58.4 | 0.2 | - | - | - |
| Total % | 6.4 | 0.0 | 0.0 | - | 6.5 | 25.7 | 4.8 | 0.0 | - | 30.5 | 26.1 | 36.8 | 0.1 | - | 63.1 | - |
| PHF | 0.963 | 0.000 | 0.250 | - | 0.970 | 0.903 | 0.894 | 0.000 | - | 0.947 | 0.935 | 0.953 | 0.750 | - | 0.945 | 0.963 |
| Motorcycles | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 | 0 | 0 | - | 1 | 1 |
| % Motorcycles | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.2 | 0.0 | 0.0 | - | 0.1 | 0.0 |
| Cars & Light Goods | 146 | 0 | 1 | - | 147 | 604 | 101 | 0 | - | 705 | 612 | 847 | 3 | - | 1462 | 2314 |
| % Cars & Light Goods | 92.4 | - | 100.0 | - | 92.5 | 95.6 | 85.6 | - | - | 94.0 | 95.2 | 93.4 | 100.0 | - | 94.1 | 94.0 |
| Buses | 2 | 0 | 0 | - | 2 | 9 | 0 | 0 | - | 9 | 0 | 8 | 0 | - | 8 | 19 |
| % Buses | 1.3 | - | 0.0 | - | 1.3 | 1.4 | 0.0 | - | - | 1.2 | 0.0 | 0.9 | 0.0 | - | 0.5 | 0.8 |
| Single-Unit Trucks | 8 | 0 | 0 | - | 8 | 15 | 15 | 0 | - | 30 | 21 | 34 | 0 | - | 55 | 93 |
| % Single-Unit Trucks | 5.1 | - | 0.0 | - | 5.0 | 2.4 | 12.7 | - | - | 4.0 | 3.3 | 3.7 | 0.0 | - | 3.5 | 3.8 |
| Articulated Trucks | 2 | 0 | 0 | - | 2 | 4 | 2 | 0 | - | 6 | 9 | 18 | 0 | - | 27 | 35 |
| % Articulated Trucks | 1.3 | - | 0.0 | - | 1.3 | 0.6 | 1.7 | - | - | 0.8 | 1.4 | 2.0 | 0.0 | - | 1.7 | 1.4 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | - | 0.0 | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 2 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | 14.3 | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | 12 | - | - | - | - | 0 | - | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | 85.7 | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020


Turning Movement Peak Hour Data Plot (12:00 PM)

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519-896-3163 cbowness@ptsl.com

Count Name: Highway 85 & King Street N
Site Code: 200039
Start Date: 11/11/2020

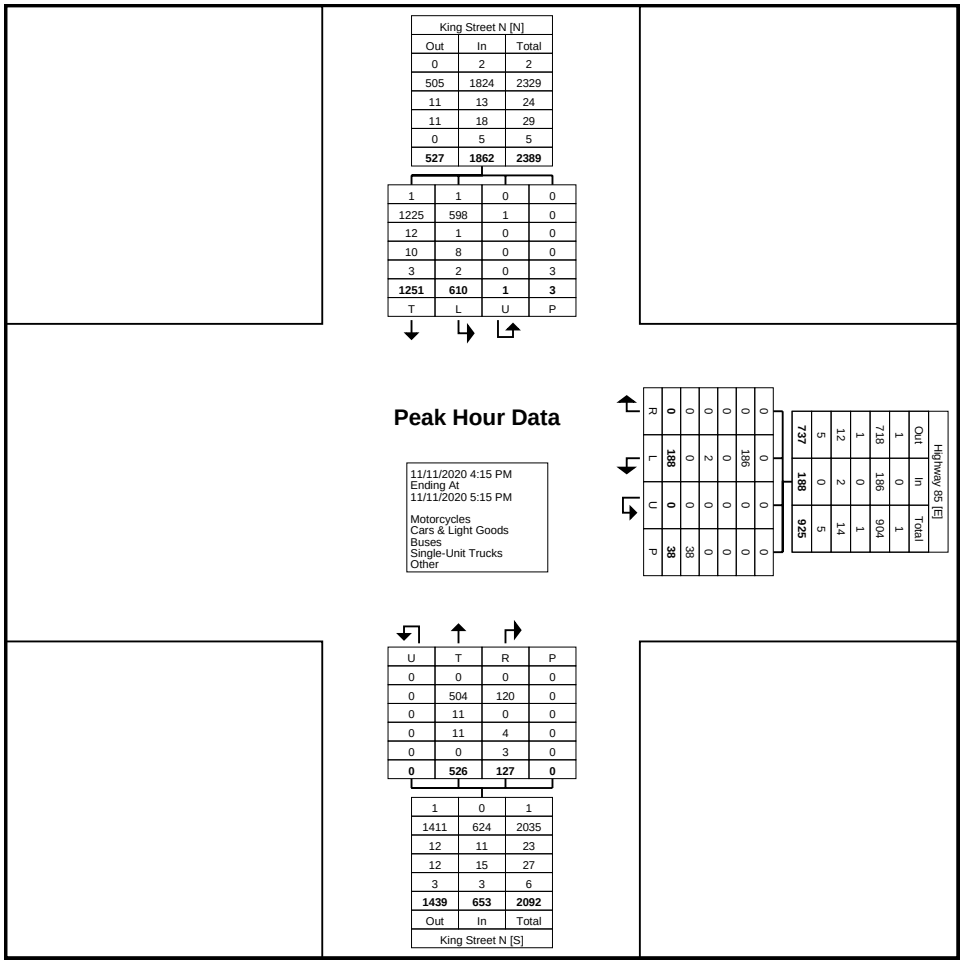

# Turning Movement Peak Hour Data (4:15 PM)

| Start Time | Highway 85 Westbound | | | | | King Street N Northbound | | | | | King Street N Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 4:15 PM | 47 | 0 | 0 | 5 | 47 | 129 | 35 | 0 | 0 | 164 | 158 | 285 | 0 | 0 | 443 | 654 |
| 4:30 PM | 50 | 0 | 0 | 17 | 50 | 122 | 39 | 0 | 0 | 161 | 140 | 344 | 0 | 1 | 484 | 695 |
| 4:45 PM | 48 | 0 | 0 | 13 | 48 | 136 | 27 | 0 | 0 | 163 | 167 | 273 | 1 | 1 | 441 | 652 |
| 5:00 PM | 43 | 0 | 0 | 3 | 43 | 139 | 26 | 0 | 0 | 165 | 145 | 349 | 0 | 1 | 494 | 702 |
| Total | 188 | 0 | 0 | 38 | 188 | 526 | 127 | 0 | 0 | 653 | 610 | 1251 | 1 | 3 | 1862 | 2703 |
| Approach % | 100.0 | 0.0 | 0.0 | - | - | 80.6 | 19.4 | 0.0 | - | - | 32.8 | 67.2 | 0.1 | - | - | - |
| Total % | 7.0 | 0.0 | 0.0 | - | 7.0 | 19.5 | 4.7 | 0.0 | - | 24.2 | 22.6 | 46.3 | 0.0 | - | 68.9 | - |
| PHF | 0.940 | 0.000 | 0.000 | - | 0.940 | 0.946 | 0.814 | 0.000 | - | 0.989 | 0.913 | 0.896 | 0.250 | - | 0.942 | 0.963 |
| Motorcycles | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 | 1 | 0 | - | 2 | 2 |
| % Motorcycles | 0.0 | - | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.2 | 0.1 | 0.0 | - | 0.1 | 0.1 |
| Cars & Light Goods | 186 | 0 | 0 | - | 186 | 504 | 120 | 0 | - | 624 | 598 | 1225 | 1 | - | 1824 | 2634 |
| % Cars & Light Goods | 98.9 | - | - | - | 98.9 | 95.8 | 94.5 | - | - | 95.6 | 98.0 | 97.9 | 100.0 | - | 98.0 | 97.4 |
| Buses | 0 | 0 | 0 | - | 0 | 11 | 0 | 0 | - | 11 | 1 | 12 | 0 | - | 13 | 24 |
| % Buses | 0.0 | - | - | - | 0.0 | 2.1 | 0.0 | - | - | 1.7 | 0.2 | 1.0 | 0.0 | - | 0.7 | 0.9 |
| Single-Unit Trucks | 2 | 0 | 0 | - | 2 | 11 | 4 | 0 | - | 15 | 8 | 10 | 0 | - | 18 | 35 |
| % Single-Unit Trucks | 1.1 | - | - | - | 1.1 | 2.1 | 3.1 | - | - | 2.3 | 1.3 | 0.8 | 0.0 | - | 1.0 | 1.3 |
| Articulated Trucks | 0 | 0 | 0 | - | 0 | 0 | 3 | 0 | - | 3 | 2 | 3 | 0 | - | 5 | 8 |
| % Articulated Trucks | 0.0 | - | - | - | 0.0 | 0.0 | 2.4 | - | - | 0.5 | 0.3 | 0.2 | 0.0 | - | 0.3 | 0.3 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | - | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 7 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | 18.4 | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | 31 | - | - | - | - | 0 | - | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | 81.6 | - | - | - | - | - | - | - | - | - | 100.0 | - | - |

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Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: Hwy 85 & King Street - Off Ramp
Site Code: 200039
Start Date: 11/11/2020

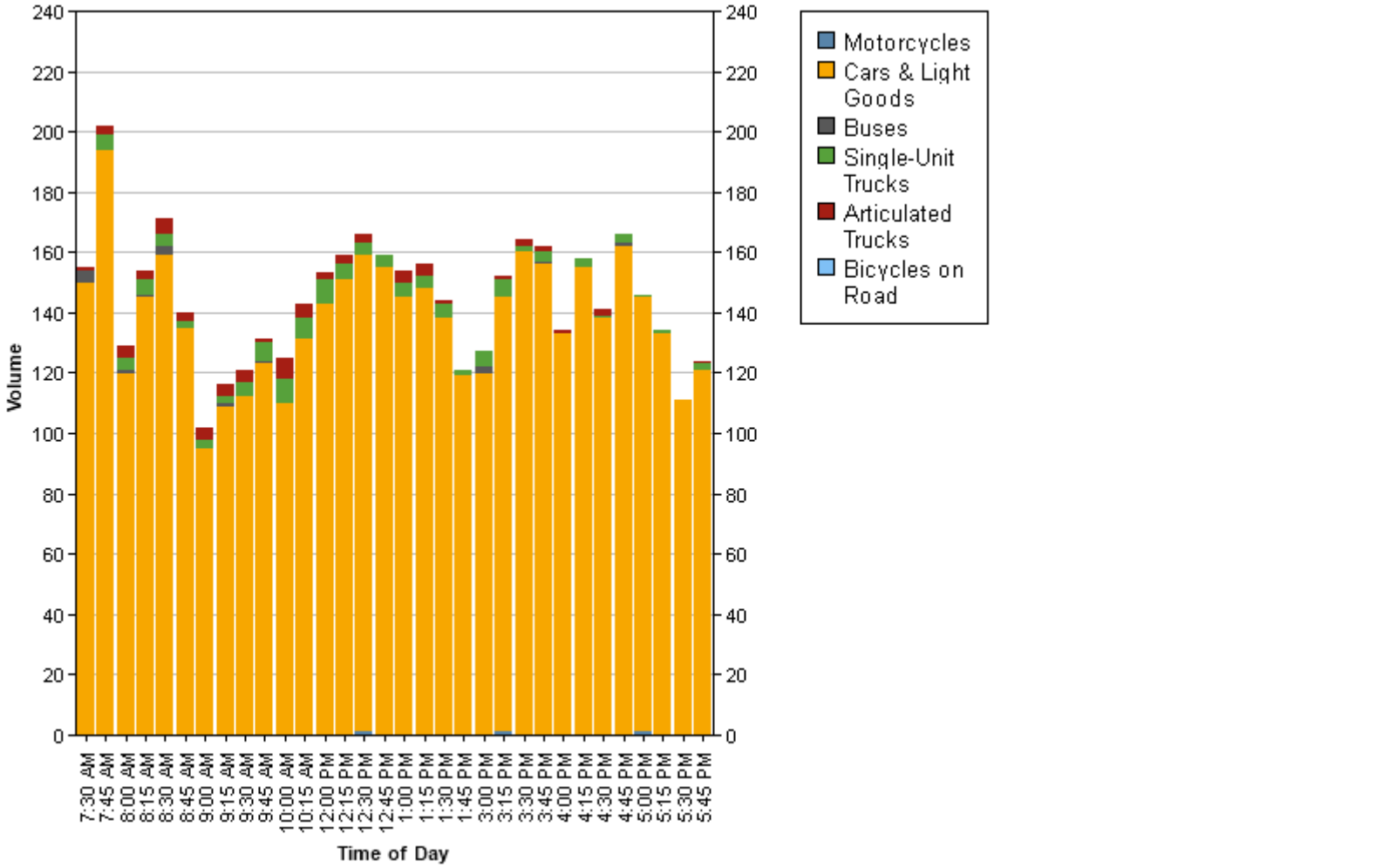

## Direction (Westbound)

| Start Time | Motorcycles | Cars & Light Goods | Buses | Single-Unit Trucks | Articulated Trucks | Bicycles on Road | Total |
|---|---|---|---|---|---|---|---|
| 7:30 AM | 0 | 150 | 4 | 0 | 1 | 0 | 155 |
| 7:45 AM | 0 | 194 | 0 | 5 | 3 | 0 | 202 |
| 8:00 AM | 0 | 120 | 1 | 4 | 4 | 0 | 129 |
| 8:15 AM | 0 | 145 | 1 | 5 | 3 | 0 | 154 |
| 8:30 AM | 0 | 159 | 3 | 4 | 5 | 0 | 171 |
| 8:45 AM | 0 | 135 | 0 | 2 | 3 | 0 | 140 |
| 9:00 AM | 0 | 95 | 0 | 3 | 4 | 0 | 102 |
| 9:15 AM | 0 | 109 | 1 | 2 | 4 | 0 | 116 |
| 9:30 AM | 0 | 112 | 0 | 5 | 4 | 0 | 121 |
| 9:45 AM | 0 | 123 | 1 | 6 | 1 | 0 | 131 |
| 10:00 AM | 0 | 110 | 0 | 8 | 7 | 0 | 125 |
| 10:15 AM | 0 | 131 | 0 | 7 | 5 | 0 | 143 |
| 12:00 PM | 0 | 143 | 0 | 8 | 2 | 0 | 153 |
| 12:15 PM | 0 | 151 | 0 | 5 | 3 | 0 | 159 |
| 12:30 PM | 1 | 158 | 0 | 4 | 3 | 0 | 166 |
| 12:45 PM | 0 | 155 | 0 | 4 | 0 | 0 | 159 |
| 1:00 PM | 0 | 145 | 0 | 5 | 4 | 0 | 154 |
| 1:15 PM | 0 | 148 | 0 | 4 | 4 | 0 | 156 |
| 1:30 PM | 0 | 138 | 0 | 5 | 1 | 0 | 144 |
| 1:45 PM | 0 | 119 | 0 | 2 | 0 | 0 | 121 |
| 3:00 PM | 0 | 120 | 2 | 5 | 0 | 0 | 127 |
| 3:15 PM | 1 | 144 | 0 | 6 | 1 | 0 | 152 |
| 3:30 PM | 0 | 160 | 0 | 2 | 2 | 0 | 164 |
| 3:45 PM | 0 | 156 | 1 | 3 | 2 | 0 | 162 |
| 4:00 PM | 0 | 133 | 0 | 0 | 1 | 0 | 134 |
| 4:15 PM | 0 | 155 | 0 | 3 | 0 | 0 | 158 |
| 4:30 PM | 0 | 138 | 0 | 1 | 2 | 0 | 141 |
| 4:45 PM | 0 | 162 | 1 | 3 | 0 | 0 | 166 |
| 5:00 PM | 1 | 144 | 0 | 1 | 0 | 0 | 146 |
| 5:15 PM | 0 | 133 | 0 | 1 | 0 | 0 | 134 |
| 5:30 PM | 0 | 111 | 0 | 0 | 0 | 0 | 111 |
| 5:45 PM | 0 | 121 | 0 | 2 | 1 | 0 | 124 |
| Total | 3 | 4417 | 15 | 115 | 70 | 0 | 4620 |
| Total % | 0.1 | 95.6 | 0.3 | 2.5 | 1.5 | 0.0 | 100.0 |
| AM Times | 7:30 AM | 7:45 AM | 7:30 AM | 9:30 AM | 9:30 AM | 7:30 AM | 7:45 AM |
| AM Peaks | 0 | 618 | 6 | 26 | 17 | 0 | 656 |
| PM Times | 12:00 PM | 12:15 PM | 3:00 PM | 12:00 PM | 12:30 PM | 12:00 PM | 12:15 PM |
| PM Peaks | 1 | 609 | 3 | 21 | 11 | 0 | 638 |

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Count Name: Hwy 85 & King Street - Off Ramp
Site Code: 200039
Start Date: 11/11/2020

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

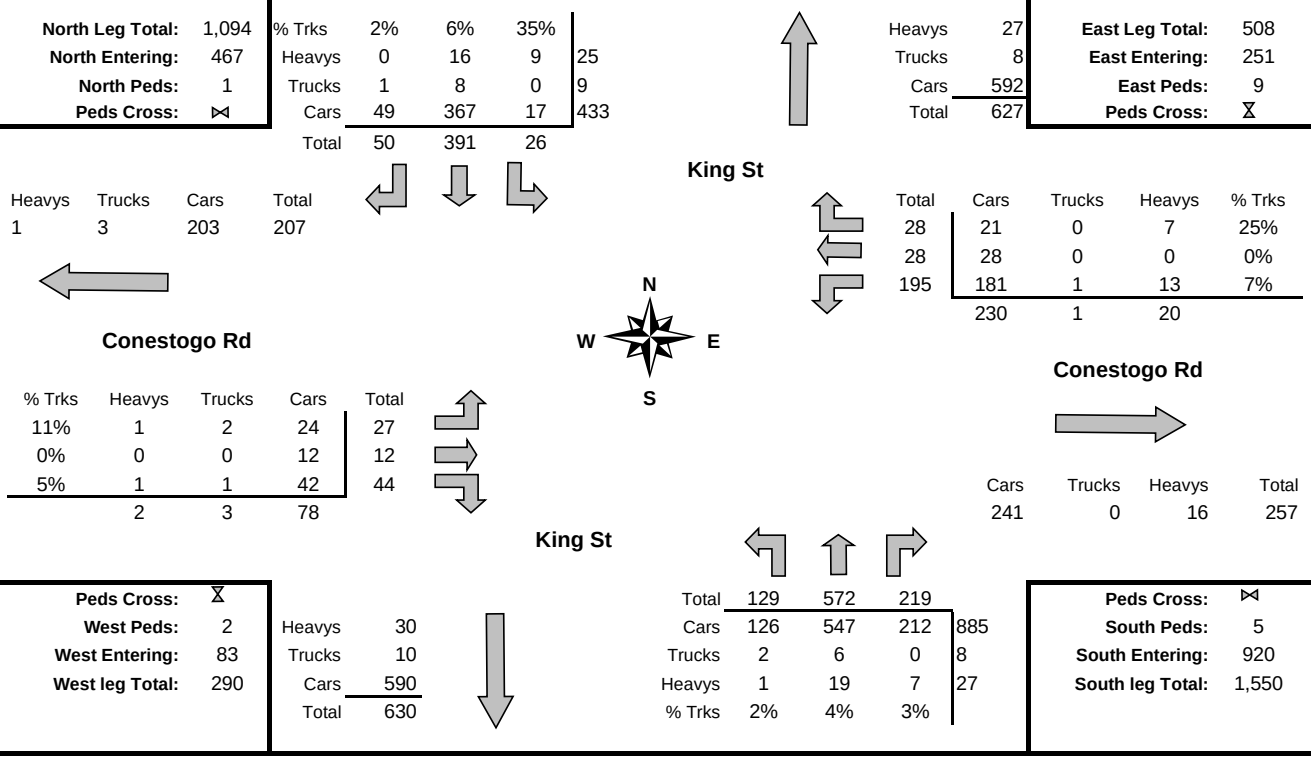
**Peak Hour**
**From:** 7:45 AM
**To:** 8:45 AM

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **1,721**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **83**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19

| | |
|---|---|
| **North Leg Total:** | 1,388 |
| **North Entering:** | 673 |
| **North Peds:** | 12 |
| **Peds Cross:** | ⋈ |

| | | | | |
|---|---|---|---|---|
| % Trks | 6% | 3% | 2% | |
| Heavys | 2 | 9 | 2 | 13 |
| Trucks | 1 | 8 | 0 | 9 |
| Cars | 48 | 516 | 87 | 651 |
| Total | 51 | 533 | 89 | |

| | |
|---|---|
| Heavys | 25 |
| Trucks | 11 |
| Cars | 679 |
| Total | 715 |

| | |
|---|---|
| **East Leg Total:** | 756 |
| **East Entering:** | 426 |
| **East Peds:** | 4 |
| **Peds Cross:** | ⧖ |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 4 | 1 | 178 | 183 |

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 77 | 74 | 0 | 3 | 4% |
| 49 | 48 | 0 | 1 | 2% |
| 300 | 292 | 1 | 7 | 3% |
| | 414 | 1 | 11 | |

**Conestogo Rd**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 3% | 1 | 0 | 30 | 31 |
| 2% | 1 | 0 | 45 | 46 |
| 7% | 4 | 2 | 84 | 90 |
| | 6 | 2 | 159 | |

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**Conestogo Rd**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 325 | 0 | 5 | 330 |

**King St**

| | | | | |
|---|---|---|---|---|
| Total | 83 | 607 | 195 | |
| Cars | 82 | 575 | 193 | 850 |
| Trucks | 0 | 11 | 0 | 11 |
| Heavys | 1 | 21 | 2 | 24 |
| % Trks | 1% | 5% | 1% | |

| | |
|---|---|
| **Peds Cross:** | ⧖ |
| **West Peds:** | 10 |
| **West Entering:** | 167 |
| **West leg Total:** | 350 |

| | |
|---|---|
| Heavys | 20 |
| Trucks | 11 |
| Cars | 892 |
| Total | 923 |

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **South Peds:** | 8 |
| **South Entering:** | 885 |
| **South leg Total:** | 1,808 |

### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,151**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **167**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

**Peak Hour**
**From:** 4:30 PM
**To:** 5:30 PM

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19

| | |
|---|---|
| **North Leg Total:** | 1,539 |
| **North Entering:** | 835 |
| **North Peds:** | 8 |
| **Peds Cross:** | ⋈ |

| | | | | |
|---|---|---|---|---|
| % Trks | 0% | 2% | 5% | |
| Heavys | 0 | 9 | 4 | 13 |
| Trucks | 0 | 3 | 0 | 3 |
| Cars | 32 | 718 | 69 | 819 |
| Total | 32 | 730 | 73 | |

| | | | |
|---|---|---|---|
| Heavys | Trucks | Cars | Total |
| 0 | 0 | 112 | 112 |

**Conestogo Rd**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 37 | 37 |
| 3% | 2 | 0 | 58 | 60 |
| 0% | 0 | 0 | 167 | 167 |
| | 2 | 0 | 262 | |

| | |
|---|---|
| Heavys | 14 |
| Trucks | 3 |
| Cars | 687 |
| Total | 704 |

| | |
|---|---|
| **East Leg Total:** | 891 |
| **East Entering:** | 388 |
| **East Peds:** | 15 |
| **Peds Cross:** | ⧖ |

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 60 | 56 | 0 | 4 | 7% |
| 10 | 10 | 0 | 0 | 0% |
| 318 | 304 | 1 | 13 | 4% |
| | 370 | 1 | 17 | |

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**Conestogo Rd**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 496 | 1 | 6 | 503 |

| | |
|---|---|
| **Peds Cross:** | ⧖ |
| **West Peds:** | 6 |
| **West Entering:** | 264 |
| **West leg Total:** | 376 |

| | |
|---|---|
| Heavys | 22 |
| Trucks | 4 |
| Cars | 1,189 |
| Total | 1,215 |

**King St**

| | | | | |
|---|---|---|---|---|
| Total | 70 | 607 | 370 | |
| Cars | 70 | 594 | 369 | 1,033 |
| Trucks | 0 | 3 | 1 | 4 |
| Heavys | 0 | 10 | 0 | 10 |
| % Trks | 0% | 2% | 0% | |

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **South Peds:** | 10 |
| **South Entering:** | 1,047 |
| **South leg Total:** | 2,262 |

### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **2,534**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **264**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19

| | |
|---|---|
| **North Leg Total:** | 10,246 |
| **North Entering:** | 5,099 |
| **North Peds:** | 54 |
| **Peds Cross:** | ⋈ |
| **Bicycles Entering:** | 0 |
| **Buggies Entering:** | 0 |

| % Trks | 3% | 3% | 8% | |
|---|---|---|---|---|
| Heavys | 7 | 101 | 34 | 142 |
| Trucks | 4 | 47 | 1 | 52 |
| Cars | 308 | 4,187 | 410 | 4,905 |
| Total | 319 | 4,335 | 445 | |

| | |
|---|---|
| Heavys | 183 |
| Trucks | 49 |
| Cars | 4,915 |
| Total | 5,147 |

| | |
|---|---|
| **East Leg Total:** | 5,170 |
| **East Entering:** | 2,728 |
| **East Peds:** | 67 |
| **Peds Cross:** | ⧖ |
| **Bicycles Entering:** | 1 |
| **Buggies Entering:** | 0 |

**King St**

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 32 | 12 | 1,218 | 1,262 |

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 433 | 402 | 0 | 31 | 7% |
| 228 | 223 | 1 | 4 | 2% |
| 2,067 | 1,961 | 8 | 98 | 5% |
| | 2,586 | 9 | 133 | |

**Conestogo Rd**

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| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 5% | 5 | 4 | 185 | 194 |
| 4% | 11 | 0 | 235 | 246 |
| 3% | 13 | 9 | 731 | 753 |
| | 29 | 13 | 1,151 | |

**Conestogo Rd**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 2,366 | 7 | 69 | 2,442 |

**King St**

| | | | | |
|---|---|---|---|---|
| Total | 715 | 4,520 | 1,751 | |
| Cars | 687 | 4,328 | 1,721 | 6,736 |
| Trucks | 7 | 45 | 6 | 58 |
| Heavys | 21 | 147 | 24 | 192 |
| % Trks | 4% | 4% | 2% | |

| | |
|---|---|
| **Peds Cross:** | ⧖ |
| **West Peds:** | 41 |
| **West Entering:** | 1,193 |
| **West leg Total:** | 2,455 |
| **Bicycles Entering:** | 0 |
| **Buggies Entering:** | 0 |

| | |
|---|---|
| Heavys | 212 |
| Trucks | 64 |
| Cars | 6,879 |
| Total | 7,155 |

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **South Peds:** | 62 |
| **South Entering:** | 6,986 |
| **South leg Total:** | 14,141 |
| **Bicycles Entering:** | 0 |
| **Buggies Entering:** | 0 |

### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **16,006**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **1,193**

Notes: None

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19

**North Leg Total:** 17,828
**North Entering:** 8,872
**North Peds:** N/A
**Peds Cross:** ⋈

| | | | | |
|---|---|---|---|---|
| % Trks | 3% | 3% | 8% | |
| Heavys | 12 | 176 | 59 | 247 |
| Trucks | 7 | 82 | 2 | 90 |
| Cars | 536 | 7,285 | 713 | 8,535 |
| Total | 555 | 7,543 | 774 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 56 | 21 | 2,119 | 2,196 |

**Conestogo Rd**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 5% | 9 | 7 | 322 | 338 |
| 4% | 19 | 0 | 409 | 428 |
| 3% | 23 | 16 | 1,272 | 1,310 |
| | 50 | 23 | 2,003 | |

**King St**

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 318 | 85 | 8,552 | 8956 |

**East Leg Total:** 8,996
**East Entering:** 4,747
**East Peds:** N/A
**Peds Cross:** ⧖

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 753 | 699 | 0 | 54 | 7% |
| 397 | 388 | 2 | 7 | 2% |
| 3,597 | 3,412 | 14 | 171 | 5% |
| | 4,500 | 16 | 231 | |

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**Conestogo Rd**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 4,117 | 12 | 120 | 4,249 |

**King St**

| | | | | |
|---|---|---|---|---|
| Total | 1,244 | 7,865 | 3,047 | |
| Cars | 1,195 | 7,531 | 2,995 | 11,721 |
| Trucks | 12 | 78 | 10 | 101 |
| Heavys | 37 | 256 | 42 | 334 |
| % Trks | 4% | 4% | 2% | |

**Peds Cross:** ⧖
**West Peds:** N/A
**West Entering:** 2,076
**West leg Total:** 4,272

| | |
|---|---|
| Heavys | 369 |
| Trucks | 111 |
| Cars | 11,969 |
| Total | 12,450 |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 12,156
**South leg Total:** 24,605

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***27,850***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** King St & Conestogo Rd
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy

**Person(s) who counted:** AT15-LT

**GeoID:** 8403
**Count Date:** Tuesday, 09-Apr-19

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.89 |
| Mid-day Peak: | 0.91 |
| PM Peak: | 0.94 |

**East Approach PHF**

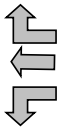
| | |
|---|---|
| AM Peak: | 0.94 |
| Mid-day Peak: | 0.88 |
| PM Peak: | 0.87 |

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

| | Movement | | |
|---|---|---|---|
| PM | 0.80 | 0.92 | 0.79 |
| MID | 0.85 | 0.97 | 0.70 |
| AM | 0.78 | 0.90 | 0.59 |

**King St**





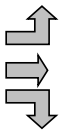
| AM | MID | PM | |
|---|---|---|---|
| 0.58 | 0.88 | 0.83 | |
| 0.70 | 0.88 | 0.63 | |
| 0.89 | 0.83 | 0.85 | Movement |

**Conestogo Rd**




**Conestogo Rd**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.84 | 0.70 | 0.75 |
| | 0.88 | 0.68 | 0.75 |
| | 0.75 | 0.83 | 0.73 |



**King St**



| | | | | |
|---|---|---|---|---|
| 0.75 | 0.76 | 0.82 | AM |
| 0.80 | 0.93 | 0.79 | MID |
| 0.80 | 0.85 | 0.91 | PM |
| Movement | | | |

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.90 |
| Mid-day Peak: | 0.82 |
| PM Peak: | 0.79 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.77 |
| Mid-day Peak: | 0.93 |
| PM Peak: | 0.88 |

**Comments**

**Intersection:** King St & Conestogo Rd
**GeoID:** 8403
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Tuesday, 09-Apr-19
**Name:** AT15-LT
**Weather:** Cloudy

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 1 | < | 2 | 1 | < | 1 | 2 | 1 | 1 | 2 | < | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 7 | 4 | 18 | 58 | 10 | 4 | 33 | 144 | 46 | 1 | 72 | 11 | 408 | |
| 7:45 | to | 8:00 | 6 | 1 | 9 | 55 | 10 | 2 | 42 | 188 | 67 | 3 | 92 | 13 | 488 | |
| 8:00 | to | 8:15 | 8 | 4 | 10 | 54 | 6 | 7 | 43 | 126 | 41 | 6 | 87 | 10 | 402 | |
| 8:15 | to | 8:30 | 4 | 3 | 15 | 41 | 6 | 7 | 24 | 119 | 59 | 11 | 103 | 11 | 403 | 1,701 |
| 8:30 | to | 8:45 | 9 | 4 | 10 | 45 | 6 | 12 | 20 | 139 | 52 | 6 | 109 | 16 | 428 | 1,721 |
| 8:45 | to | 9:00 | 5 | 3 | 14 | 35 | 14 | 5 | 36 | 177 | 53 | 7 | 114 | 17 | 480 | 1,713 |
| 9:00 | to | 9:15 | 5 | 1 | 16 | 35 | 8 | 6 | 36 | 126 | 55 | 8 | 92 | 11 | 399 | 1,710 |
| 9:15 | to | 9:30 | 1 | 3 | 12 | 36 | 6 | 5 | 19 | 126 | 41 | 10 | 90 | 12 | 361 | 1,668 |
| 9:30 | to | 9:45 | 1 | 3 | 16 | 40 | 2 | 4 | 22 | 125 | 45 | 16 | 91 | 11 | 376 | 1,616 |
| 9:45 | to | 10:00 | 3 | 0 | 19 | 43 | 9 | 13 | 22 | 148 | 44 | 11 | 115 | 11 | 438 | 1,574 |
| 10:00 | to | 10:15 | 4 | 2 | 13 | 41 | 2 | 10 | 21 | 126 | 42 | 19 | 124 | 6 | 410 | 1,585 |
| 10:15 | to | 10:30 | 7 | 8 | 7 | 53 | 2 | 7 | 15 | 112 | 34 | 17 | 131 | 9 | 402 | 1,626 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **7:45** | **to** | **8:45** | **27** | **12** | **44** | **195** | **28** | **28** | **129** | **572** | **219** | **26** | **391** | **50** | **1,721** | |
| **# of trucks in peak** | | | 2 | 0 | 1 | 1 | 0 | 0 | 2 | 6 | 0 | 0 | 8 | 1 | 21 | |
| **# of heavies in peak** | | | 1 | 0 | 1 | 13 | 0 | 7 | 1 | 19 | 7 | 9 | 16 | 0 | 74 | |
| **% heavies (Total)** | | | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% | 6% | |
| 12:00 | to | 12:15 | 7 | 17 | 27 | 73 | 12 | 16 | 17 | 143 | 62 | 17 | 134 | 12 | 537 | |
| 12:15 | to | 12:30 | 11 | 12 | 16 | 63 | 14 | 19 | 26 | 163 | 50 | 32 | 138 | 15 | 559 | |
| 12:30 | to | 12:45 | 7 | 10 | 26 | 74 | 12 | 22 | 22 | 150 | 35 | 18 | 137 | 10 | 523 | |
| 12:45 | to | 13:00 | 6 | 7 | 21 | 90 | 11 | 20 | 18 | 151 | 48 | 22 | 124 | 14 | 532 | 2,151 |
| 13:00 | to | 13:15 | 6 | 11 | 19 | 84 | 9 | 26 | 19 | 152 | 41 | 15 | 131 | 10 | 523 | 2,137 |
| 13:15 | to | 13:30 | 6 | 8 | 17 | 75 | 8 | 21 | 24 | 131 | 37 | 16 | 154 | 13 | 510 | 2,088 |
| 13:30 | to | 13:45 | 2 | 4 | 17 | 78 | 11 | 19 | 31 | 138 | 42 | 13 | 142 | 5 | 502 | 2,067 |
| 13:45 | to | 14:00 | 6 | 11 | 22 | 74 | 11 | 17 | 19 | 141 | 58 | 14 | 102 | 12 | 487 | 2,022 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:00** | **to** | **13:00** | **31** | **46** | **90** | **300** | **49** | **77** | **83** | **607** | **195** | **89** | **533** | **51** | **2,151** | |
| **# of trucks in peak** | | | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 11 | 0 | 0 | 8 | 1 | 23 | |
| **# of heavies in peak** | | | 1 | 1 | 4 | 7 | 1 | 3 | 1 | 21 | 2 | 2 | 9 | 2 | 54 | |
| **% heavies (Total)** | | | 3% | 2% | 7% | 3% | 2% | 4% | 1% | 5% | 1% | 2% | 3% | 6% | 4% | |
| 15:00 | to | 15:15 | 3 | 7 | 26 | 84 | 5 | 20 | 15 | 126 | 47 | 11 | 178 | 11 | 533 | |
| 15:15 | to | 15:30 | 3 | 3 | 18 | 57 | 7 | 15 | 14 | 137 | 45 | 16 | 153 | 3 | 471 | |
| 15:30 | to | 15:45 | 11 | 10 | 43 | 83 | 4 | 16 | 16 | 126 | 49 | 9 | 187 | 11 | 565 | |
| 15:45 | to | 16:00 | 5 | 12 | 26 | 70 | 6 | 21 | 18 | 137 | 41 | 10 | 129 | 5 | 480 | 2,049 |
| 16:00 | to | 16:15 | 4 | 11 | 61 | 96 | 6 | 17 | 23 | 159 | 42 | 16 | 218 | 8 | 661 | 2,177 |
| 16:15 | to | 16:30 | 7 | 9 | 31 | 71 | 9 | 2 | 25 | 146 | 68 | 14 | 170 | 8 | 560 | 2,266 |
| 16:30 | to | 16:45 | 11 | 17 | 56 | 75 | 0 | 11 | 15 | 129 | 80 | 15 | 199 | 8 | 616 | 2,317 |
| 16:45 | to | 17:00 | 9 | 17 | 49 | 73 | 2 | 17 | 14 | 146 | 89 | 22 | 168 | 10 | 616 | 2,453 |
| 17:00 | to | 17:15 | 6 | 13 | 42 | 94 | 4 | 14 | 22 | 154 | 99 | 13 | 197 | 8 | 666 | 2,458 |
| 17:15 | to | 17:30 | 11 | 13 | 20 | 76 | 4 | 18 | 19 | 178 | 102 | 23 | 166 | 6 | 636 | 2,534 |
| 17:30 | to | 17:45 | 7 | 13 | 38 | 79 | 5 | 16 | 10 | 136 | 54 | 15 | 149 | 5 | 527 | 2,445 |
| 17:45 | to | 18:00 | 6 | 5 | 19 | 62 | 7 | 24 | 15 | 121 | 83 | 19 | 139 | 7 | 507 | 2,336 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **16:30** | **to** | **17:30** | **37** | **60** | **167** | **318** | **10** | **60** | **70** | **607** | **370** | **73** | **730** | **32** | **2,534** | |
| **# of trucks in peak** | | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 3 | 0 | 8 | |
| **# of heavies in peak** | | | 0 | 2 | 0 | 13 | 0 | 4 | 0 | 10 | 0 | 4 | 9 | 0 | 42 | |
| **% heavies (Total)** | | | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% | 2% | |

**Intersection:** King St & Conestogo Rd
**GeoID:** 8403
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Tuesday, 09-Apr-19
**Name:** AT15-LT
**Weather:** Cloudy

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 4 | 1 | 6 | 1 | 12 | |
| 7:45 | to | 8:00 | 1 | 0 | 0 | 0 | 1 | |
| 8:00 | to | 8:15 | 1 | 1 | 0 | 0 | 2 | |
| 8:15 | to | 8:30 | 5 | 0 | 0 | 3 | 8 | 23 |
| 8:30 | to | 8:45 | 2 | 1 | 1 | 2 | 6 | 17 |
| 8:45 | to | 9:00 | 1 | 1 | 2 | 0 | 4 | 20 |
| 9:00 | to | 9:15 | 0 | 0 | 0 | 0 | 0 | 18 |
| 9:15 | to | 9:30 | 3 | 2 | 2 | 1 | 8 | 18 |
| 9:30 | to | 9:45 | 0 | 1 | 0 | 3 | 4 | 16 |
| 9:45 | to | 10:00 | 2 | 0 | 1 | 1 | 4 | 16 |
| 10:00 | to | 10:15 | 0 | 2 | 0 | 4 | 6 | 22 |
| 10:15 | to | 10:30 | 0 | 0 | 1 | 0 | 1 | 15 |
| **AM Peak Hour** | | | | | | | **56** | |
| **7:45** | **to** | **8:45** | **9** | **2** | **1** | **5** | **17** | |
| 12:00 | to | 12:15 | 0 | 3 | 5 | 4 | 12 | |
| 12:15 | to | 12:30 | 1 | 3 | 3 | 1 | 8 | |
| 12:30 | to | 12:45 | 2 | 2 | 0 | 1 | 5 | |
| 12:45 | to | 13:00 | 1 | 2 | 4 | 2 | 9 | 34 |
| 13:00 | to | 13:15 | 1 | 2 | 2 | 4 | 9 | 31 |
| 13:15 | to | 13:30 | 1 | 0 | 1 | 1 | 3 | 26 |
| 13:30 | to | 13:45 | 3 | 0 | 3 | 1 | 7 | 28 |
| 13:45 | to | 14:00 | 2 | 1 | 4 | 0 | 7 | 26 |
| **Midday Peak Hour** | | | | | | | **60** | |
| **12:00** | **to** | **13:00** | 4 | 10 | 12 | 8 | **34** | |
| 15:00 | to | 15:15 | 4 | 1 | 0 | 3 | 8 | |
| 15:15 | to | 15:30 | 4 | 1 | 0 | 2 | 7 | |
| 15:30 | to | 15:45 | 1 | 1 | 2 | 1 | 5 | |
| 15:45 | to | 16:00 | 4 | 3 | 2 | 3 | 12 | 32 |
| 16:00 | to | 16:15 | 6 | 3 | 1 | 6 | 16 | 40 |
| 16:15 | to | 16:30 | 0 | 0 | 2 | 4 | 6 | 39 |
| 16:30 | to | 16:45 | 6 | 1 | 3 | 4 | 14 | 48 |
| 16:45 | to | 17:00 | 4 | 1 | 1 | 1 | 7 | 43 |
| 17:00 | to | 17:15 | 2 | 3 | 4 | 3 | 12 | 39 |
| 17:15 | to | 17:30 | 3 | 1 | 0 | 2 | 6 | 39 |
| 17:30 | to | 17:45 | 2 | 2 | 2 | 2 | 8 | 33 |
| 17:45 | to | 18:00 | 1 | 2 | 2 | 2 | 7 | 33 |
| **PM Peak Hour** | | | | | | | **108** | |
| **16:30** | **to** | **17:30** | 15 | 6 | 8 | 10 | **39** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

**Peak Hour**
**From:** 8:30 AM
**To:** 9:30 AM

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:**
Cloudy/Wet

**Person(s) who counted:**
Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

**North Leg Total:** 3,063
**North Entering:** 1,083
**North Peds:** 1
**Peds Cross:** ⋈

| % Trks | 0% | 3% | 80% | |
|---|---|---|---|---|
| Heavys | 0 | 16 | 0 | 16 |
| Trucks | 0 | 16 | 4 | 20 |
| Cars | 0 | 1,046 | 1 | 1,047 |
| Total | 0 | 1,078 | 5 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

**n/a**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | |

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| Heavys | 40 |
|---|---|
| Trucks | 34 |
| Cars | 1,906 |
| Total | 1,980 |

**East Leg Total:** 2,146
**East Entering:** 2,103
**East Peds:** 11
**Peds Cross:** ⋈

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 1,067 | 1,023 | 23 | 21 | 4% |
| 0 | 0 | 0 | 0 | 0% |
| 1,036 | 1,023 | 7 | 6 | 1% |
| | 2,046 | 30 | 27 | |

**Hwy 85 Ramp**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 35 | 7 | 1 | 43 |

**King St**

**Peds Cross:** ⋈
**West Peds:** 0
**West Entering:** 0
**West leg Total:** 0

| Heavys | 22 |
|---|---|
| Trucks | 23 |
| Cars | 2,069 |
| Total | 2,114 |

| Total | 0 | 913 | 38 | |
|---|---|---|---|---|
| Cars | 0 | 883 | 34 | 917 |
| Trucks | 0 | 11 | 3 | 14 |
| Heavys | 0 | 19 | 1 | 20 |
| % Trks | 0% | 3% | 11% | |

**Peds Cross:** ⋈
**South Peds:** 0
**South Entering:** 951
**South leg Total:** 3,065

### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **4,137**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy/Wet

**Person(s) who counted:** Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

**North Leg Total:** 5,549
**North Entering:** 2,271
**North Peds:** 0
**Peds Cross:** ⋈

| | | | | |
|---|---|---|---|---|
| % Trks | 0% | 2% | 0% | |
| Heavys | 0 | 15 | 0 | 15 |
| Trucks | 0 | 23 | 0 | 23 |
| Cars | 0 | 2,225 | 8 | 2,233 |
| Total | 0 | 2,263 | 8 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

**n/a**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | |

| | |
|---|---|
| Heavys | 24 |
| Trucks | 52 |
| Cars | 3,202 |
| Total | 3,278 |

**East Leg Total:** 1,642
**East Entering:** 1,578
**East Peds:** 6
**Peds Cross:** ⧖

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 1,334 | 1,297 | 25 | 12 | 3% |
| 0 | 0 | 0 | 0 | 0% |
| 244 | 233 | 3 | 8 | 5% |
| | 1,530 | 28 | 20 | |

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**Hwy 85 Ramp**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 63 | 0 | 1 | 64 |

**King St**

**Peds Cross:** ⧖
**West Peds:** 0
**West Entering:** 0
**West leg Total:** 0

| | |
|---|---|
| Heavys | 23 |
| Trucks | 26 |
| Cars | 2,458 |
| Total | 2,507 |

| | | | | |
|---|---|---|---|---|
| Total | 0 | 1,944 | 56 | |
| Cars | 0 | 1,905 | 55 | 1,960 |
| Trucks | 0 | 27 | 0 | 27 |
| Heavys | 0 | 12 | 1 | 13 |
| % Trks | 0% | 2% | 2% | |

**Peds Cross:** ⋈
**South Peds:** 0
**South Entering:** 2,000
**South leg Total:** 4,507

### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **5,849**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

**Peak Hour**
**From:** 5:00 PM
**To:** 6:00 PM

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy/Wet

**Person(s) who counted:** Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

**North Leg Total:** 6,457
**North Entering:** 2,597
**North Peds:** 3
**Peds Cross:** ⋈

| | % Trks | 0% | 1% | 4% | |
|---|---|---|---|---|---|
| | Heavys | 0 | 14 | 0 | 14 |
| | Trucks | 0 | 1 | 1 | 2 |
| | Cars | 0 | 2,554 | 27 | 2,581 |
| | Total | 0 | 2,569 | 28 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

**n/a**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | |

| | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| | 22 | 21 | 3,817 | 3,860 |

**East Leg Total:** 2,242
**East Entering:** 2,083
**East Peds:** 4
**Peds Cross:** ⋈

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 1,647 | 1,623 | 13 | 11 | 1% |
| 0 | 0 | 0 | 0 | 0% |
| 436 | 432 | 3 | 1 | 1% |
| | 2,055 | 16 | 12 | |

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**Hwy 85 Ramp**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 157 | 2 | 0 | 159 |

**King St**

| | | | | |
|---|---|---|---|---|
| Total | 0 | 2,213 | 131 | |
| Cars | 0 | 2,194 | 130 | 2,324 |
| Trucks | 0 | 8 | 1 | 9 |
| Heavys | 0 | 11 | 0 | 11 |
| % Trks | 0% | 1% | 1% | |

**Peds Cross:** ⋈
**South Peds:** 0
**South Entering:** 2,344
**South leg Total:** 5,349

**Peds Cross:** ⋈
**West Peds:** 2
**West Entering:** 0
**West leg Total:** 0

| | |
|---|---|
| Heavys | 15 |
| Trucks | 4 |
| Cars | 2,986 |
| Total | 3,005 |

### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **7,024**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **0**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy/Wet

**Person(s) who counted:** Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

| | |
|---|---|
| **North Leg Total:** | 36,096 |
| **North Entering:** | 14,477 |
| **North Peds:** | 12 |
| **Peds Cross:** | ⋈ |
| **Bicycles Entering:** | 0 |

| % Trks | 0% | 2% | 7% | |
|---|---|---|---|---|
| Heavys | 0 | 156 | 1 | 157 |
| Trucks | 0 | 163 | 5 | 168 |
| Cars | 0 | 14,076 | 76 | 14,152 |
| Total | 0 | 14,395 | 82 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

**n/a**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | |

| | |
|---|---|
| Heavys | 261 |
| Trucks | 269 |
| Cars | 21,089 |
| Total | 21,619 |

| | |
|---|---|
| **East Leg Total:** | 14,250 |
| **East Entering:** | 13,577 |
| **East Peds:** | 71 |
| **Peds Cross:** | ⧖ |
| **Bicycles Entering:** | 0 |

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 9,599 | 9,303 | 159 | 137 | 3% |
| 0 | 0 | 0 | 0 | 0% |
| 3,978 | 3,902 | 41 | 35 | 2% |
| | 13,205 | 200 | 172 | |

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**Hwy 85 Ramp**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 652 | 15 | 6 | 673 |

**King St**

| | | | |
|---|---|---|---|
| Total | 0 | 12,020 | 591 |
| Cars | 0 | 11,786 | 576 |
| Trucks | 0 | 110 | 10 |
| Heavys | 0 | 124 | 5 |
| % Trks | 0% | 2% | 3% |

| | |
|---|---|
| **Peds Cross:** | ⧖ |
| **West Peds:** | 2 |
| **West Entering:** | 0 |
| **West leg Total:** | 0 |
| **Bicycles Entering:** | 0 |

| | |
|---|---|
| Heavys | 191 |
| Trucks | 204 |
| Cars | 17,978 |
| Total | 18,373 |

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **South Peds:** | 0 |
| **South Entering:** | 12,611 |
| **South leg Total:** | 30,984 |
| **Bicycles Entering:** | 0 |

| | | | | |
|---|---|---|---|---|
| | 0 | 12,020 | 591 | |
| | 0 | 11,786 | 576 | 12,362 |
| | 0 | 110 | 10 | 120 |
| | 0 | 124 | 5 | 129 |
| | 0% | 2% | 3% | |

**Comments** To determine total vehicles entering the intersection, add all leg totals entering.

Example: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **40,665**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **0**



# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy/Wet

**Person(s) who counted:** Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

**North Leg Total:** 62,807
**North Entering:** 25,190
**North Peds:** N/A
**Peds Cross:** ⋈

| | % Trks | 0% | 2% | 7% | |
|---|---|---|---|---|---|
| Heavys | | 0 | 271 | 2 | 273 |
| Trucks | | 0 | 284 | 9 | 292 |
| Cars | | 0 | 24,492 | 132 | 24,624 |
| Total | | 0 | 25,047 | 143 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

**n/a**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| 0% | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | |

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**King St**

| | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| | 454 | 468 | 36,695 | 37617 |

**East Leg Total:** 24,795
**East Entering:** 23,624
**East Peds:** N/A
**Peds Cross:** ⋈

| | Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|---|
| | 16,702 | 16,187 | 277 | 238 | 3% |
| | 0 | 0 | 0 | 0 | 0% |
| | 6,922 | 6,789 | 71 | 61 | 2% |
| | | 22,977 | 348 | 299 | |

**Hwy 85 Ramp**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 1,134 | 26 | 10 | 1,171 |

**King St**

**Peds Cross:** ⋈
**West Peds:** N/A
**West Entering:** 0
**West leg Total:** 0

| | | |
|---|---|---|
| Heavys | | 332 |
| Trucks | | 355 |
| Cars | | 31,282 |
| Total | | 31,969 |

| | | | | |
|---|---|---|---|---|
| Total | 0 | 20,915 | 1,028 | |
| Cars | 0 | 20,508 | 1,002 | 21,510 |
| Trucks | 0 | 191 | 17 | 209 |
| Heavys | 0 | 216 | 9 | 224 |
| % Trks | 0% | 2% | 3% | |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 21,943
**South leg Total:** 53,912

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***70,757***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** King St @ Hwy 85 NB Ramp
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Cloudy/Wet

**Person(s) who counted:** Phyllis

**GeoID:** 7857
**Count Date:** Thursday, 19-Dec-13

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.69 |
| Mid-day Peak: | 0.90 |
| PM Peak: | 0.89 |

| | Movement | | |
|---|---|---|---|
| PM | 0.00 | 0.90 | 0.44 |
| MID | 0.00 | 0.90 | 0.67 |
| AM | 0.00 | 0.69 | 0.63 |

**King St**

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

**n/a**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.00 | 0.00 | 0.00 |
| | 0.00 | 0.00 | 0.00 |
| | 0.00 | 0.00 | 0.00 |

**King St**

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**East Approach PHF**

| | |
|---|---|
| AM Peak: | 0.75 |
| Mid-day Peak: | 0.96 |
| PM Peak: | 0.88 |

| | AM | MID | PM | Movement |
|---|---|---|---|---|
| | 0.77 | 0.98 | 0.86 | |
| | 0.00 | 0.00 | 0.00 | |
| | 0.72 | 0.85 | 0.87 | |

**Hwy 85 Ramp**

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.00 |
| Mid-day Peak: | 0.00 |
| PM Peak: | 0.00 |

| | | | | |
|---|---|---|---|---|
| 0.00 | 0.80 | 0.50 | AM | |
| 0.00 | 0.82 | 0.52 | MID | |
| 0.00 | 0.80 | 0.91 | PM | |
| | Movement | | | |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.81 |
| Mid-day Peak: | 0.83 |
| PM Peak: | 0.80 |

**Comments**

**Intersection:** King St @ Hwy 85 NB Ramp
**GeoID:** 7857
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Thursday, 19-Dec-13
**Name:** Phyllis
**Weather:** Cloudy/Wet

| | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | *N/A* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | |
| *Movement* | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | TOTAL | TOTAL HOUR |
| 7:30 to 7:45 | 0 | 0 | 0 | 225 | 0 | 386 | 0 | 223 | 21 | 1 | 254 | 0 | 1,110 | |
| 7:45 to 8:00 | 0 | 0 | 0 | 196 | 0 | 243 | 0 | 197 | 3 | 0 | 202 | 0 | 841 | |
| 8:00 to 8:15 | 0 | 0 | 0 | 277 | 0 | 274 | 0 | 195 | 6 | 1 | 213 | 0 | 966 | |
| 8:15 to 8:30 | 0 | 0 | 0 | 279 | 0 | 262 | 0 | 157 | 5 | 0 | 264 | 0 | 967 | 3,884 |
| 8:30 to 8:45 | 0 | 0 | 0 | 359 | 0 | 345 | 0 | 202 | 6 | 2 | 209 | 0 | 1,123 | 3,897 |
| 8:45 to 9:00 | 0 | 0 | 0 | 288 | 0 | 294 | 0 | 191 | 4 | 1 | 268 | 0 | 1,046 | 4,102 |
| 9:00 to 9:15 | 0 | 0 | 0 | 215 | 0 | 207 | 0 | 236 | 19 | 0 | 211 | 0 | 888 | 4,024 |
| 9:15 to 9:30 | 0 | 0 | 0 | 174 | 0 | 221 | 0 | 284 | 9 | 2 | 390 | 0 | 1,080 | 4,137 |
| 9:30 to 9:45 | 0 | 0 | 0 | 186 | 0 | 264 | 0 | 198 | 13 | 3 | 318 | 0 | 982 | 3,996 |
| 9:45 to 10:00 | 0 | 0 | 0 | 155 | 0 | 192 | 0 | 282 | 13 | 1 | 357 | 0 | 1,000 | 3,950 |
| 10:00 to 10:15 | 0 | 0 | 0 | 107 | 0 | 189 | 0 | 320 | 17 | 1 | 377 | 0 | 1,011 | 4,073 |
| 10:15 to 10:30 | 0 | 0 | 0 | 95 | 0 | 195 | 0 | 324 | 14 | 1 | 368 | 0 | 997 | 3,990 |
| **AM Peak Hour** | | | | | | | | | | | | | | |
| **8:30 to 9:30** | **0** | **0** | **0** | **1,036** | **0** | **1,067** | **0** | **913** | **38** | **5** | **1,078** | **0** | **4,137** | |
| **# of trucks in peak** | 0 | 0 | 0 | 7 | 0 | 23 | 0 | 11 | 3 | 4 | 16 | 0 | 64 | |
| **# of heavies in peak** | 0 | 0 | 0 | 6 | 0 | 21 | 0 | 19 | 1 | 0 | 16 | 0 | 63 | |
| **% heavies (Total)** | 0% | 0% | 0% | 1% | 0% | 4% | 0% | 3% | 11% | 80% | 3% | 0% | 3% | |
| 12:00 to 12:15 | 0 | 0 | 0 | 45 | 0 | 342 | 0 | 484 | 7 | 1 | 554 | 0 | 1,433 | |
| 12:15 to 12:30 | 0 | 0 | 0 | 72 | 0 | 315 | 0 | 405 | 11 | 2 | 524 | 0 | 1,329 | |
| 12:30 to 12:45 | 0 | 0 | 0 | 59 | 0 | 336 | 0 | 460 | 27 | 3 | 553 | 0 | 1,438 | |
| 12:45 to 13:00 | 0 | 0 | 0 | 68 | 0 | 341 | 0 | 595 | 11 | 2 | 632 | 0 | 1,649 | 5,849 |
| 13:00 to 13:15 | 0 | 0 | 0 | 41 | 0 | 346 | 0 | 292 | 11 | 1 | 445 | 0 | 1,136 | 5,552 |
| 13:15 to 13:30 | 0 | 0 | 0 | 20 | 0 | 146 | 0 | 246 | 8 | 7 | 247 | 0 | 674 | 4,897 |
| 13:30 to 13:45 | 0 | 0 | 0 | 60 | 0 | 312 | 0 | 468 | 16 | 2 | 498 | 0 | 1,356 | 4,815 |
| 13:45 to 14:00 | 0 | 0 | 0 | 64 | 0 | 308 | 0 | 393 | 14 | 2 | 517 | 0 | 1,298 | 4,464 |
| **Midday Peak Hour** | | | | | | | | | | | | | | |
| **12:00 to 13:00** | **0** | **0** | **0** | **244** | **0** | **1,334** | **0** | **1,944** | **56** | **8** | **2,263** | **0** | **5,849** | |
| **# of trucks in peak** | 0 | 0 | 0 | 3 | 0 | 25 | 0 | 27 | 0 | 0 | 23 | 0 | 78 | |
| **# of heavies in peak** | 0 | 0 | 0 | 8 | 0 | 12 | 0 | 12 | 1 | 0 | 15 | 0 | 48 | |
| **% heavies (Total)** | 0% | 0% | 0% | 5% | 0% | 3% | 0% | 2% | 2% | 0% | 2% | 0% | 2% | |
| 15:00 to 15:15 | 0 | 0 | 0 | 62 | 0 | 289 | 0 | 540 | 18 | 0 | 576 | 0 | 1,485 | |
| 15:15 to 15:30 | 0 | 0 | 0 | 54 | 0 | 258 | 0 | 445 | 17 | 6 | 490 | 0 | 1,270 | |
| 15:30 to 15:45 | 0 | 0 | 0 | 59 | 0 | 273 | 0 | 453 | 30 | 2 | 676 | 0 | 1,493 | |
| 15:45 to 16:00 | 0 | 0 | 0 | 96 | 0 | 303 | 0 | 413 | 31 | 3 | 544 | 0 | 1,390 | 5,638 |
| 16:00 to 16:15 | 0 | 0 | 0 | 74 | 0 | 279 | 0 | 384 | 37 | 2 | 655 | 0 | 1,431 | 5,584 |
| 16:15 to 16:30 | 0 | 0 | 0 | 85 | 0 | 251 | 0 | 423 | 38 | 4 | 505 | 0 | 1,306 | 5,620 |
| 16:30 to 16:45 | 0 | 0 | 0 | 76 | 0 | 372 | 0 | 509 | 32 | 2 | 491 | 0 | 1,482 | 5,609 |
| 16:45 to 17:00 | 0 | 0 | 0 | 51 | 0 | 409 | 0 | 488 | 22 | 2 | 488 | 0 | 1,460 | 5,679 |
| 17:00 to 17:15 | 0 | 0 | 0 | 115 | 0 | 318 | 0 | 510 | 34 | 7 | 577 | 0 | 1,561 | 5,809 |
| 17:15 to 17:30 | 0 | 0 | 0 | 106 | 0 | 479 | 0 | 695 | 36 | 16 | 714 | 0 | 2,046 | 6,549 |
| 17:30 to 17:45 | 0 | 0 | 0 | 89 | 0 | 382 | 0 | 425 | 28 | 1 | 585 | 0 | 1,510 | 6,577 |
| 17:45 to 18:00 | 0 | 0 | 0 | 126 | 0 | 468 | 0 | 583 | 33 | 4 | 693 | 0 | 1,907 | 7,024 |
| **PM Peak Hour** | | | | | | | | | | | | | | |
| **17:00 to 18:00** | **0** | **0** | **0** | **436** | **0** | **1,647** | **0** | **2,213** | **131** | **28** | **2,569** | **0** | **7,024** | |
| **# of trucks in peak** | 0 | 0 | 0 | 3 | 0 | 13 | 0 | 8 | 1 | 1 | 1 | 0 | 27 | |
| **# of heavies in peak** | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 11 | 0 | 0 | 14 | 0 | 37 | |
| **% heavies (Total)** | 0% | 0% | 0% | 1% | 0% | 1% | 0% | 1% | 1% | 4% | 1% | 0% | 1% | |

**Intersection:** King St @ Hwy 85 NB Ramp
**GeoID:** 7857
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Thursday, 19-Dec-13
**Name:** Phyllis
**Weather:** Cloudy/Wet

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 1 | 0 | 0 | 0 | 1 | |
| 7:45 | to | 8:00 | 1 | 0 | 2 | 0 | 3 | |
| 8:00 | to | 8:15 | 1 | 0 | 1 | 0 | 2 | |
| 8:15 | to | 8:30 | 2 | 0 | 1 | 0 | 3 | 9 |
| 8:30 | to | 8:45 | 10 | 0 | 0 | 0 | 10 | 18 |
| 8:45 | to | 9:00 | 1 | 0 | 0 | 0 | 1 | 16 |
| 9:00 | to | 9:15 | 0 | 0 | 0 | 0 | 0 | 14 |
| 9:15 | to | 9:30 | 0 | 0 | 1 | 0 | 1 | 12 |
| 9:30 | to | 9:45 | 2 | 0 | 0 | 0 | 2 | 4 |
| 9:45 | to | 10:00 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:00 | to | 10:15 | 1 | 0 | 0 | 0 | 1 | 4 |
| 10:15 | to | 10:30 | 1 | 0 | 0 | 0 | 1 | 4 |
| **AM Peak Hour** | | | | | | | | |
| **8:30** | **to** | **9:30** | **11** | **0** | **1** | **0** | **12** | |
| 12:00 | to | 12:15 | 3 | 0 | 0 | 0 | 3 | |
| 12:15 | to | 12:30 | 1 | 0 | 0 | 0 | 1 | |
| 12:30 | to | 12:45 | 0 | 0 | 0 | 0 | 0 | |
| 12:45 | to | 13:00 | 2 | 0 | 0 | 0 | 2 | 6 |
| 13:00 | to | 13:15 | 0 | 0 | 0 | 0 | 0 | 3 |
| 13:15 | to | 13:30 | 0 | 0 | 3 | 0 | 3 | 5 |
| 13:30 | to | 13:45 | 2 | 0 | 0 | 0 | 2 | 7 |
| 13:45 | to | 14:00 | 4 | 0 | 0 | 0 | 4 | 9 |
| **Midday Peak Hour** | | | | | | | | |
| **12:00** | **to** | **13:00** | 6 | 0 | 0 | 0 | **6** | |
| 15:00 | to | 15:15 | 2 | 0 | 0 | 0 | 2 | |
| 15:15 | to | 15:30 | 3 | 0 | 0 | 0 | 3 | |
| 15:30 | to | 15:45 | 3 | 0 | 1 | 0 | 4 | |
| 15:45 | to | 16:00 | 7 | 0 | 0 | 0 | 7 | 16 |
| 16:00 | to | 16:15 | 6 | 0 | 0 | 0 | 6 | 20 |
| 16:15 | to | 16:30 | 5 | 0 | 0 | 0 | 5 | 22 |
| 16:30 | to | 16:45 | 4 | 0 | 0 | 0 | 4 | 22 |
| 16:45 | to | 17:00 | 5 | 0 | 0 | 0 | 5 | 20 |
| 17:00 | to | 17:15 | 1 | 1 | 2 | 0 | 4 | 18 |
| 17:15 | to | 17:30 | 1 | 1 | 1 | 0 | 3 | 16 |
| 17:30 | to | 17:45 | 0 | 0 | 0 | 0 | 0 | 12 |
| 17:45 | to | 18:00 | 2 | 0 | 0 | 0 | 2 | 9 |
| **PM Peak Hour** | | | | | | | | |
| **17:00** | **to** | **18:00** | 4 | 2 | 3 | 0 | **9** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

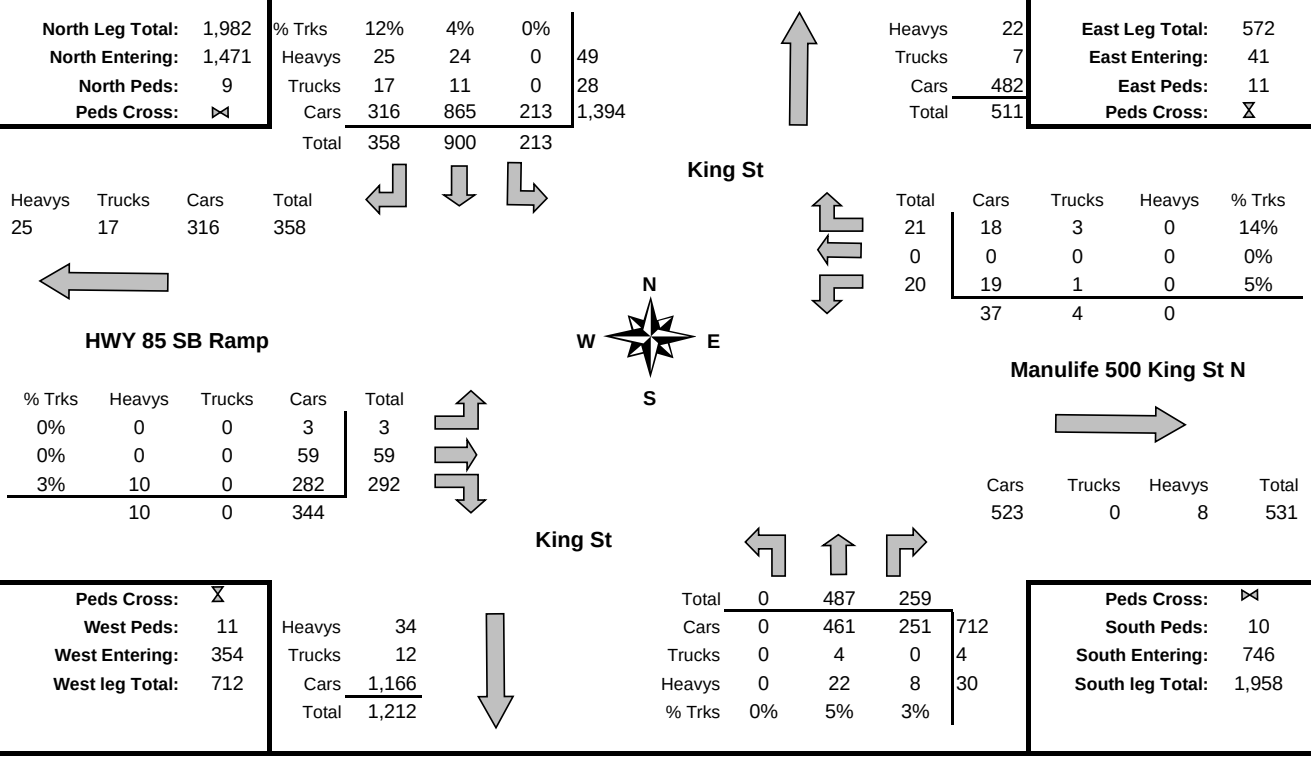
**Peak Hour**
**From:** 7:45 AM
**To:** 8:45 AM

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,612**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **354**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

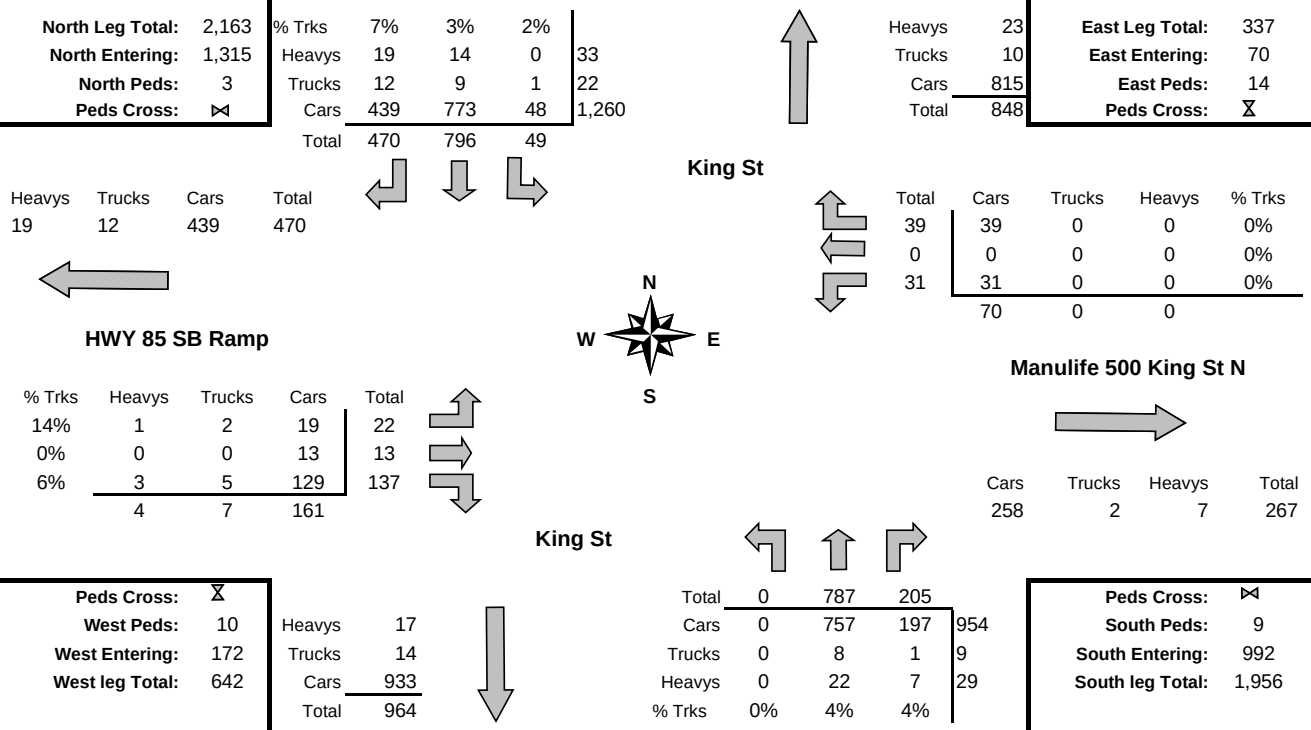
**Peak Hour**
**From:** 12:15 PM
**To:** 1:15 PM

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18




### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,549**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **172**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

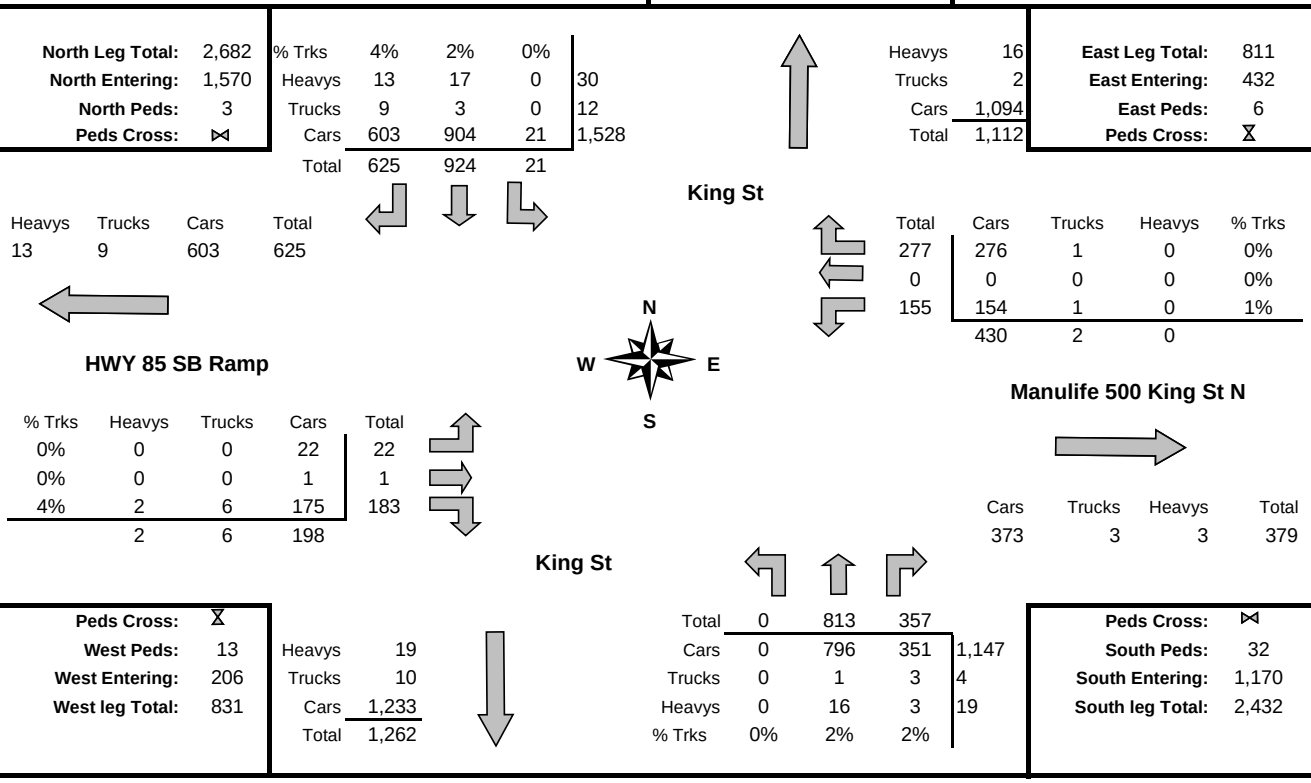
**Peak Hour**
**From:** 3:45 PM
**To:** 4:45 PM

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18




### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **3,378**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **206**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18

### North Leg

| | |
|---|---|
| North Leg Total: | 16,713 |
| North Entering: | 10,626 |
| North Peds: | 34 |
| Peds Cross: | ⋈ |
| Bicycles Entering: | 0 |
| Buggies Entering: | 0 |

| % Trks | 6% | 3% | 1% | |
|---|---|---|---|---|
| Heavys | 142 | 143 | 0 | 285 |
| Trucks | 80 | 57 | 4 | 141 |
| Cars | 3,518 | 6,136 | 546 | 10,200 |
| Total | 3,740 | 6,336 | 550 | |

### East Leg

| | |
|---|---|
| East Leg Total: | 3,865 |
| East Entering: | 1,196 |
| East Peds: | 62 |
| Peds Cross: | ⧖ |
| Bicycles Entering: | 0 |
| Buggies Entering: | 0 |

| | |
|---|---|
| Heavys | 153 |
| Trucks | 47 |
| Cars | 5,887 |
| Total | 6,087 |

### King St (eastbound)

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 142 | 80 | 3,518 | 3,740 |

### King St (westbound)

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 715 | 704 | 8 | 3 | 2% |
| 0 | 0 | 0 | 0 | 0% |
| 481 | 476 | 4 | 1 | 1% |
| | 1,180 | 12 | 4 | |

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### HWY 85 SB Ramp

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 5% | 2 | 3 | 105 | 110 |
| 0% | 0 | 0 | 123 | 123 |
| 3% | 32 | 15 | 1,372 | 1,419 |
| | 34 | 18 | 1,600 | |

### Manulife 500 King St N

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 2,601 | 24 | 44 | 2,669 |

### King St (westbound)

| | | | | |
|---|---|---|---|---|
| Total | 0 | 5,262 | 1,996 | |
| Cars | 0 | 5,078 | 1,932 | 7,010 |
| Trucks | 0 | 36 | 20 | 56 |
| Heavys | 0 | 148 | 44 | 192 |
| % Trks | 0% | 3% | 3% | |

### South Leg

| | |
|---|---|
| Peds Cross: | ⋈ |
| South Peds: | 125 |
| South Entering: | 7,258 |
| South leg Total: | 15,494 |
| Bicycles Entering: | 3 |
| Buggies Entering: | 0 |

### West Leg

| | |
|---|---|
| Peds Cross: | ⧖ |
| West Peds: | 76 |
| West Entering: | 1,652 |
| West leg Total: | 5,392 |
| Bicycles Entering: | 0 |
| Buggies Entering: | 0 |

| | |
|---|---|
| Heavys | 176 |
| Trucks | 76 |
| Cars | 7,984 |
| Total | 8,236 |

### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **20,732**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **1,652**

Notes: None

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18

**North Leg Total:** 29,081
**North Entering:** 18,489
**North Peds:** N/A
**Peds Cross:** ⋈

| | 6% | 3% | 1% | |
|---|---|---|---|---|
| % Trks | | | | |
| Heavys | 247 | 249 | 0 | 496 |
| Trucks | 139 | 99 | 7 | 245 |
| Cars | 6,121 | 10,677 | 950 | 17,748 |
| Total | 6,508 | 11,025 | 957 | |

| | |
|---|---|
| Heavys | 266 |
| Trucks | 82 |
| Cars | 10,243 |
| Total | 10591 |

**East Leg Total:** 6,725
**East Entering:** 2,081
**East Peds:** N/A
**Peds Cross:** ⧖

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 247 | 139 | 6,121 | 6,508 |

**King St**

| | Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|---|
| | 1,244 | 1,225 | 14 | 5 | 2% |
| | 0 | 0 | 0 | 0 | 0% |
| | 837 | 828 | 7 | 2 | 1% |
| | | 2,053 | 21 | 7 | |

**HWY 85 SB Ramp**

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**Manulife 500 King St N**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 5% | 3 | 5 | 183 | 191 |
| 0% | 0 | 0 | 214 | 214 |
| 3% | 56 | 26 | 2,387 | 2,469 |
| | 59 | 31 | 2,784 | |

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 4,526 | 42 | 77 | 4,644 |

**King St**

**Peds Cross:** ⧖
**West Peds:** N/A
**West Entering:** 2,874
**West leg Total:** 9,382

| | |
|---|---|
| Heavys | 306 |
| Trucks | 132 |
| Cars | 13,892 |
| Total | 14,331 |

| | | | | |
|---|---|---|---|---|
| Total | 0 | 9,156 | 3,473 | |
| Cars | 0 | 8,836 | 3,362 | 12,197 |
| Trucks | 0 | 63 | 35 | 97 |
| Heavys | 0 | 258 | 77 | 334 |
| % Trks | 0% | 3% | 3% | |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 12,629
**South leg Total:** 26,960

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: (West leg total + South leg total + East leg total + North leg total) / 2 ***EDT =*** ***36,074***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** King St & HWY 85 SB Ramp/Manulife 500 King
**Control:** Signalized
**Major Road:** King St

**Weather conditions:** Sunny

**Person(s) who counted:** AT06-AB

**GeoID:** 8148
**Count Date:** Thursday, 24-May-18

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.96 |
| Mid-day Peak: | 0.96 |
| PM Peak: | 0.82 |

**East Approach PHF**

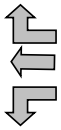
| | |
|---|---|
| AM Peak: | 0.73 |
| Mid-day Peak: | 0.67 |
| PM Peak: | 0.82 |

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

| | Movement | | |
|---|---|---|---|
| PM | 0.72 | 0.90 | 0.58 |
| MID | 0.90 | 0.94 | 0.58 |
| AM | 0.90 | 0.95 | 0.86 |

**King St**



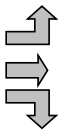


| AM | MID | PM | Movement |
|---|---|---|---|
| 0.75 | 0.57 | 0.78 | |
| 0.00 | 0.00 | 0.00 | |
| 0.63 | 0.43 | 0.82 | |




**HWY 85 SB Ramp**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.79 | 0.69 | 0.38 |
| | 0.25 | 0.81 | 0.57 |
| | 0.95 | 0.86 | 0.97 |



**Manulife 500 King St N**



| | | | | |
|---|---|---|---|---|
| 0.00 | 0.83 | 0.97 | AM | |
| 0.00 | 0.90 | 0.87 | MID | |
| 0.00 | 0.90 | 0.82 | PM | |
| Movement | | | | |

**King St**

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.89 |
| Mid-day Peak: | 0.91 |
| PM Peak: | 0.94 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.88 |
| Mid-day Peak: | 0.92 |
| PM Peak: | 0.91 |

**Comments**

**Intersection:** King St & HWY 85 SB Ramp/Manuli
**GeoID:** 8148
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Thursday, 24-May-18
**Name:** AT06-AB
**Weather:** Sunny

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 1 | 1 | 2 | 1 | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 1 | 7 | 41 | 4 | 0 | 2 | 0 | 86 | 63 | 42 | 132 | 77 | 455 | |
| 7:45 | to | 8:00 | 2 | 17 | 75 | 5 | 0 | 7 | 0 | 146 | 67 | 53 | 232 | 89 | 693 | |
| 8:00 | to | 8:15 | 0 | 26 | 74 | 8 | 0 | 6 | 0 | 108 | 66 | 62 | 223 | 100 | 673 | |
| 8:15 | to | 8:30 | 0 | 9 | 70 | 4 | 0 | 4 | 0 | 121 | 67 | 47 | 209 | 86 | 617 | 2,438 |
| 8:30 | to | 8:45 | 1 | 7 | 73 | 3 | 0 | 4 | 0 | 112 | 59 | 51 | 236 | 83 | 629 | 2,612 |
| 8:45 | to | 9:00 | 1 | 11 | 69 | 10 | 0 | 3 | 0 | 109 | 54 | 55 | 215 | 86 | 613 | 2,532 |
| 9:00 | to | 9:15 | 2 | 9 | 34 | 6 | 0 | 4 | 0 | 123 | 40 | 38 | 188 | 88 | 532 | 2,391 |
| 9:15 | to | 9:30 | 2 | 5 | 38 | 6 | 0 | 5 | 0 | 137 | 35 | 34 | 154 | 73 | 489 | 2,263 |
| 9:30 | to | 9:45 | 3 | 6 | 34 | 6 | 0 | 8 | 0 | 127 | 57 | 24 | 163 | 67 | 495 | 2,129 |
| 9:45 | to | 10:00 | 2 | 1 | 25 | 1 | 0 | 5 | 0 | 120 | 47 | 8 | 169 | 86 | 464 | 1,980 |
| 10:00 | to | 10:15 | 2 | 2 | 36 | 7 | 0 | 4 | 0 | 141 | 52 | 8 | 145 | 94 | 491 | 1,939 |
| 10:15 | to | 10:30 | 2 | 0 | 37 | 3 | 0 | 5 | 0 | 120 | 41 | 3 | 138 | 77 | 426 | 1,876 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **7:45** | **to** | **8:45** | **3** | **59** | **292** | **20** | **0** | **21** | **0** | **487** | **259** | **213** | **900** | **358** | **2,612** | |
| **# of trucks in peak** | | | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 0 | 0 | 11 | 17 | 36 | |
| **# of heavies in peak** | | | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 22 | 8 | 0 | 24 | 25 | 89 | |
| **% heavies (Total)** | | | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% | 5% | |
| 12:00 | to | 12:15 | 4 | 1 | 29 | 24 | 0 | 28 | 0 | 190 | 58 | 7 | 167 | 121 | 629 | |
| 12:15 | to | 12:30 | 8 | 3 | 21 | 18 | 0 | 8 | 0 | 196 | 45 | 16 | 180 | 131 | 626 | |
| 12:30 | to | 12:45 | 5 | 4 | 37 | 2 | 0 | 17 | 0 | 176 | 59 | 9 | 202 | 130 | 641 | |
| 12:45 | to | 13:00 | 4 | 4 | 39 | 3 | 0 | 5 | 0 | 219 | 50 | 21 | 211 | 94 | 650 | 2,546 |
| 13:00 | to | 13:15 | 5 | 2 | 40 | 8 | 0 | 9 | 0 | 196 | 51 | 3 | 203 | 115 | 632 | 2,549 |
| 13:15 | to | 13:30 | 5 | 2 | 31 | 4 | 0 | 8 | 0 | 196 | 61 | 7 | 164 | 124 | 602 | 2,525 |
| 13:30 | to | 13:45 | 3 | 1 | 44 | 7 | 0 | 10 | 0 | 160 | 61 | 10 | 189 | 136 | 621 | 2,505 |
| 13:45 | to | 14:00 | 2 | 0 | 34 | 4 | 0 | 8 | 0 | 205 | 65 | 11 | 185 | 134 | 648 | 2,503 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:15** | **to** | **13:15** | **22** | **13** | **137** | **31** | **0** | **39** | **0** | **787** | **205** | **49** | **796** | **470** | **2,549** | |
| **# of trucks in peak** | | | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 8 | 1 | 1 | 9 | 12 | 38 | |
| **# of heavies in peak** | | | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 22 | 7 | 0 | 14 | 19 | 66 | |
| **% heavies (Total)** | | | 14% | 0% | 6% | 0% | 0% | 0% | 0% | 4% | 4% | 2% | 3% | 7% | 4% | |
| 15:00 | to | 15:15 | 6 | 0 | 21 | 15 | 0 | 46 | 0 | 186 | 77 | 3 | 207 | 208 | 769 | |
| 15:15 | to | 15:30 | 1 | 0 | 36 | 13 | 0 | 28 | 0 | 138 | 62 | 5 | 205 | 171 | 659 | |
| 15:30 | to | 15:45 | 1 | 1 | 28 | 16 | 0 | 22 | 0 | 155 | 51 | 4 | 170 | 107 | 555 | |
| 15:45 | to | 16:00 | 3 | 0 | 44 | 28 | 0 | 44 | 0 | 170 | 74 | 3 | 212 | 158 | 736 | 2,719 |
| 16:00 | to | 16:15 | 7 | 0 | 48 | 43 | 0 | 89 | 0 | 226 | 96 | 6 | 258 | 216 | 989 | 2,939 |
| 16:15 | to | 16:30 | 6 | 1 | 44 | 37 | 0 | 85 | 0 | 196 | 109 | 3 | 212 | 116 | 809 | 3,089 |
| 16:30 | to | 16:45 | 6 | 0 | 47 | 47 | 0 | 59 | 0 | 221 | 78 | 9 | 242 | 135 | 844 | 3,378 |
| 16:45 | to | 17:00 | 2 | 0 | 57 | 32 | 0 | 46 | 0 | 202 | 68 | 3 | 199 | 116 | 725 | 3,367 |
| 17:00 | to | 17:15 | 9 | 0 | 78 | 48 | 0 | 61 | 0 | 240 | 86 | 0 | 303 | 170 | 995 | 3,373 |
| 17:15 | to | 17:30 | 7 | 1 | 55 | 37 | 0 | 44 | 0 | 187 | 66 | 3 | 205 | 130 | 735 | 3,299 |
| 17:30 | to | 17:45 | 4 | 2 | 45 | 12 | 0 | 20 | 0 | 180 | 66 | 0 | 209 | 110 | 648 | 3,103 |
| 17:45 | to | 18:00 | 4 | 1 | 35 | 20 | 0 | 21 | 0 | 173 | 65 | 2 | 209 | 112 | 642 | 3,020 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **15:45** | **to** | **16:45** | **22** | **1** | **183** | **155** | **0** | **277** | **0** | **813** | **357** | **21** | **924** | **625** | **3,378** | |
| **# of trucks in peak** | | | 0 | 0 | 6 | 1 | 0 | 1 | 0 | 1 | 3 | 0 | 3 | 9 | 24 | |
| **# of heavies in peak** | | | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 3 | 0 | 17 | 13 | 51 | |
| **% heavies (Total)** | | | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% | 2% | |

**Intersection:** King St & HWY 85 SB Ramp/Manulife
**GeoID:** 8148
**Municipality:** Waterloo
**Major Road:** King St

**Intersection Control:** Signalized
**Date:** Thursday, 24-May-18
**Name:** AT06-AB
**Weather:** Sunny

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 0 | 2 | 2 | 0 | 4 | |
| 7:45 | to | 8:00 | 1 | 1 | 1 | 0 | 3 | |
| 8:00 | to | 8:15 | 5 | 5 | 2 | 2 | 14 | |
| 8:15 | to | 8:30 | 1 | 5 | 5 | 7 | 18 | 39 |
| 8:30 | to | 8:45 | 4 | 0 | 1 | 1 | 6 | 41 |
| 8:45 | to | 9:00 | 4 | 3 | 3 | 3 | 13 | 51 |
| 9:00 | to | 9:15 | 1 | 2 | 2 | 2 | 7 | 44 |
| 9:15 | to | 9:30 | 1 | 1 | 1 | 1 | 4 | 30 |
| 9:30 | to | 9:45 | 0 | 1 | 0 | 0 | 1 | 25 |
| 9:45 | to | 10:00 | 3 | 1 | 1 | 1 | 6 | 18 |
| 10:00 | to | 10:15 | 3 | 1 | 0 | 0 | 4 | 15 |
| 10:15 | to | 10:30 | 2 | 2 | 0 | 1 | 5 | 16 |
| **AM Peak Hour** | | | | | | | **85** | |
| **7:45** | **to** | **8:45** | **11** | **11** | **9** | **10** | **41** | |
| 12:00 | to | 12:15 | 6 | 0 | 0 | 0 | 6 | |
| 12:15 | to | 12:30 | 3 | 4 | 0 | 4 | 11 | |
| 12:30 | to | 12:45 | 1 | 1 | 2 | 3 | 7 | |
| 12:45 | to | 13:00 | 5 | 4 | 1 | 2 | 12 | 36 |
| 13:00 | to | 13:15 | 5 | 1 | 0 | 0 | 6 | 36 |
| 13:15 | to | 13:30 | 1 | 1 | 0 | 2 | 4 | 29 |
| 13:30 | to | 13:45 | 0 | 1 | 0 | 3 | 4 | 26 |
| 13:45 | to | 14:00 | 1 | 1 | 0 | 1 | 3 | 17 |
| **Midday Peak Hour** | | | | | | | **53** | |
| **12:15** | **to** | **13:15** | 14 | 10 | 3 | 9 | **36** | |
| 15:00 | to | 15:15 | 3 | 0 | 0 | 2 | 5 | |
| 15:15 | to | 15:30 | 1 | 1 | 0 | 0 | 2 | |
| 15:30 | to | 15:45 | 0 | 5 | 3 | 1 | 9 | |
| 15:45 | to | 16:00 | 5 | 4 | 2 | 10 | 21 | 37 |
| 16:00 | to | 16:15 | 1 | 1 | 1 | 8 | 11 | 43 |
| 16:15 | to | 16:30 | 0 | 3 | 0 | 6 | 9 | 50 |
| 16:30 | to | 16:45 | 0 | 5 | 0 | 8 | 13 | 54 |
| 16:45 | to | 17:00 | 0 | 3 | 6 | 17 | 26 | 59 |
| 17:00 | to | 17:15 | 0 | 3 | 0 | 16 | 19 | 67 |
| 17:15 | to | 17:30 | 1 | 10 | 1 | 18 | 30 | 88 |
| 17:30 | to | 17:45 | 1 | 2 | 0 | 3 | 6 | 81 |
| 17:45 | to | 18:00 | 3 | 2 | 0 | 3 | 8 | 63 |
| **PM Peak Hour** | | | | | | | **159** | |
| **15:45** | **to** | **16:45** | 6 | 13 | 3 | 32 | **54** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

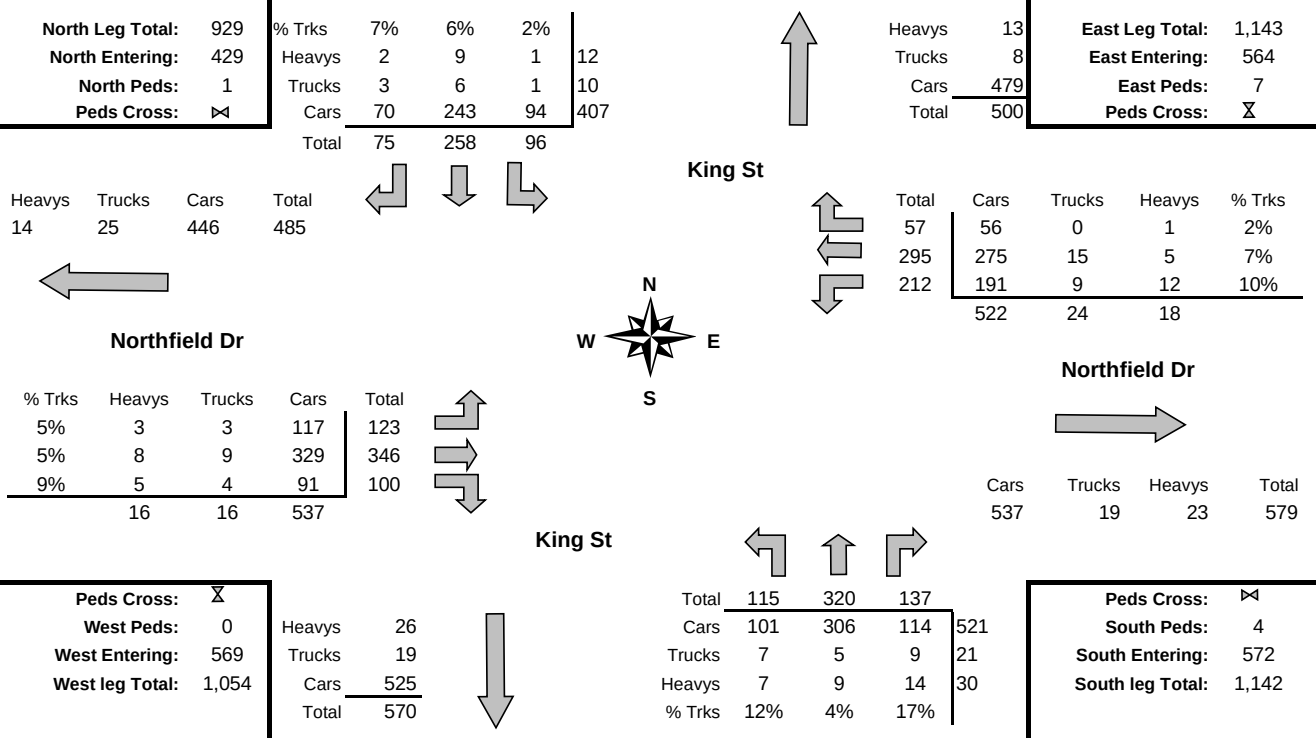
**Peak Hour**
**From:** 9:30 AM
**To:** 10:30 AM

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,134**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **569**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

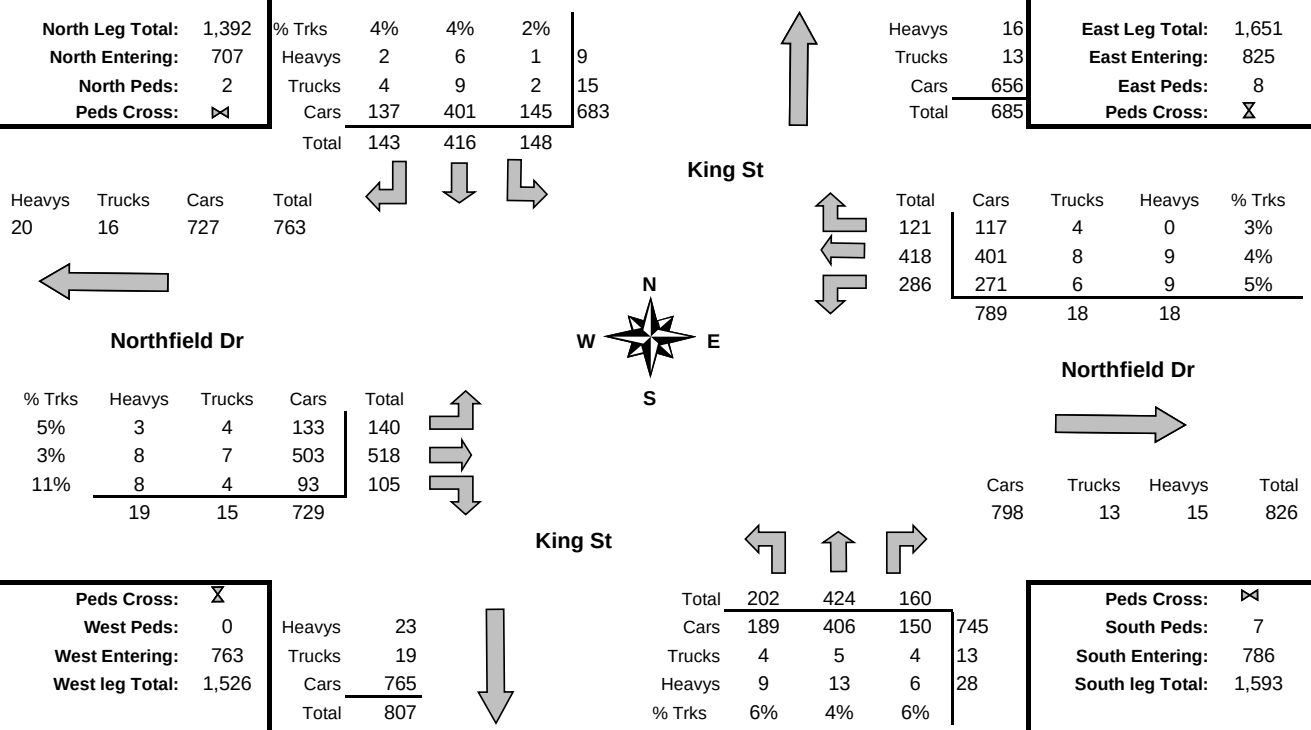
**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18




### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **3,081**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **763**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

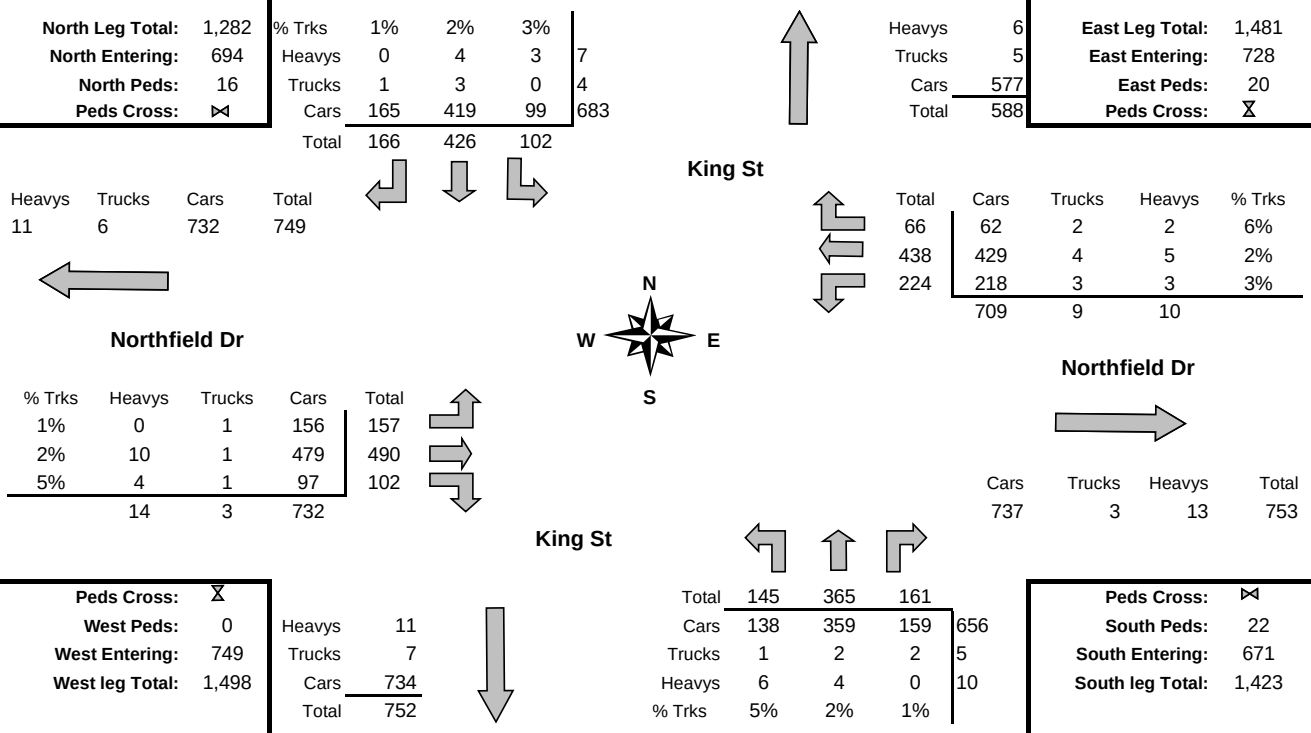
**Peak Hour**
**From:** 4:30 PM
**To:** 5:30 PM

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18




### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **2,842**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **749**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

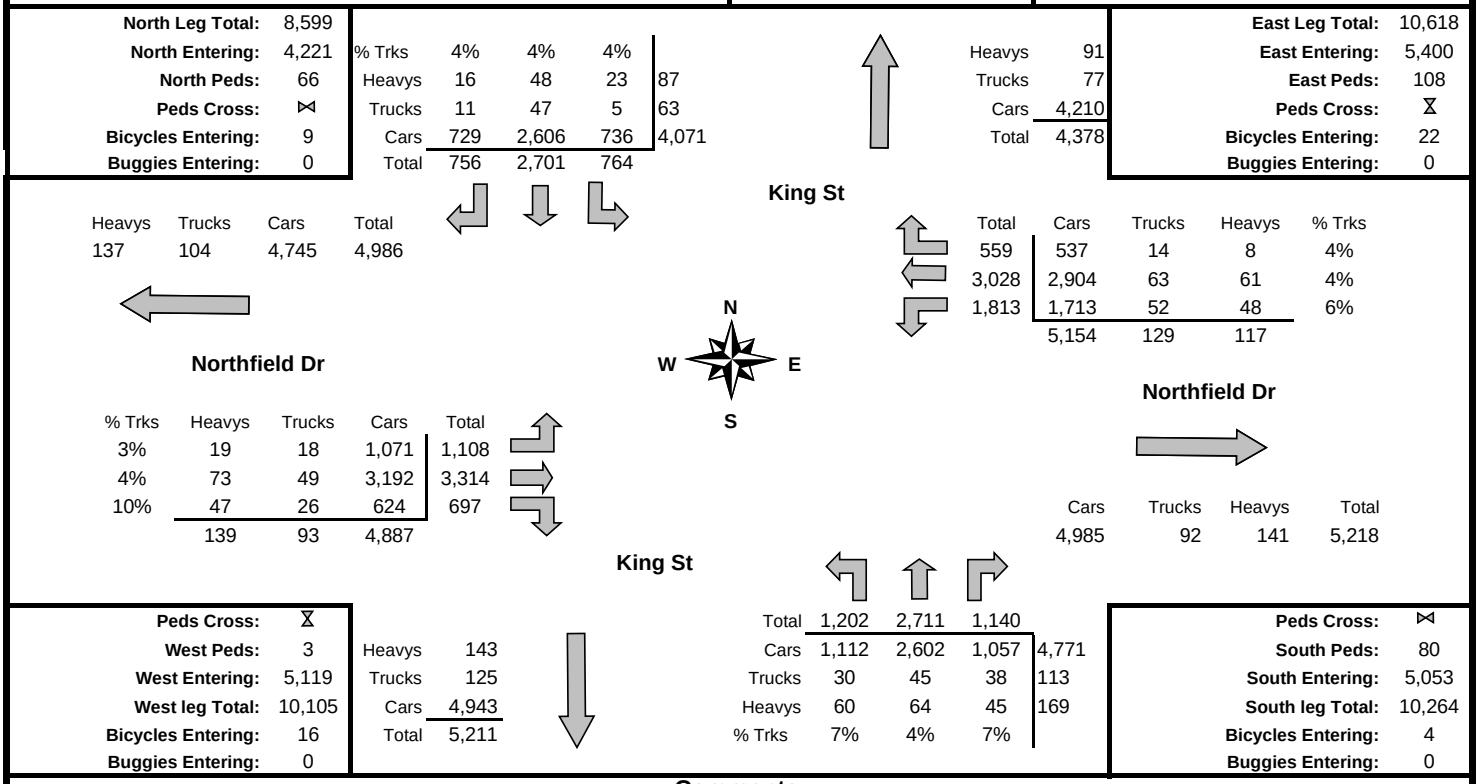
## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18




### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **19,793**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **5,119**

Notes: None

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18

**North Leg Total:** 14,962
**North Entering:** 7,345
**North Peds:** N/A
**Peds Cross:** ⋈

| | | | | | |
|---|---|---|---|---|---|
| % Trks | 4% | 4% | 4% | | |
| Heavys | 28 | 84 | 40 | 151 | |
| Trucks | 19 | 82 | 9 | 110 | |
| Cars | 1,268 | 4,534 | 1,281 | 7,084 | |
| Total | 1,315 | 4,700 | 1,329 | | |

| | | | | |
|---|---|---|---|---|
| Heavys | Trucks | Cars | Total | |
| 238 | 181 | 8,256 | 8,676 | |

**East Leg Total:** 18,475
**East Entering:** 9,396
**East Peds:** N/A
**Peds Cross:** ⧖

| | |
|---|---|
| Heavys | 158 |
| Trucks | 134 |
| Cars | 7,325 |
| Total | 7618 |

**King St**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 973 | 934 | 24 | 14 | 4% |
| 5,269 | 5,053 | 110 | 106 | 4% |
| 3,155 | 2,981 | 90 | 84 | 6% |
| | 8,968 | 224 | 204 | |

N
W E
S

**Northfield Dr**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 3% | 33 | 31 | 1,864 | 1,928 |
| 4% | 127 | 85 | 5,554 | 5,766 |
| 10% | 82 | 45 | 1,086 | 1,213 |
| | 242 | 162 | 8,503 | |

**Northfield Dr**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 8,674 | 160 | 245 | 9,079 |

**King St**

**Peds Cross:** ⧖
**West Peds:** N/A
**West Entering:** 8,907
**West leg Total:** 17,583

| | |
|---|---|
| Heavys | 249 |
| Trucks | 218 |
| Cars | 8,601 |
| Total | 9,067 |

| | | | | |
|---|---|---|---|---|
| Total | 2,091 | 4,717 | 1,984 | |
| Cars | 1,935 | 4,527 | 1,839 | 8,302 |
| Trucks | 52 | 78 | 66 | 197 |
| Heavys | 104 | 111 | 78 | 294 |
| % Trks | 7% | 4% | 7% | |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 8,792
**South leg Total:** 17,859

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: (West leg total + South leg total + East leg total + North leg total) / 2 ***EDT =*** ***34,440***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** King St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT01-NS

**GeoID:** 670
**Count Date:** Thursday, 20-Sep-18

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.87 |
| Mid-day Peak: | 0.91 |
| PM Peak: | 0.85 |

| | Movement | | |
|---|---|---|---|
| PM | 0.75 | 0.78 | 0.88 |
| MID | 0.79 | 0.84 | 0.86 |
| AM | 0.78 | 0.85 | 0.86 |

**East Approach PHF**

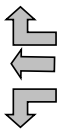
| | |
|---|---|
| AM Peak: | 0.95 |
| Mid-day Peak: | 0.92 |
| PM Peak: | 0.91 |

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour

**King St**



| AM | MID | PM | |
|---|---|---|---|
| 0.79 | 0.86 | 0.92 | |
| 0.91 | 0.87 | 0.86 | |
| 0.91 | 0.89 | 0.95 | Movement |

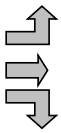


**Northfield Dr**




**Northfield Dr**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.91 | 0.78 | 0.90 |
| | 0.92 | 0.93 | 0.95 |
| | 0.94 | 0.77 | 0.68 |



**King St**



| | | | | |
|---|---|---|---|---|
| 0.76 | 0.89 | 0.88 | AM | |
| 0.81 | 0.88 | 0.91 | MID | |
| 0.82 | 0.89 | 0.89 | PM | |
| | Movement | | | |

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.91 |
| Mid-day Peak: | 0.87 |
| PM Peak: | 0.95 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.91 |
| Mid-day Peak: | 0.89 |
| PM Peak: | 0.90 |

**Comments**

**Intersection:** King St & Northfield Dr
**GeoID:** 670
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Thursday, 20-Sep-18
**Name:** AT01-NS
**Weather:** Cloudy

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 2 | < | 2 | 2 | < | 1 | 2 | < | 1 | 2 | 1 | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 26 | 71 | 9 | 33 | 83 | 10 | 29 | 69 | 25 | 14 | 38 | 11 | 418 | |
| 7:45 | to | 8:00 | 51 | 64 | 12 | 48 | 94 | 12 | 35 | 89 | 32 | 8 | 43 | 11 | 499 | |
| 8:00 | to | 8:15 | 31 | 78 | 17 | 47 | 105 | 6 | 30 | 65 | 31 | 12 | 53 | 9 | 484 | |
| 8:15 | to | 8:30 | 35 | 107 | 15 | 33 | 108 | 10 | 35 | 61 | 36 | 15 | 34 | 10 | 499 | 1,900 |
| 8:30 | to | 8:45 | 32 | 109 | 17 | 54 | 94 | 9 | 20 | 86 | 33 | 15 | 57 | 12 | 538 | 2,020 |
| 8:45 | to | 9:00 | 41 | 111 | 7 | 46 | 115 | 8 | 24 | 59 | 33 | 14 | 48 | 18 | 524 | 2,045 |
| 9:00 | to | 9:15 | 35 | 87 | 11 | 43 | 85 | 13 | 21 | 77 | 39 | 21 | 47 | 9 | 488 | 2,049 |
| 9:15 | to | 9:30 | 33 | 88 | 22 | 36 | 65 | 8 | 27 | 81 | 29 | 17 | 67 | 18 | 491 | 2,041 |
| 9:30 | to | 9:45 | 28 | 90 | 22 | 51 | 79 | 9 | 28 | 73 | 25 | 20 | 56 | 20 | 501 | 2,004 |
| 9:45 | to | 10:00 | 33 | 78 | 20 | 53 | 64 | 18 | 28 | 90 | 39 | 23 | 76 | 24 | 546 | 2,026 |
| 10:00 | to | 10:15 | 34 | 87 | 21 | 58 | 71 | 13 | 21 | 81 | 36 | 28 | 76 | 15 | 541 | 2,079 |
| 10:15 | to | 10:30 | 28 | 91 | 37 | 50 | 81 | 17 | 38 | 76 | 37 | 25 | 50 | 16 | 546 | 2,134 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **9:30** | **to** | **10:30** | **123** | **346** | **100** | **212** | **295** | **57** | **115** | **320** | **137** | **96** | **258** | **75** | **2,134** | |
| **# of trucks in peak** | | | 3 | 9 | 4 | 9 | 15 | 0 | 7 | 5 | 9 | 1 | 6 | 3 | 71 | |
| **# of heavies in peak** | | | 3 | 8 | 5 | 12 | 5 | 1 | 7 | 9 | 14 | 1 | 9 | 2 | 76 | |
| **% heavies (Total)** | | | 5% | 5% | 9% | 10% | 7% | 2% | 12% | 4% | 17% | 2% | 6% | 7% | 7% | |
| 12:00 | to | 12:15 | 45 | 140 | 34 | 80 | 82 | 35 | 43 | 90 | 44 | 41 | 93 | 45 | 772 | |
| 12:15 | to | 12:30 | 37 | 124 | 28 | 66 | 101 | 26 | 49 | 121 | 34 | 43 | 124 | 28 | 781 | |
| 12:30 | to | 12:45 | 22 | 139 | 19 | 71 | 120 | 33 | 48 | 94 | 41 | 34 | 106 | 39 | 766 | |
| 12:45 | to | 13:00 | 36 | 115 | 24 | 69 | 115 | 27 | 62 | 119 | 41 | 30 | 93 | 31 | 762 | 3,081 |
| 13:00 | to | 13:15 | 37 | 101 | 28 | 75 | 93 | 24 | 46 | 76 | 34 | 28 | 117 | 26 | 685 | 2,994 |
| 13:15 | to | 13:30 | 35 | 108 | 19 | 54 | 108 | 16 | 54 | 73 | 43 | 32 | 91 | 14 | 647 | 2,860 |
| 13:30 | to | 13:45 | 36 | 103 | 30 | 72 | 108 | 17 | 50 | 88 | 37 | 35 | 79 | 26 | 681 | 2,775 |
| 13:45 | to | 14:00 | 40 | 101 | 17 | 45 | 87 | 20 | 44 | 94 | 41 | 22 | 90 | 22 | 623 | 2,636 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:00** | **to** | **13:00** | **140** | **518** | **105** | **286** | **418** | **121** | **202** | **424** | **160** | **148** | **416** | **143** | **3,081** | |
| **# of trucks in peak** | | | 4 | 7 | 4 | 6 | 8 | 4 | 4 | 5 | 4 | 2 | 9 | 4 | 61 | |
| **# of heavies in peak** | | | 3 | 8 | 8 | 9 | 9 | 0 | 9 | 13 | 6 | 1 | 6 | 2 | 74 | |
| **% heavies (Total)** | | | 5% | 3% | 11% | 5% | 4% | 3% | 6% | 4% | 6% | 2% | 4% | 4% | 4% | |
| 15:00 | to | 15:15 | 33 | 68 | 25 | 86 | 84 | 23 | 34 | 102 | 35 | 19 | 119 | 27 | 655 | |
| 15:15 | to | 15:30 | 33 | 92 | 16 | 62 | 71 | 16 | 35 | 108 | 28 | 19 | 87 | 17 | 584 | |
| 15:30 | to | 15:45 | 20 | 97 | 33 | 67 | 92 | 27 | 36 | 89 | 33 | 30 | 141 | 29 | 694 | |
| 15:45 | to | 16:00 | 37 | 115 | 27 | 62 | 87 | 20 | 49 | 82 | 33 | 22 | 105 | 11 | 650 | 2,583 |
| 16:00 | to | 16:15 | 25 | 120 | 23 | 65 | 84 | 19 | 48 | 94 | 30 | 27 | 122 | 24 | 681 | 2,609 |
| 16:15 | to | 16:30 | 43 | 105 | 28 | 51 | 94 | 10 | 48 | 93 | 27 | 19 | 102 | 25 | 645 | 2,670 |
| 16:30 | to | 16:45 | 35 | 121 | 24 | 53 | 98 | 18 | 44 | 103 | 40 | 24 | 137 | 43 | 740 | 2,716 |
| 16:45 | to | 17:00 | 43 | 109 | 26 | 58 | 113 | 17 | 38 | 89 | 45 | 23 | 99 | 37 | 697 | 2,763 |
| 17:00 | to | 17:15 | 38 | 133 | 27 | 59 | 127 | 14 | 30 | 93 | 33 | 26 | 104 | 55 | 739 | 2,821 |
| 17:15 | to | 17:30 | 41 | 127 | 25 | 54 | 100 | 17 | 33 | 80 | 43 | 29 | 86 | 31 | 666 | 2,842 |
| 17:30 | to | 17:45 | 33 | 125 | 18 | 57 | 113 | 29 | 41 | 62 | 32 | 25 | 72 | 25 | 632 | 2,734 |
| 17:45 | to | 18:00 | 32 | 110 | 16 | 55 | 107 | 18 | 34 | 54 | 51 | 24 | 89 | 28 | 618 | 2,655 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **16:30** | **to** | **17:30** | **157** | **490** | **102** | **224** | **438** | **66** | **145** | **365** | **161** | **102** | **426** | **166** | **2,842** | |
| **# of trucks in peak** | | | 1 | 1 | 1 | 3 | 4 | 2 | 1 | 2 | 2 | 0 | 3 | 1 | 21 | |
| **# of heavies in peak** | | | 0 | 10 | 4 | 3 | 5 | 2 | 6 | 4 | 0 | 3 | 4 | 0 | 41 | |
| **% heavies (Total)** | | | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% | 2% | |

**Intersection:** King St & Northfield Dr
**GeoID:** 670
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Thursday, 20-Sep-18
**Name:** AT01-NS
**Weather:** Cloudy

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 1 | 0 | 0 | 0 | 1 | |
| 7:45 | to | 8:00 | 4 | 2 | 3 | 1 | 10 | |
| 8:00 | to | 8:15 | 1 | 0 | 3 | 3 | 7 | |
| 8:15 | to | 8:30 | 2 | 0 | 0 | 2 | 4 | 22 |
| 8:30 | to | 8:45 | 3 | 0 | 2 | 2 | 7 | 28 |
| 8:45 | to | 9:00 | 0 | 0 | 2 | 1 | 3 | 21 |
| 9:00 | to | 9:15 | 0 | 1 | 0 | 1 | 2 | 16 |
| 9:15 | to | 9:30 | 4 | 0 | 1 | 1 | 6 | 18 |
| 9:30 | to | 9:45 | 1 | 0 | 0 | 0 | 1 | 12 |
| 9:45 | to | 10:00 | 2 | 0 | 0 | 0 | 2 | 11 |
| 10:00 | to | 10:15 | 1 | 0 | 1 | 2 | 4 | 13 |
| 10:15 | to | 10:30 | 3 | 0 | 0 | 2 | 5 | 12 |
| **AM Peak Hour** | | | | | | | **52** | |
| **9:30** | **to** | **10:30** | **7** | **0** | **1** | **4** | **12** | |
| 12:00 | to | 12:15 | 2 | 0 | 0 | 1 | 3 | |
| 12:15 | to | 12:30 | 3 | 0 | 2 | 2 | 7 | |
| 12:30 | to | 12:45 | 3 | 0 | 0 | 2 | 5 | |
| 12:45 | to | 13:00 | 0 | 0 | 0 | 2 | 2 | 17 |
| 13:00 | to | 13:15 | 1 | 0 | 3 | 3 | 7 | 21 |
| 13:15 | to | 13:30 | 6 | 0 | 5 | 3 | 14 | 28 |
| 13:30 | to | 13:45 | 4 | 0 | 5 | 0 | 9 | 32 |
| 13:45 | to | 14:00 | 6 | 0 | 3 | 7 | 16 | 46 |
| **Midday Peak Hour** | | | | | | | **63** | |
| **12:00** | **to** | **13:00** | 8 | 0 | 2 | 7 | **17** | |
| 15:00 | to | 15:15 | 3 | 0 | 1 | 3 | 7 | |
| 15:15 | to | 15:30 | 5 | 0 | 2 | 7 | 14 | |
| 15:30 | to | 15:45 | 8 | 0 | 2 | 3 | 13 | |
| 15:45 | to | 16:00 | 2 | 0 | 2 | 0 | 4 | 38 |
| 16:00 | to | 16:15 | 1 | 0 | 4 | 3 | 8 | 39 |
| 16:15 | to | 16:30 | 8 | 0 | 1 | 0 | 9 | 34 |
| 16:30 | to | 16:45 | 5 | 0 | 1 | 5 | 11 | 32 |
| 16:45 | to | 17:00 | 4 | 0 | 6 | 7 | 17 | 45 |
| 17:00 | to | 17:15 | 3 | 0 | 6 | 2 | 11 | 48 |
| 17:15 | to | 17:30 | 8 | 0 | 3 | 8 | 19 | 58 |
| 17:30 | to | 17:45 | 9 | 0 | 4 | 5 | 18 | 65 |
| 17:45 | to | 18:00 | 5 | 0 | 4 | 2 | 11 | 59 |
| **PM Peak Hour** | | | | | | | **142** | |
| **16:30** | **to** | **17:30** | 20 | 0 | 16 | 22 | **58** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

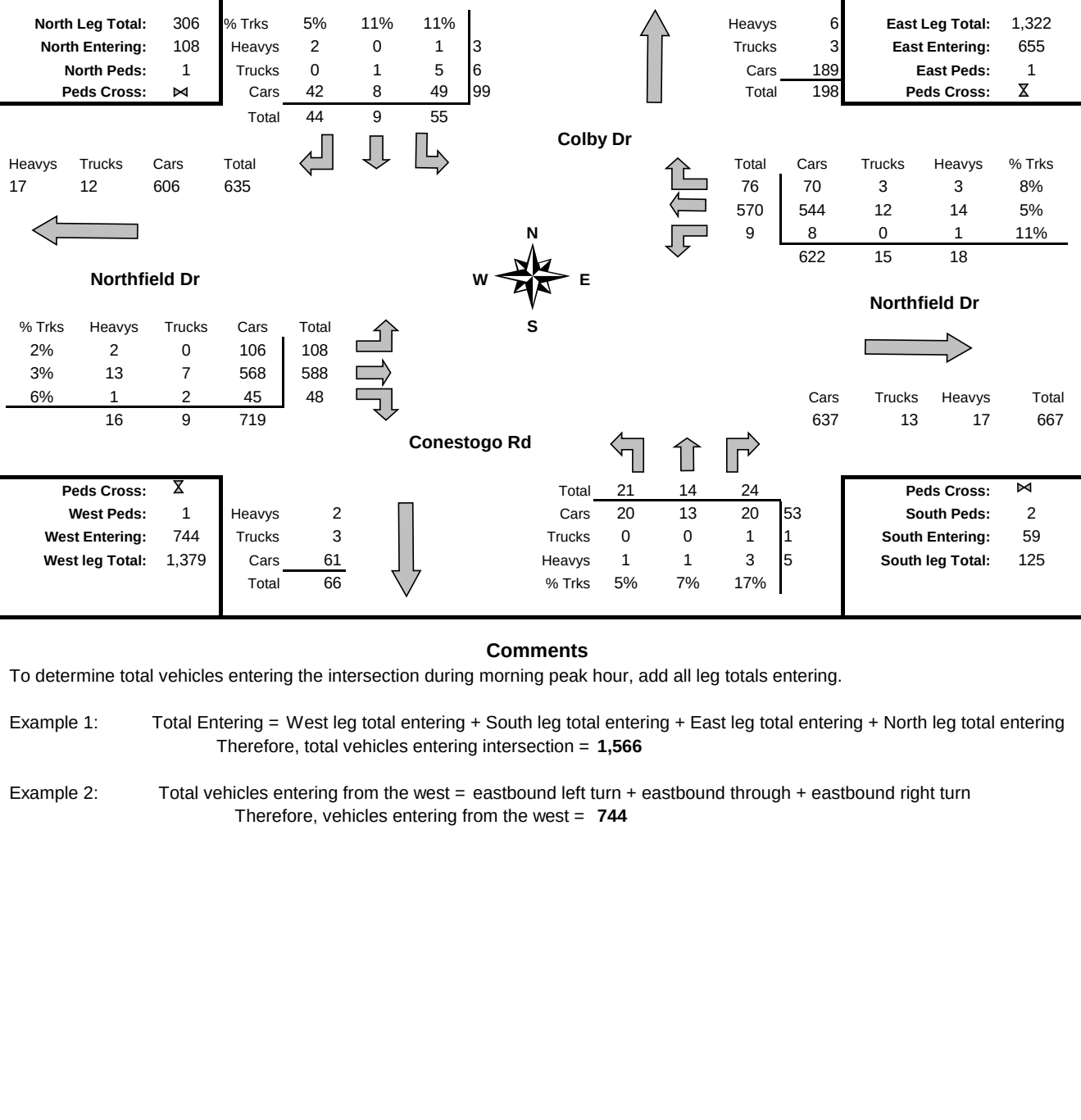
**Peak Hour**
**From:** 8:00 AM
**To:** 9:00 AM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **1,566**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **744**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

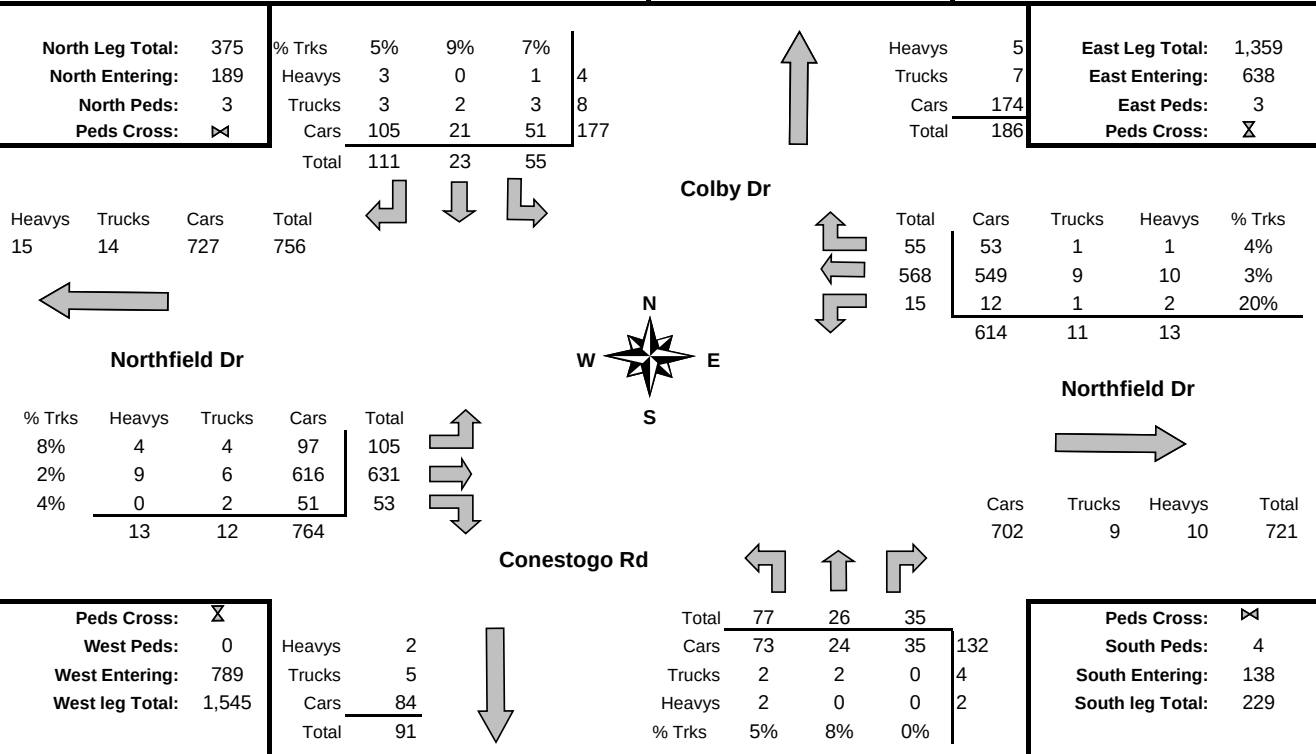
**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19




### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **1,754**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **789**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

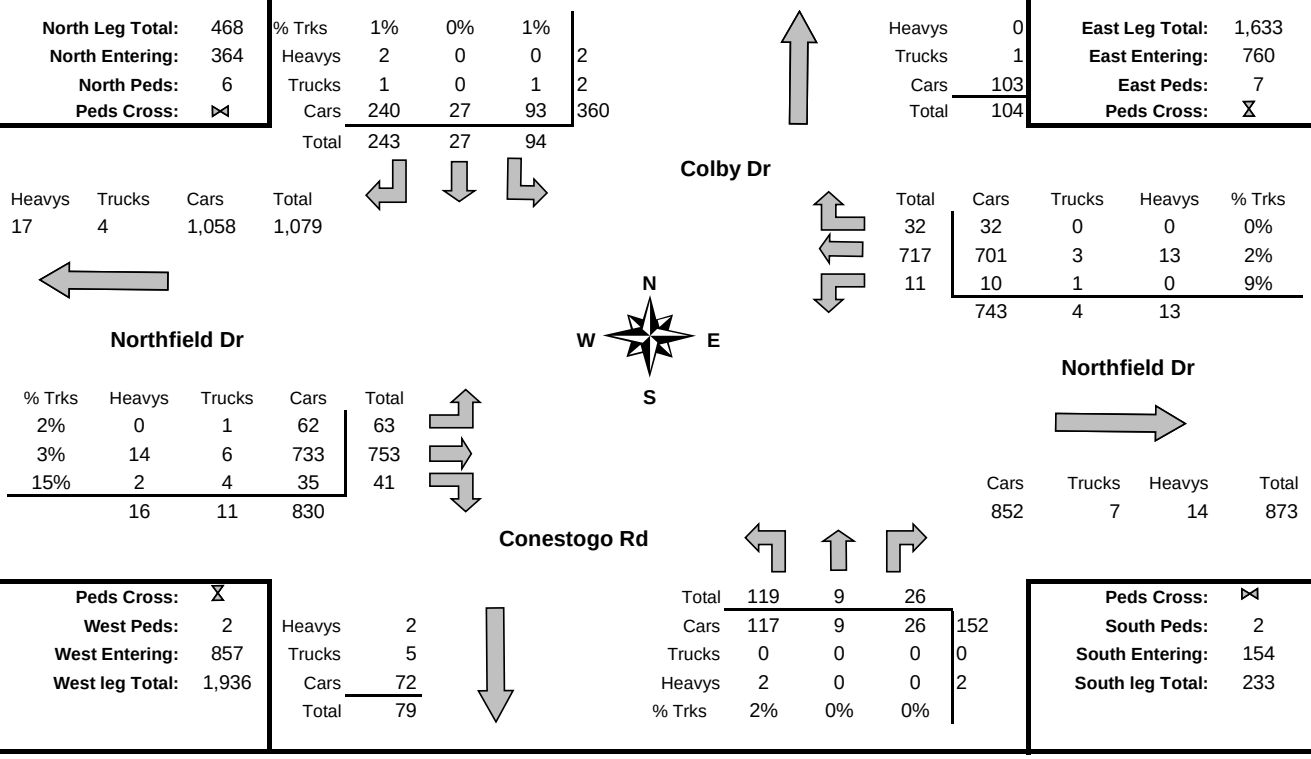
**Peak Hour**
**From:** 4:15 PM
**To:** 5:15 PM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19




### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **2,135**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **857**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

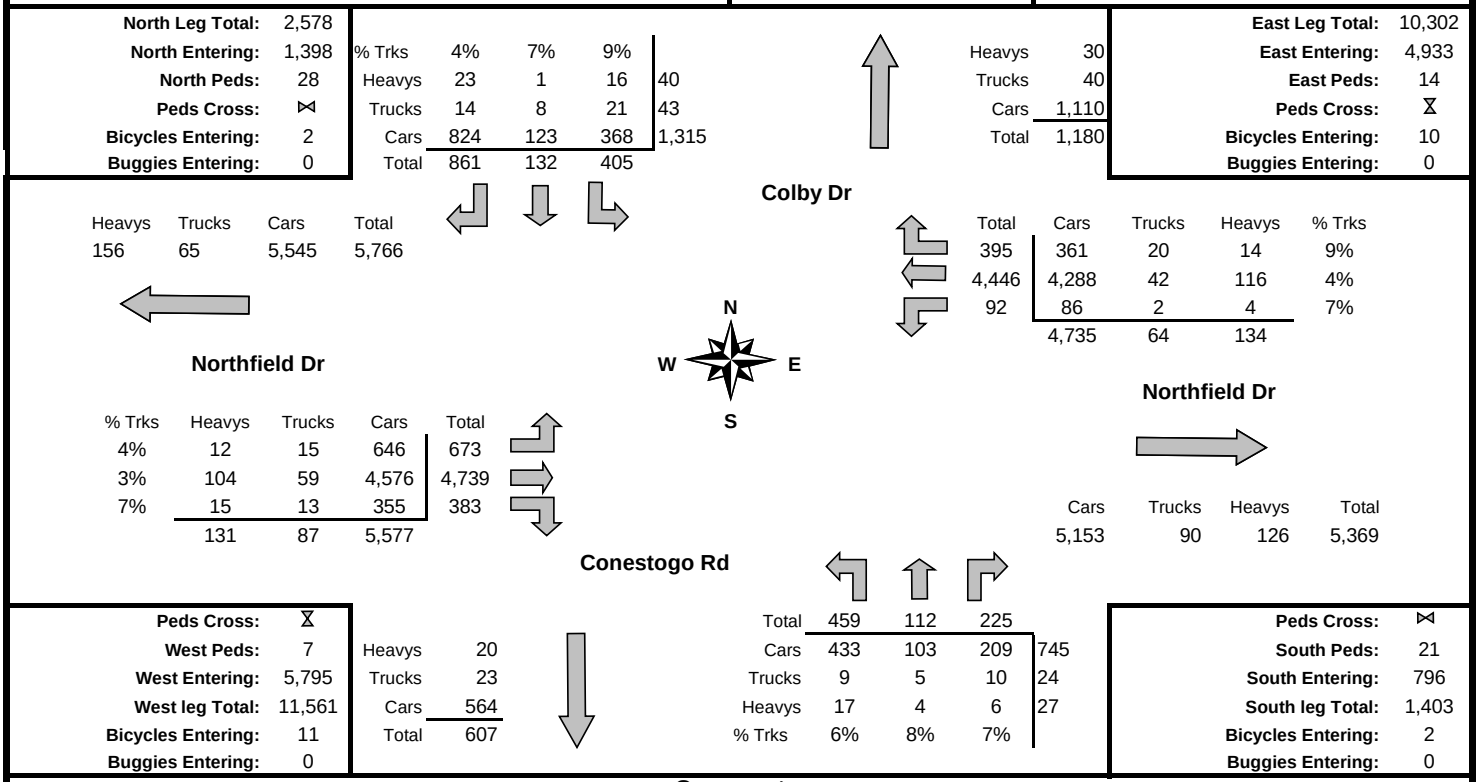
## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19




### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **12,922**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **5,795**

Notes: None

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19

**North Leg Total:** 4,486
**North Entering:** 2,433
**North Peds:** N/A
**Peds Cross:** ⋈

| | % Trks | 4% | 7% | 9% | |
|---|---|---|---|---|---|
| | Heavys | 40 | 2 | 28 | 70 |
| | Trucks | 24 | 14 | 37 | 75 |
| | Cars | 1,434 | 214 | 640 | 2,288 |
| | Total | 1,498 | 230 | 705 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 271 | 113 | 9,648 | 10,033 |

| | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| | 52 | 70 | 1,931 | 2053 |

**East Leg Total:** 17,925
**East Entering:** 8,583
**East Peds:** N/A
**Peds Cross:** ⧖

### Colby Dr

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 687 | 628 | 35 | 24 | 9% |
| 7,736 | 7,461 | 73 | 202 | 4% |
| 160 | 150 | 3 | 7 | 7% |
| | 8,239 | 111 | 233 | |

N
W E
S

### Northfield Dr

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 4% | 21 | 26 | 1,124 | 1,171 |
| 3% | 181 | 103 | 7,962 | 8,246 |
| 7% | 26 | 23 | 618 | 666 |
| | 228 | 151 | 9,704 | |

### Northfield Dr

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 8,966 | 157 | 219 | 9,342 |

### Conestogo Rd

| | | | | |
|---|---|---|---|---|
| Total | 799 | 195 | 392 | |
| Cars | 753 | 179 | 364 | 1,296 |
| Trucks | 16 | 9 | 17 | 42 |
| Heavys | 30 | 7 | 10 | 47 |
| % Trks | 6% | 8% | 7% | |

**Peds Cross:** ⧖
**West Peds:** N/A
**West Entering:** 10,083
**West leg Total:** 20,116

| | |
|---|---|
| Heavys | 35 |
| Trucks | 40 |
| Cars | 981 |
| Total | 1,056 |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 1,385
**South leg Total:** 2,441

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: (West leg total + South leg total + East leg total + North leg total) / 2 ***EDT =*** ***22,484***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Colby Dr/Conestogo Rd
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT28-MJ

**GeoID:** 3323
**Count Date:** Tuesday, 09-Apr-19

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.84 |
| Mid-day Peak: | 0.72 |
| PM Peak: | 0.81 |

**East Approach PHF**

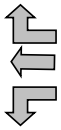
| | |
|---|---|
| AM Peak: | 0.94 |
| Mid-day Peak: | 0.94 |
| PM Peak: | 0.93 |

| | Movement | | |
|---|---|---|---|
| PM | 0.78 | 0.75 | 0.76 |
| MID | 0.82 | 0.64 | 0.53 |
| AM | 0.85 | 0.56 | 0.86 |

**Colby Dr**

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour





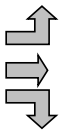
| AM | MID | PM | |
|---|---|---|---|
| 0.83 | 0.65 | 0.62 | |
| 0.92 | 0.88 | 0.91 | Movement |
| 0.56 | 0.54 | 0.69 | |

**Northfield Dr**




**Northfield Dr**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.72 | 0.80 | 0.73 |
| | 0.93 | 0.87 | 0.87 |
| | 0.68 | 0.78 | 0.63 |



**Conestogo Rd**



| | | | | |
|---|---|---|---|---|
| 0.58 | 0.50 | 0.50 | AM | |
| 0.80 | 0.72 | 0.88 | MID | |
| 0.73 | 0.75 | 0.59 | PM | |
| | Movement | | | |

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.91 |
| Mid-day Peak: | 0.92 |
| PM Peak: | 0.94 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.74 |
| Mid-day Peak: | 0.84 |
| PM Peak: | 0.77 |

**Comments**

**Intersection:** Northfield Dr & Colby Dr/Conestogo
**GeoID:** 3323
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 09-Apr-19
**Name:** AT28-MJ
**Weather:** Cloudy

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 2 | < | 1 | 2 | < | 0 | 1 | 0 | 0 | 1 | 0 | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 29 | 94 | 18 | 2 | 88 | 17 | 6 | 1 | 6 | 4 | 1 | 5 | 271 | |
| 7:45 | to | 8:00 | 42 | 121 | 23 | 0 | 130 | 32 | 5 | 3 | 10 | 8 | 1 | 8 | 383 | |
| 8:00 | to | 8:15 | 37 | 140 | 19 | 4 | 127 | 20 | 1 | 1 | 12 | 12 | 2 | 12 | 387 | |
| 8:15 | to | 8:30 | 24 | 138 | 7 | 3 | 155 | 17 | 6 | 3 | 4 | 11 | 1 | 13 | 382 | 1,423 |
| 8:30 | to | 8:45 | 22 | 141 | 11 | 2 | 138 | 16 | 5 | 3 | 4 | 16 | 2 | 7 | 367 | 1,519 |
| 8:45 | to | 9:00 | 25 | 169 | 11 | 0 | 150 | 23 | 9 | 7 | 4 | 16 | 4 | 12 | 430 | 1,566 |
| 9:00 | to | 9:15 | 21 | 131 | 9 | 4 | 134 | 17 | 11 | 0 | 6 | 9 | 1 | 19 | 362 | 1,541 |
| 9:15 | to | 9:30 | 27 | 129 | 16 | 3 | 106 | 12 | 10 | 4 | 4 | 12 | 2 | 12 | 337 | 1,496 |
| 9:30 | to | 9:45 | 18 | 106 | 10 | 1 | 96 | 13 | 5 | 4 | 4 | 9 | 3 | 19 | 288 | 1,417 |
| 9:45 | to | 10:00 | 15 | 135 | 7 | 3 | 92 | 9 | 7 | 3 | 7 | 11 | 3 | 20 | 312 | 1,299 |
| 10:00 | to | 10:15 | 21 | 137 | 14 | 1 | 79 | 9 | 5 | 4 | 4 | 4 | 2 | 17 | 297 | 1,234 |
| 10:15 | to | 10:30 | 16 | 102 | 10 | 2 | 107 | 10 | 12 | 4 | 6 | 7 | 3 | 19 | 298 | 1,195 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **8:00** | **to** | **9:00** | **108** | **588** | **48** | **9** | **570** | **76** | **21** | **14** | **24** | **55** | **9** | **44** | **1,566** | |
| **# of trucks in peak** | | | 0 | 7 | 2 | 0 | 12 | 3 | 0 | 0 | 1 | 5 | 1 | 0 | 31 | |
| **# of heavies in peak** | | | 2 | 13 | 1 | 1 | 14 | 3 | 1 | 1 | 3 | 1 | 0 | 2 | 42 | |
| **% heavies (Total)** | | | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% | 5% | |
| 12:00 | to | 12:15 | 19 | 181 | 15 | 0 | 161 | 8 | 24 | 6 | 9 | 26 | 9 | 31 | 489 | |
| 12:15 | to | 12:30 | 31 | 153 | 17 | 3 | 135 | 21 | 22 | 9 | 10 | 8 | 3 | 29 | 441 | |
| 12:30 | to | 12:45 | 22 | 132 | 11 | 5 | 146 | 10 | 18 | 5 | 10 | 10 | 4 | 17 | 390 | |
| 12:45 | to | 13:00 | 33 | 165 | 10 | 7 | 126 | 16 | 13 | 6 | 6 | 11 | 7 | 34 | 434 | 1,754 |
| 13:00 | to | 13:15 | 28 | 147 | 18 | 2 | 159 | 15 | 14 | 2 | 8 | 14 | 1 | 30 | 438 | 1,703 |
| 13:15 | to | 13:30 | 20 | 122 | 7 | 7 | 137 | 13 | 10 | 5 | 7 | 7 | 3 | 26 | 364 | 1,626 |
| 13:30 | to | 13:45 | 16 | 115 | 14 | 3 | 124 | 10 | 15 | 5 | 8 | 9 | 6 | 18 | 343 | 1,579 |
| 13:45 | to | 14:00 | 21 | 154 | 12 | 4 | 133 | 11 | 15 | 6 | 8 | 9 | 7 | 17 | 397 | 1,542 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:00** | **to** | **13:00** | **105** | **631** | **53** | **15** | **568** | **55** | **77** | **26** | **35** | **55** | **23** | **111** | **1,754** | |
| **# of trucks in peak** | | | 4 | 6 | 2 | 1 | 9 | 1 | 2 | 2 | 0 | 3 | 2 | 3 | 35 | |
| **# of heavies in peak** | | | 4 | 9 | 0 | 2 | 10 | 1 | 2 | 0 | 0 | 1 | 0 | 3 | 32 | |
| **% heavies (Total)** | | | 8% | 2% | 4% | 20% | 3% | 4% | 5% | 8% | 0% | 7% | 9% | 5% | 4% | |
| 15:00 | to | 15:15 | 18 | 123 | 9 | 5 | 150 | 17 | 13 | 1 | 12 | 10 | 4 | 25 | 387 | |
| 15:15 | to | 15:30 | 14 | 141 | 9 | 5 | 117 | 7 | 8 | 2 | 6 | 10 | 2 | 23 | 344 | |
| 15:30 | to | 15:45 | 8 | 154 | 12 | 2 | 149 | 12 | 29 | 3 | 7 | 12 | 6 | 40 | 434 | |
| 15:45 | to | 16:00 | 18 | 148 | 8 | 1 | 122 | 6 | 13 | 3 | 11 | 14 | 3 | 28 | 375 | 1,540 |
| 16:00 | to | 16:15 | 13 | 177 | 13 | 2 | 183 | 14 | 12 | 4 | 14 | 19 | 15 | 49 | 515 | 1,668 |
| 16:15 | to | 16:30 | 22 | 186 | 15 | 2 | 162 | 13 | 26 | 3 | 3 | 22 | 5 | 43 | 502 | 1,826 |
| 16:30 | to | 16:45 | 15 | 177 | 12 | 4 | 175 | 11 | 41 | 2 | 7 | 20 | 9 | 78 | 551 | 1,943 |
| 16:45 | to | 17:00 | 10 | 188 | 4 | 3 | 182 | 4 | 29 | 1 | 11 | 21 | 5 | 49 | 507 | 2,075 |
| 17:00 | to | 17:15 | 16 | 202 | 10 | 2 | 198 | 4 | 23 | 3 | 5 | 31 | 8 | 73 | 575 | 2,135 |
| 17:15 | to | 17:30 | 13 | 199 | 16 | 3 | 162 | 0 | 22 | 4 | 3 | 14 | 4 | 36 | 476 | 2,109 |
| 17:30 | to | 17:45 | 23 | 170 | 4 | 4 | 171 | 7 | 18 | 4 | 6 | 13 | 5 | 28 | 453 | 2,011 |
| 17:45 | to | 18:00 | 16 | 162 | 12 | 3 | 152 | 1 | 12 | 1 | 3 | 6 | 1 | 24 | 393 | 1,897 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **16:15** | **to** | **17:15** | **63** | **753** | **41** | **11** | **717** | **32** | **119** | **9** | **26** | **94** | **27** | **243** | **2,135** | |
| **# of trucks in peak** | | | 1 | 6 | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 17 | |
| **# of heavies in peak** | | | 0 | 14 | 2 | 0 | 13 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 33 | |
| **% heavies (Total)** | | | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% | 2% | |

**Intersection:** Northfield Dr & Colby Dr/Conestogo F
**GeoID:** 3323
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 09-Apr-19
**Name:** AT28-MJ
**Weather:** Cloudy

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 0 | 0 | 1 | 0 | 1 | |
| 7:45 | to | 8:00 | 1 | 1 | 1 | 1 | 4 | |
| 8:00 | to | 8:15 | 0 | 0 | 0 | 0 | 0 | |
| 8:15 | to | 8:30 | 1 | 0 | 0 | 0 | 1 | 6 |
| 8:30 | to | 8:45 | 0 | 1 | 0 | 1 | 2 | 7 |
| 8:45 | to | 9:00 | 0 | 0 | 1 | 1 | 2 | 5 |
| 9:00 | to | 9:15 | 0 | 0 | 1 | 1 | 2 | 7 |
| 9:15 | to | 9:30 | 0 | 1 | 0 | 0 | 1 | 7 |
| 9:30 | to | 9:45 | 0 | 0 | 0 | 0 | 0 | 5 |
| 9:45 | to | 10:00 | 0 | 0 | 0 | 0 | 0 | 3 |
| 10:00 | to | 10:15 | 0 | 1 | 0 | 2 | 3 | 4 |
| 10:15 | to | 10:30 | 0 | 0 | 0 | 1 | 1 | 4 |
| **AM Peak Hour** | | | | | | | **17** | |
| **8:00** | **to** | **9:00** | **1** | **1** | **1** | **2** | **5** | |
| 12:00 | to | 12:15 | 0 | 0 | 0 | 0 | 0 | |
| 12:15 | to | 12:30 | 3 | 0 | 1 | 2 | 6 | |
| 12:30 | to | 12:45 | 0 | 0 | 0 | 1 | 1 | |
| 12:45 | to | 13:00 | 0 | 0 | 2 | 1 | 3 | 10 |
| 13:00 | to | 13:15 | 0 | 0 | 0 | 1 | 1 | 11 |
| 13:15 | to | 13:30 | 0 | 0 | 1 | 0 | 1 | 6 |
| 13:30 | to | 13:45 | 0 | 0 | 0 | 1 | 1 | 6 |
| 13:45 | to | 14:00 | 0 | 0 | 0 | 1 | 1 | 4 |
| **Midday Peak Hour** | | | | | | | **14** | |
| **12:00** | **to** | **13:00** | 3 | 0 | 3 | 4 | **10** | |
| 15:00 | to | 15:15 | 0 | 0 | 2 | 1 | 3 | |
| 15:15 | to | 15:30 | 0 | 0 | 2 | 1 | 3 | |
| 15:30 | to | 15:45 | 0 | 0 | 1 | 1 | 2 | |
| 15:45 | to | 16:00 | 1 | 0 | 3 | 0 | 4 | 12 |
| 16:00 | to | 16:15 | 1 | 1 | 3 | 0 | 5 | 14 |
| 16:15 | to | 16:30 | 0 | 1 | 0 | 0 | 1 | 12 |
| 16:30 | to | 16:45 | 1 | 1 | 5 | 1 | 8 | 18 |
| 16:45 | to | 17:00 | 4 | 0 | 0 | 0 | 4 | 18 |
| 17:00 | to | 17:15 | 2 | 0 | 1 | 1 | 4 | 17 |
| 17:15 | to | 17:30 | 0 | 0 | 1 | 0 | 1 | 17 |
| 17:30 | to | 17:45 | 0 | 0 | 0 | 1 | 1 | 10 |
| 17:45 | to | 18:00 | 0 | 0 | 2 | 1 | 3 | 9 |
| **PM Peak Hour** | | | | | | | **39** | |
| **16:15** | **to** | **17:15** | 7 | 2 | 6 | 2 | **17** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

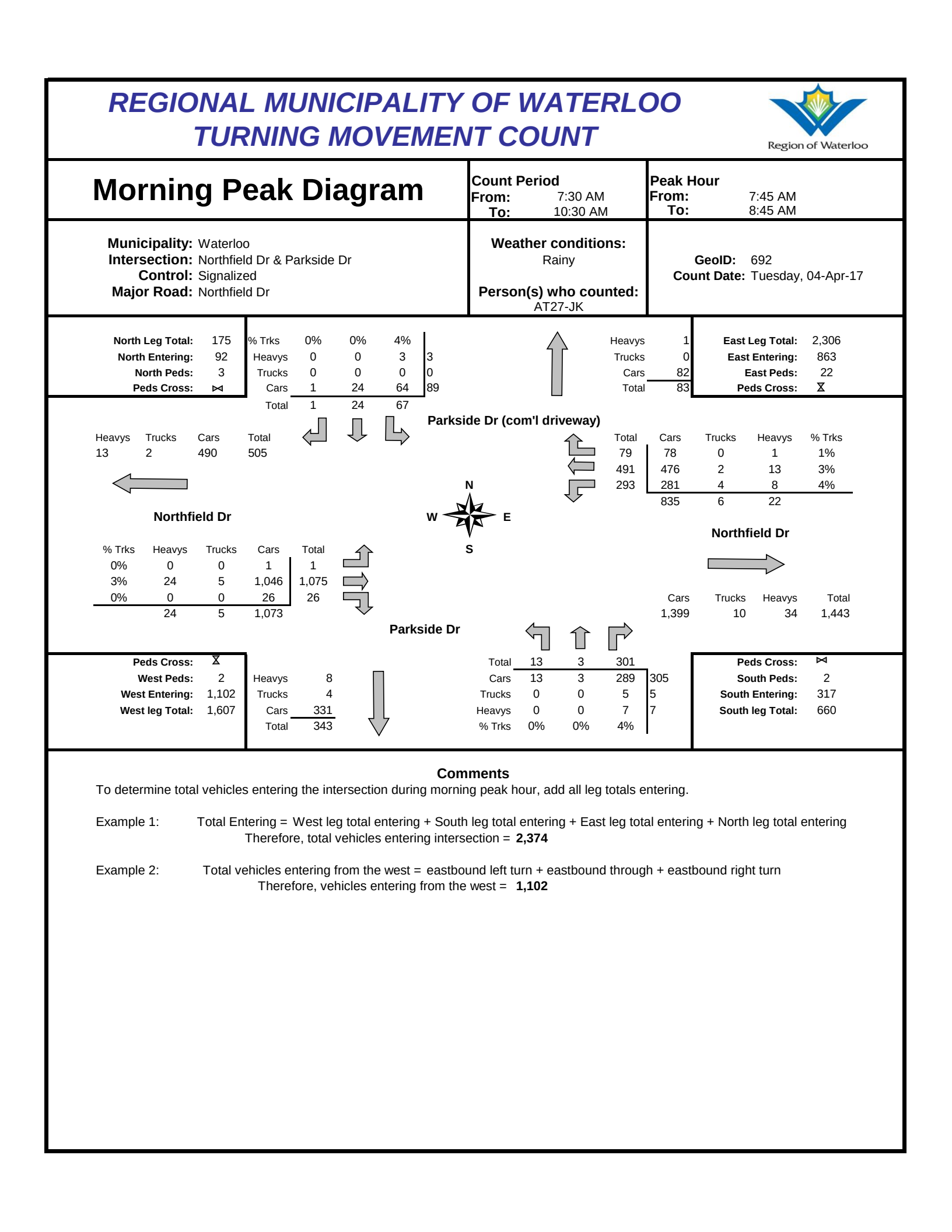
**Peak Hour**
**From:** 7:45 AM
**To:** 8:45 AM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,374**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **1,102**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17

**North Leg Total:** 155
**North Entering:** 70
**North Peds:** 4
**Peds Cross:** ⋈

| | | | | |
|---|---|---|---|---|
| % Trks | 0% | 9% | 0% | |
| Heavys | 0 | 2 | 0 | 2 |
| Trucks | 0 | 0 | 0 | 0 |
| Cars | 2 | 20 | 46 | 68 |
| Total | 2 | 22 | 46 | |

| | |
|---|---|
| Heavys | 1 |
| Trucks | 1 |
| Cars | 83 |
| Total | 85 |

**East Leg Total:** 1,992
**East Entering:** 964
**East Peds:** 5
**Peds Cross:** ⧖

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 10 | 12 | 658 | 680 |

**Parkside Dr (com'l driveway)**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 58 | 57 | 1 | 0 | 2% |
| 633 | 611 | 12 | 10 | 3% |
| 273 | 258 | 4 | 11 | 5% |
| | 926 | 17 | 21 | |

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**Northfield Dr**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 0 | 0 |
| 3% | 14 | 4 | 624 | 642 |
| 0% | 0 | 0 | 40 | 40 |
| | 14 | 4 | 664 | |

**Northfield Dr**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 990 | 10 | 28 | 1028 |

**Parkside Dr**

**Peds Cross:** ⧖
**West Peds:** 2
**West Entering:** 682
**West leg Total:** 1,362

| | |
|---|---|
| Heavys | 13 |
| Trucks | 4 |
| Cars | 318 |
| Total | 335 |

| | | | | |
|---|---|---|---|---|
| Total | 45 | 27 | 340 | |
| Cars | 45 | 26 | 320 | 391 |
| Trucks | 0 | 0 | 6 | 6 |
| Heavys | 0 | 1 | 14 | 15 |
| % Trks | 0% | 4% | 6% | |

**Peds Cross:** ⋈
**South Peds:** 0
**South Entering:** 412
**South leg Total:** 747

### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,128**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **682**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

**Peak Hour**
**From:** 4:30 PM
**To:** 5:30 PM

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17

**North Leg Total:** 197
**North Entering:** 91
**North Peds:** 10
**Peds Cross:** ⋈

| | | | | |
|---|---|---|---|---|
| % Trks | 0% | 0% | 2% | |
| Heavys | 0 | 0 | 1 | 1 |
| Trucks | 0 | 0 | 0 | 0 |
| Cars | 12 | 21 | 57 | 90 |
| Total | 12 | 21 | 58 | |

| | |
|---|---|
| Heavys | 2 |
| Trucks | 0 |
| Cars | 104 |
| Total | 106 |

**East Leg Total:** 3,135
**East Entering:** 1,819
**East Peds:** 14
**Peds Cross:** ⧖

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 5 | 3 | 1,416 | 1,424 |

**Parkside Dr (com'l driveway)**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 85 | 83 | 0 | 2 | 2% |
| 1,364 | 1,356 | 3 | 5 | 1% |
| 370 | 361 | 0 | 9 | 2% |
| | 1,800 | 3 | 16 | |

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**Northfield Dr**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 3 | 3 |
| 2% | 12 | 3 | 777 | 792 |
| 3% | 0 | 1 | 32 | 33 |
| | 12 | 4 | 812 | |

**Northfield Dr**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 1,289 | 6 | 21 | 1,316 |

**Parkside Dr**

| | | | |
|---|---|---|---|
| Total | 48 | 18 | 466 |
| Cars | 48 | 18 | 455 | 521 |
| Trucks | 0 | 0 | 3 | 3 |
| Heavys | 0 | 0 | 8 | 8 |
| % Trks | 0% | 0% | 2% | |

**Peds Cross:** ⧖
**West Peds:** 28
**West Entering:** 828
**West leg Total:** 2,252

| | |
|---|---|
| Heavys | 9 |
| Trucks | 1 |
| Cars | 414 |
| Total | 424 |

**Peds Cross:** ⋈
**South Peds:** 6
**South Entering:** 532
**South leg Total:** 956

### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **3,270**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **828**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17

| | |
|---|---|
| North Leg Total: | 1,133 |
| North Entering: | 555 |
| North Peds: | 42 |
| Peds Cross: | ⋈ |
| Bicycles Entering: | 3 |
| Buggies Entering: | 0 |

| % Trks | 0% | 2% | 3% | |
|---|---|---|---|---|
| Heavys | 0 | 3 | 7 | 10 |
| Trucks | 0 | 0 | 6 | 6 |
| Cars | 22 | 135 | 382 | 539 |
| Total | 22 | 138 | 395 | |

| | |
|---|---|
| Heavys | 10 |
| Trucks | 7 |
| Cars | 561 |
| Total | 578 |

| | |
|---|---|
| East Leg Total: | 17,639 |
| East Entering: | 8,618 |
| East Peds: | 78 |
| Peds Cross: | ⧖ |
| Bicycles Entering: | 4 |
| Buggies Entering: | 0 |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 95 | 35 | 5,993 | 6,123 |

**Parkside Dr (com'l driveway)**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 478 | 463 | 7 | 8 | 3% |
| 5,862 | 5,737 | 31 | 94 | 2% |
| 2,278 | 2,179 | 19 | 80 | 4% |
| | 8,379 | 57 | 182 | |

**Northfield Dr**

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**Northfield Dr**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 11 | 11 |
| 3% | 142 | 45 | 5,868 | 6,055 |
| 1% | 0 | 3 | 287 | 290 |
| | 142 | 48 | 6,166 | |

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 8,712 | 78 | 231 | 9,021 |

**Parkside Dr**

| | |
|---|---|
| Peds Cross: | ⧖ |
| West Peds: | 67 |
| West Entering: | 6,356 |
| West leg Total: | 12,479 |
| Bicycles Entering: | 7 |
| Buggies Entering: | 0 |

| | |
|---|---|
| Heavys | 83 |
| Trucks | 22 |
| Cars | 2,601 |
| Total | 2,706 |

| | | | | |
|---|---|---|---|---|
| Total | 239 | 89 | 2,571 | |
| Cars | 234 | 87 | 2,462 | 2,783 |
| Trucks | 4 | 0 | 27 | 31 |
| Heavys | 1 | 2 | 82 | 85 |
| % Trks | 2% | 2% | 4% | |

| | |
|---|---|
| Peds Cross: | ⋈ |
| South Peds: | 44 |
| South Entering: | 2,899 |
| South leg Total: | 5,605 |
| Bicycles Entering: | 6 |
| Buggies Entering: | 0 |

### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **18,428**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **6,356**




Notes: Speed limit 20 km/h on the North leg

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17

**North Leg Total:** 1,971
**North Entering:** 966
**North Peds:** N/A
**Peds Cross:** ⋈

| % Trks | 0% | 2% | 3% | |
|---|---|---|---|---|
| Heavys | 0 | 5 | 12 | 17 |
| Trucks | 0 | 0 | 10 | 10 |
| Cars | 38 | 235 | 665 | 938 |
| Total | 38 | 240 | 687 | |

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 165 | 61 | 10,428 | 10,654 |

**Northfield Dr**

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 0% | 0 | 0 | 19 | 19 |
| 3% | 247 | 78 | 10,210 | 10,536 |
| 1% | 0 | 5 | 499 | 505 |
| | 247 | 84 | 10,729 | |

**Parkside Dr (com'l driveway)**

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 832 | 806 | 12 | 14 | 3% |
| 10,200 | 9,982 | 54 | 164 | 2% |
| 3,964 | 3,791 | 33 | 139 | 4% |
| | 14,579 | 99 | 317 | |

**Northfield Dr**

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 15,159 | 136 | 402 | 15,697 |

**Parkside Dr**

| | | | | |
|---|---|---|---|---|
| Total | 416 | 155 | 4,474 | |
| Cars | 407 | 151 | 4,284 | 4,842 |
| Trucks | 7 | 0 | 47 | 54 |
| Heavys | 2 | 3 | 143 | 148 |
| % Trks | 2% | 2% | 4% | |

**Peds Cross:** ⧖
**West Peds:** N/A
**West Entering:** 11,059
**West leg Total:** 21,713

| Heavys | 144 |
|---|---|
| Trucks | 38 |
| Cars | 4,526 |
| Total | 4,708 |

**East Leg Total:** 30,692
**East Entering:** 14,995
**East Peds:** N/A
**Peds Cross:** ⧖

| Heavys | 17 |
|---|---|
| Trucks | 12 |
| Cars | 976 |
| Total | 1006 |

**Peds Cross:** ⋈
**South Peds:** N/A
**South Entering:** 5,044
**South leg Total:** 9,753

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: $\frac{\text{(West leg total + South leg total + East leg total + North leg total)}}{2}$ ***EDT =*** ***32,065***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** Northfield Dr & Parkside Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Rainy

**Person(s) who counted:** AT27-JK

**GeoID:** 692
**Count Date:** Tuesday, 04-Apr-17

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.85 |
| Mid-day Peak: | 0.73 |
| PM Peak: | 0.84 |

| | Movement | | |
|---|---|---|---|
| PM | 0.75 | 0.75 | 0.81 |
| MID | 0.50 | 0.69 | 0.55 |
| AM | 0.25 | 0.75 | 0.88 |

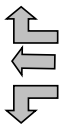
**East Approach PHF**

| | |
|---|---|
| AM Peak: | 0.91 |
| Mid-day Peak: | 0.91 |
| PM Peak: | 0.92 |

'kside Dr (com'l drivew

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour



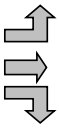


| AM | MID | PM | |
|---|---|---|---|
| 0.90 | 0.91 | 0.79 | |
| 0.89 | 0.88 | 0.91 | Movement |
| 0.95 | 0.92 | 0.91 | |

**Northfield Dr**




| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.38 | 0.00 | 0.25 |
| | 0.81 | 0.89 | 0.89 |
| | 0.92 | 0.77 | 0.59 |



**Northfield Dr**

**Parkside Dr**



| | | | | |
|---|---|---|---|---|
| 0.81 | 0.38 | 0.93 | AM | |
| 0.87 | 0.84 | 0.82 | MID | |
| 0.75 | 0.64 | 0.82 | PM | |
| Movement | | | | |

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.90 |
| Mid-day Peak: | 0.89 |
| PM Peak: | 0.81 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.94 |
| Mid-day Peak: | 0.84 |
| PM Peak: | 0.84 |

**Comments**

**Intersection:** Northfield Dr & Parkside Dr
**GeoID:** 692
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 04-Apr-17
**Name:** AT27-JK
**Weather:** Rainy

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 2 | < | 1 | 2 | < | LANES | 0 | 1 | 1 | 0 | LANES | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 0 | 240 | 6 | 43 | 88 | 8 | 2 | 0 | 64 | 20 | 0 | 0 | 471 | |
| 7:45 | to | 8:00 | 1 | 301 | 5 | 76 | 115 | 21 | 2 | 1 | 66 | 18 | 8 | 1 | 615 | |
| 8:00 | to | 8:15 | 0 | 262 | 3 | 69 | 107 | 22 | 4 | 0 | 79 | 14 | 5 | 0 | 565 | |
| 8:15 | to | 8:30 | 0 | 246 | 7 | 71 | 131 | 15 | 3 | 0 | 81 | 19 | 4 | 0 | 577 | 2,228 |
| 8:30 | to | 8:45 | 0 | 266 | 11 | 77 | 138 | 21 | 4 | 2 | 75 | 16 | 7 | 0 | 617 | 2,374 |
| 8:45 | to | 9:00 | 1 | 250 | 10 | 73 | 123 | 30 | 9 | 3 | 81 | 20 | 7 | 0 | 607 | 2,366 |
| 9:00 | to | 9:15 | 0 | 208 | 12 | 91 | 137 | 27 | 3 | 0 | 67 | 20 | 7 | 0 | 572 | 2,373 |
| 9:15 | to | 9:30 | 1 | 200 | 11 | 86 | 130 | 5 | 2 | 2 | 56 | 7 | 0 | 1 | 501 | 2,297 |
| 9:30 | to | 9:45 | 2 | 156 | 7 | 69 | 87 | 11 | 3 | 0 | 60 | 7 | 2 | 1 | 405 | 2,085 |
| 9:45 | to | 10:00 | 0 | 154 | 9 | 73 | 109 | 9 | 7 | 0 | 72 | 5 | 1 | 0 | 439 | 1,917 |
| 10:00 | to | 10:15 | 0 | 153 | 14 | 46 | 105 | 8 | 3 | 2 | 39 | 7 | 1 | 0 | 378 | 1,723 |
| 10:15 | to | 10:30 | 0 | 139 | 7 | 48 | 109 | 12 | 9 | 0 | 55 | 10 | 1 | 0 | 390 | 1,612 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **7:45** | **to** | **8:45** | **1** | **1,075** | **26** | **293** | **491** | **79** | **13** | **3** | **301** | **67** | **24** | **1** | **2,374** | |
| **# of trucks in peak** | | | 0 | 5 | 0 | 4 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 16 | |
| **# of heavies in peak** | | | 0 | 24 | 0 | 8 | 13 | 1 | 0 | 0 | 7 | 3 | 0 | 0 | 56 | |
| **% heavies (Total)** | | | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% | 3% | |
| 12:00 | to | 12:15 | 0 | 167 | 9 | 69 | 180 | 16 | 13 | 6 | 104 | 8 | 8 | 1 | 581 | |
| 12:15 | to | 12:30 | 0 | 148 | 8 | 74 | 161 | 11 | 10 | 8 | 97 | 8 | 7 | 0 | 532 | |
| 12:30 | to | 12:45 | 0 | 146 | 13 | 57 | 162 | 16 | 12 | 6 | 77 | 9 | 5 | 0 | 503 | |
| 12:45 | to | 13:00 | 0 | 181 | 10 | 73 | 130 | 15 | 10 | 7 | 62 | 21 | 2 | 1 | 512 | 2,128 |
| 13:00 | to | 13:15 | 1 | 165 | 7 | 74 | 127 | 11 | 15 | 1 | 57 | 5 | 4 | 1 | 468 | 2,015 |
| 13:15 | to | 13:30 | 0 | 148 | 18 | 67 | 146 | 17 | 9 | 3 | 51 | 10 | 8 | 0 | 477 | 1,960 |
| 13:30 | to | 13:45 | 0 | 152 | 4 | 57 | 106 | 8 | 7 | 3 | 77 | 13 | 4 | 0 | 431 | 1,888 |
| 13:45 | to | 14:00 | 0 | 138 | 6 | 47 | 132 | 11 | 5 | 3 | 66 | 7 | 4 | 0 | 419 | 1,795 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:00** | **to** | **13:00** | **0** | **642** | **40** | **273** | **633** | **58** | **45** | **27** | **340** | **46** | **22** | **2** | **2,128** | |
| **# of trucks in peak** | | | 0 | 4 | 0 | 4 | 12 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 27 | |
| **# of heavies in peak** | | | 0 | 14 | 0 | 11 | 10 | 0 | 0 | 1 | 14 | 0 | 2 | 0 | 52 | |
| **% heavies (Total)** | | | 0% | 3% | 0% | 5% | 3% | 2% | 0% | 4% | 6% | 0% | 9% | 0% | 4% | |
| 15:00 | to | 15:15 | 1 | 194 | 14 | 57 | 203 | 7 | 10 | 5 | 94 | 11 | 7 | 0 | 603 | |
| 15:15 | to | 15:30 | 0 | 179 | 13 | 55 | 200 | 9 | 5 | 3 | 61 | 8 | 3 | 1 | 537 | |
| 15:30 | to | 15:45 | 0 | 191 | 7 | 83 | 268 | 17 | 7 | 1 | 91 | 9 | 3 | 0 | 677 | |
| 15:45 | to | 16:00 | 0 | 181 | 10 | 77 | 184 | 10 | 6 | 3 | 78 | 10 | 3 | 0 | 562 | 2,379 |
| 16:00 | to | 16:15 | 0 | 165 | 6 | 64 | 263 | 24 | 6 | 3 | 106 | 20 | 3 | 1 | 661 | 2,437 |
| 16:15 | to | 16:30 | 0 | 200 | 9 | 79 | 265 | 14 | 7 | 2 | 99 | 12 | 5 | 0 | 692 | 2,592 |
| 16:30 | to | 16:45 | 2 | 203 | 7 | 83 | 308 | 21 | 12 | 5 | 120 | 12 | 5 | 3 | 781 | 2,696 |
| 16:45 | to | 17:00 | 1 | 166 | 9 | 97 | 315 | 14 | 16 | 2 | 97 | 16 | 4 | 3 | 740 | 2,874 |
| 17:00 | to | 17:15 | 0 | 245 | 9 | 88 | 376 | 23 | 9 | 7 | 142 | 12 | 5 | 4 | 920 | 3,133 |
| 17:15 | to | 17:30 | 0 | 178 | 8 | 102 | 365 | 27 | 11 | 4 | 107 | 18 | 7 | 2 | 829 | 3,270 |
| 17:30 | to | 17:45 | 0 | 170 | 8 | 65 | 309 | 8 | 8 | 5 | 107 | 10 | 6 | 2 | 698 | 3,187 |
| 17:45 | to | 18:00 | 1 | 163 | 13 | 88 | 283 | 10 | 10 | 2 | 83 | 13 | 2 | 0 | 668 | 3,115 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **16:30** | **to** | **17:30** | **3** | **792** | **33** | **370** | **1,364** | **85** | **48** | **18** | **466** | **58** | **21** | **12** | **3,270** | |
| **# of trucks in peak** | | | 0 | 3 | 1 | 0 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 10 | |
| **# of heavies in peak** | | | 0 | 12 | 0 | 9 | 5 | 2 | 0 | 0 | 8 | 1 | 0 | 0 | 37 | |
| **% heavies (Total)** | | | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% | 1% | |

**Intersection:** Northfield Dr & Parkside Dr
**GeoID:** 692
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 04-Apr-17
**Name:** AT27-JK
**Weather:** Rainy

**PEDESTRIAN CROSSING**

| Time | | | Crossing Approach | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 1 | 1 | 1 | 0 | 3 | |
| 7:45 | to | 8:00 | 1 | 0 | 0 | 0 | 1 | |
| 8:00 | to | 8:15 | 3 | 2 | 1 | 2 | 8 | |
| 8:15 | to | 8:30 | 3 | 0 | 2 | 0 | 5 | 17 |
| 8:30 | to | 8:45 | 15 | 0 | 0 | 0 | 15 | 29 |
| 8:45 | to | 9:00 | 3 | 0 | 1 | 2 | 6 | 34 |
| 9:00 | to | 9:15 | 5 | 0 | 0 | 0 | 5 | 31 |
| 9:15 | to | 9:30 | 3 | 3 | 1 | 3 | 10 | 36 |
| 9:30 | to | 9:45 | 1 | 1 | 1 | 3 | 6 | 27 |
| 9:45 | to | 10:00 | 2 | 2 | 1 | 2 | 7 | 28 |
| 10:00 | to | 10:15 | 3 | 1 | 0 | 1 | 5 | 28 |
| 10:15 | to | 10:30 | 1 | 0 | 0 | 1 | 2 | 20 |
| **AM Peak Hour** | | | | | | | | |
| **7:45** | **to** | **8:45** | **22** | **2** | **3** | **2** | **29** | |
| 12:00 | to | 12:15 | 2 | 0 | 1 | 0 | 3 | |
| 12:15 | to | 12:30 | 1 | 0 | 0 | 0 | 1 | |
| 12:30 | to | 12:45 | 2 | 1 | 2 | 0 | 5 | |
| 12:45 | to | 13:00 | 0 | 1 | 1 | 0 | 2 | 11 |
| 13:00 | to | 13:15 | 0 | 0 | 0 | 1 | 1 | 9 |
| 13:15 | to | 13:30 | 0 | 0 | 1 | 1 | 2 | 10 |
| 13:30 | to | 13:45 | 0 | 0 | 0 | 4 | 4 | 9 |
| 13:45 | to | 14:00 | 2 | 0 | 2 | 0 | 4 | 11 |
| **Midday Peak Hour** | | | | | | | | |
| **12:00** | **to** | **13:00** | 5 | 2 | 4 | 0 | **11** | |
| 15:00 | to | 15:15 | 2 | 1 | 0 | 1 | 4 | |
| 15:15 | to | 15:30 | 0 | 0 | 0 | 0 | 0 | |
| 15:30 | to | 15:45 | 7 | 9 | 9 | 2 | 27 | |
| 15:45 | to | 16:00 | 1 | 5 | 1 | 7 | 14 | 45 |
| 16:00 | to | 16:15 | 1 | 0 | 0 | 3 | 4 | 45 |
| 16:15 | to | 16:30 | 0 | 2 | 0 | 1 | 3 | 48 |
| 16:30 | to | 16:45 | 3 | 9 | 3 | 1 | 16 | 37 |
| 16:45 | to | 17:00 | 2 | 6 | 0 | 1 | 9 | 32 |
| 17:00 | to | 17:15 | 5 | 8 | 6 | 3 | 22 | 50 |
| 17:15 | to | 17:30 | 4 | 5 | 1 | 1 | 11 | 58 |
| 17:30 | to | 17:45 | 2 | 7 | 6 | 2 | 17 | 59 |
| 17:45 | to | 18:00 | 3 | 3 | 1 | 2 | 9 | 59 |
| **PM Peak Hour** | | | | | | | | |
| **16:30** | **to** | **17:30** | 14 | 28 | 10 | 6 | **58** | |

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Morning Peak Diagram

**Count Period**
**From:** 7:30 AM
**To:** 10:30 AM

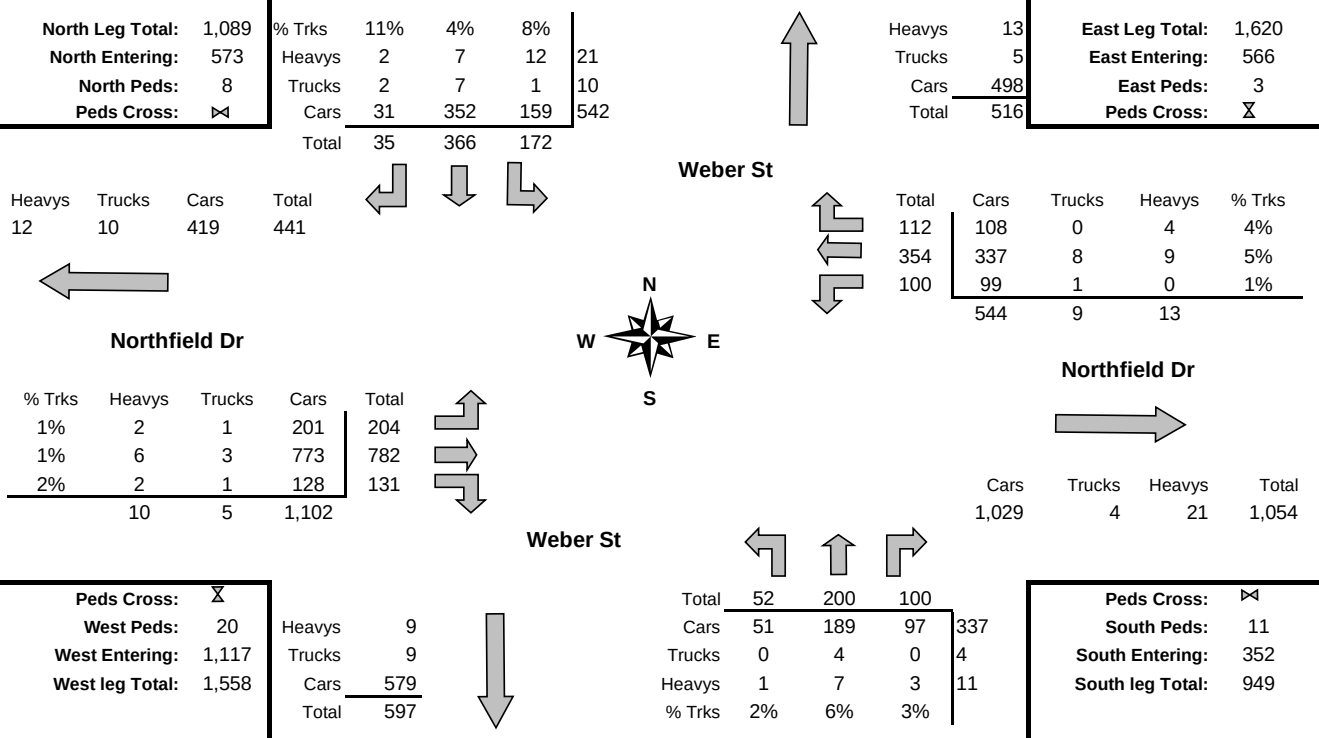
**Peak Hour**
**From:** 8:00 AM
**To:** 9:00 AM

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18




### Comments

To determine total vehicles entering the intersection during morning peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,608**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **1,117**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Mid-day Peak Diagram

**Count Period**
**From:** 12:00 PM
**To:** 2:00 PM

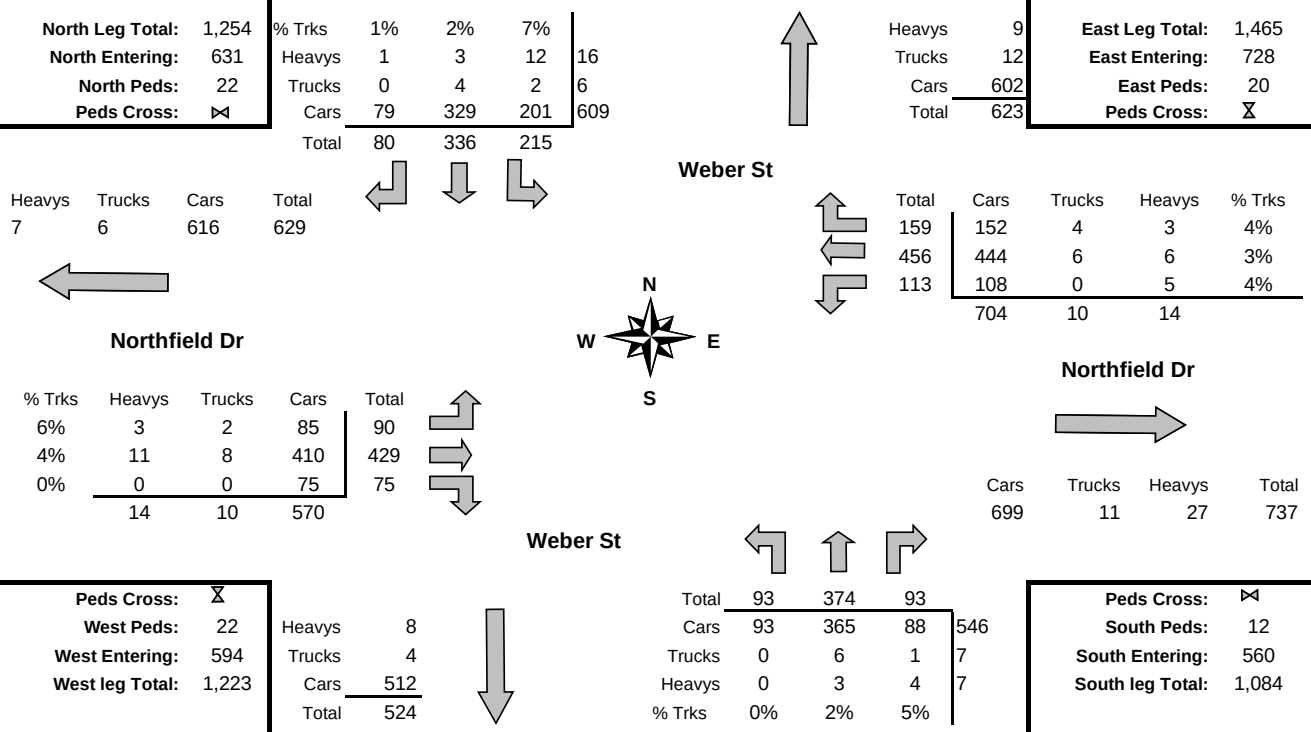
**Peak Hour**
**From:** 12:00 PM
**To:** 1:00 PM

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18




### Comments

To determine total vehicles entering the intersection during mid-day peak hour, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **2,513**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **594**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Afternoon Peak Diagram

**Count Period**
**From:** 3:00 PM
**To:** 6:00 PM

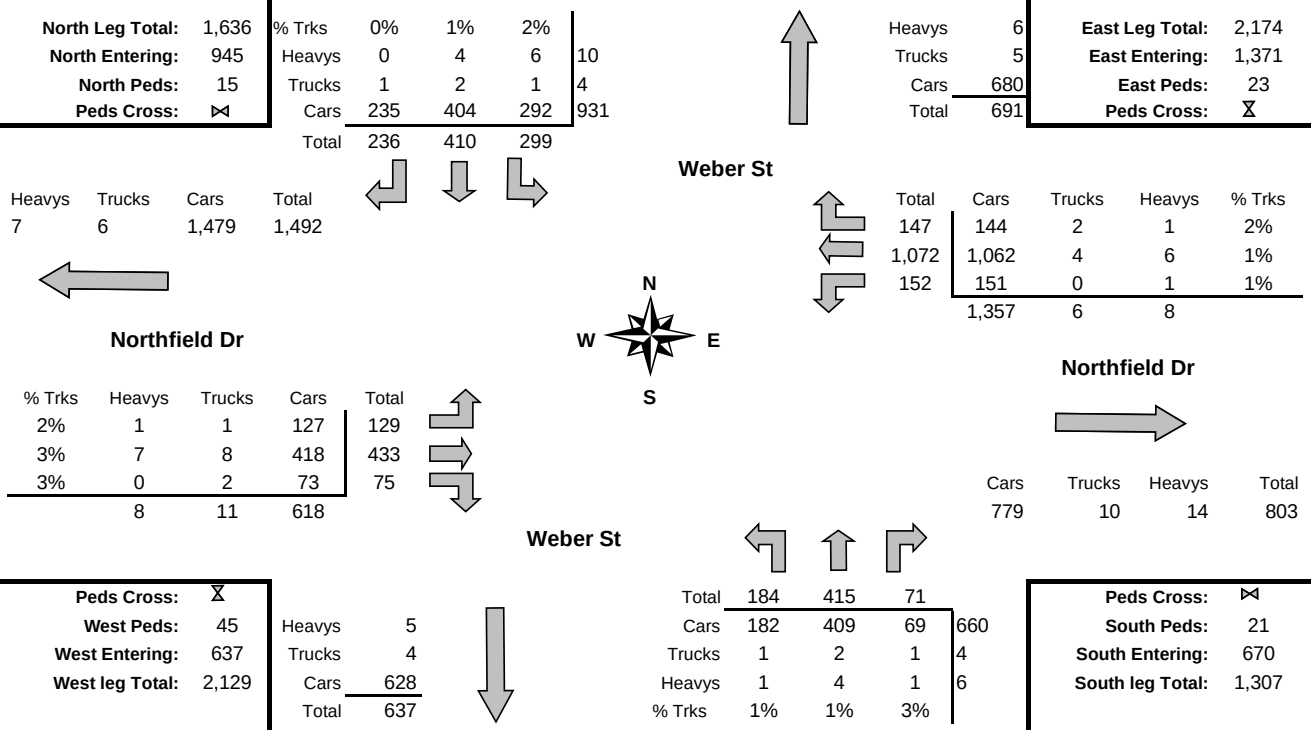
**Peak Hour**
**From:** 4:45 PM
**To:** 5:45 PM

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18




### Comments

To determine total vehicles entering the intersection during afternoon peak hour, add all leg totals entering.

Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering

Example 1: Therefore, total vehicles entering intersection = **3,623**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn

Therefore, vehicles entering from the west = **637**

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

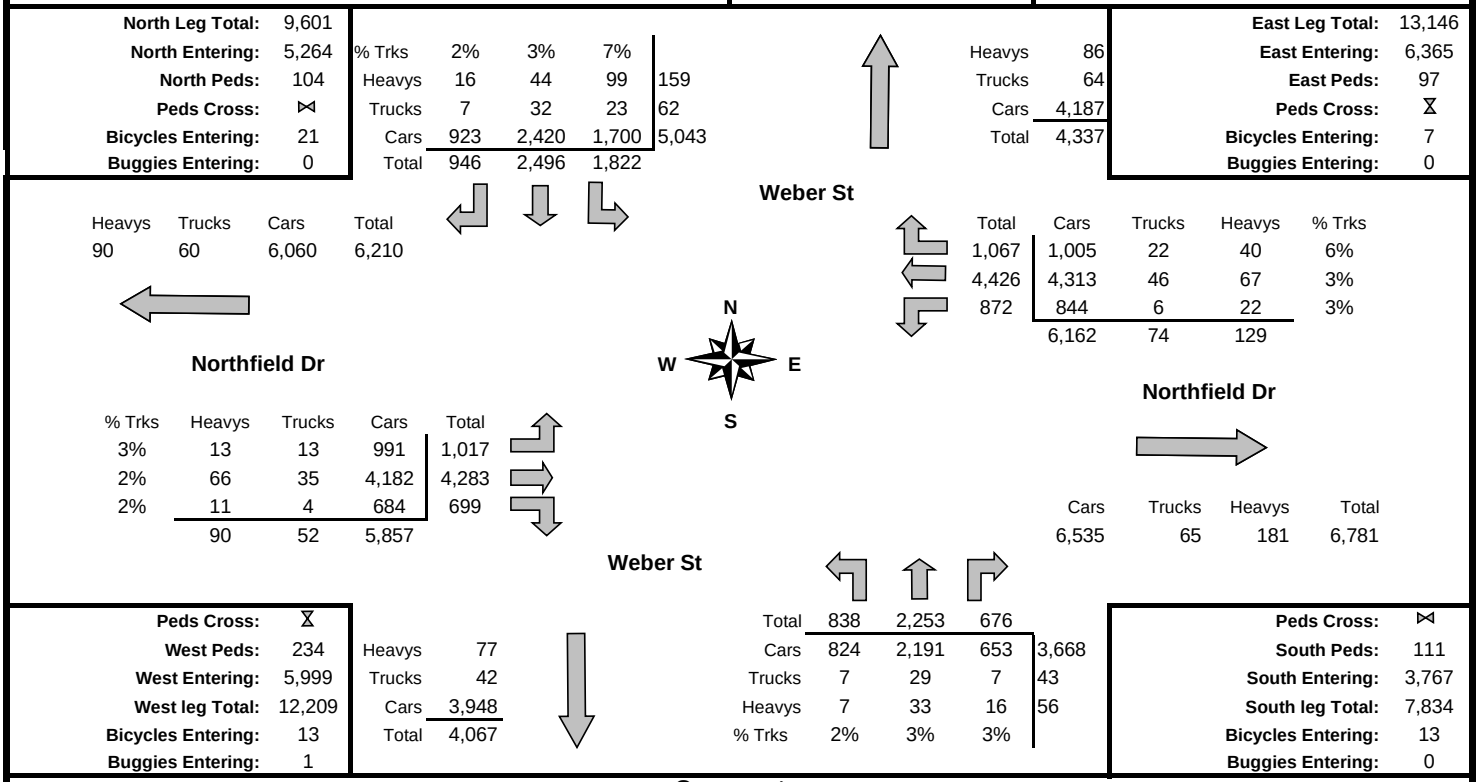
## Total Count Diagram

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18




### Comments

To determine total vehicles entering the intersection, add all leg totals entering.

Example 1: Total Entering = West leg total entering + South leg total entering + East leg total entering + North leg total entering
Therefore, total vehicles entering intersection = **21,395**

Example 2: Total vehicles entering from the west = eastbound left turn + eastbound through + eastbound right turn
Therefore, vehicles entering from the west = **5,999**

Notes: None

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Estimated Daily Traffic

Total Factor = Monthly Factor 1 x Daily Factor 1 x 24 Hour Factor 1.74 = 1.740000

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18

### North Leg

| | |
|---|---|
| **North Leg Total:** | 16,706 |
| **North Entering:** | 9,159 |
| **North Peds:** | N/A |
| **Peds Cross:** | ⋈ |

| | | | | |
|---|---|---|---|---|
| % Trks | 2% | 3% | 7% | |
| Heavys | 28 | 77 | 172 | 277 |
| Trucks | 12 | 56 | 40 | 108 |
| Cars | 1,606 | 4,211 | 2,958 | 8,775 |
| Total | 1,646 | 4,343 | 3,170 | |

### East Leg

| | |
|---|---|
| Heavys | 150 |
| Trucks | 111 |
| Cars | 7,285 |
| Total | 7546 |

| | |
|---|---|
| **East Leg Total:** | 22,874 |
| **East Entering:** | 11,075 |
| **East Peds:** | N/A |
| **Peds Cross:** | ⋈ |

### Weber St

| Heavys | Trucks | Cars | Total |
|---|---|---|---|
| 157 | 104 | 10,544 | 10,805 |

| Total | Cars | Trucks | Heavys | % Trks |
|---|---|---|---|---|
| 1,857 | 1,749 | 38 | 70 | 6% |
| 7,701 | 7,505 | 80 | 117 | 3% |
| 1,517 | 1,469 | 10 | 38 | 3% |
| | 10,722 | 129 | 224 | |

### Northfield Dr

| % Trks | Heavys | Trucks | Cars | Total |
|---|---|---|---|---|
| 3% | 23 | 23 | 1,724 | 1,770 |
| 2% | 115 | 61 | 7,277 | 7,452 |
| 2% | 19 | 7 | 1,190 | 1,216 |
| | 157 | 90 | 10,191 | |

### Northfield Dr

| Cars | Trucks | Heavys | Total |
|---|---|---|---|
| 11,371 | 113 | 315 | 11,799 |

### Weber St

| | | | | |
|---|---|---|---|---|
| Total | 1,458 | 3,920 | 1,176 | |
| Cars | 1,434 | 3,812 | 1,136 | 6,382 |
| Trucks | 12 | 50 | 12 | 75 |
| Heavys | 12 | 57 | 28 | 97 |
| % Trks | 2% | 3% | 3% | |

### South Leg

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **South Peds:** | N/A |
| **South Entering:** | 6,555 |
| **South leg Total:** | 13,631 |

### West Leg

| | |
|---|---|
| **Peds Cross:** | ⋈ |
| **West Peds:** | N/A |
| **West Entering:** | 10,438 |
| **West leg Total:** | 21,244 |

| | |
|---|---|
| Heavys | 134 |
| Trucks | 73 |
| Cars | 6,870 |
| Total | 7,077 |

### Comments

To determine the EDT (Estimated Daily Traffic), add all four leg totals and divide by two.
This will give you the approximate number of vehicles entering and exiting the intersection in a 24-hour period

Example: (West leg total + South leg total + East leg total + North leg total) / 2 ***EDT =*** ***37,227***

# REGIONAL MUNICIPALITY OF WATERLOO
# TURNING MOVEMENT COUNT

Region of Waterloo

## Peak Hour Factor By Movement

**Municipality:** Waterloo
**Intersection:** Weber St & Northfield Dr
**Control:** Signalized
**Major Road:** Northfield Dr

**Weather conditions:** Cloudy

**Person(s) who counted:** AT02-NS

**GeoID:** 8117
**Count Date:** Tuesday, 22-May-18

**North Approach PHF**

| | |
|---|---|
| AM Peak: | 0.88 |
| Mid-day Peak: | 0.93 |
| PM Peak: | 0.92 |

**East Approach PHF**

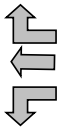
| | |
|---|---|
| AM Peak: | 0.87 |
| Mid-day Peak: | 0.91 |
| PM Peak: | 0.96 |

| | Movement | | |
|---|---|---|---|
| PM | 0.80 | 0.97 | 0.89 |
| MID | 0.87 | 0.88 | 0.93 |
| AM | 0.80 | 0.92 | 0.78 |

**Weber St**

AM AM Peak Hour
MID Mid-day Peak Hour
PM PM Peak Hour





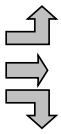
| AM | MID | PM | |
|---|---|---|---|
| 0.90 | 0.69 | 0.88 | |
| 0.88 | 0.95 | 0.94 | Movement |
| 0.78 | 0.76 | 0.95 | |

**Northfield Dr**




**Northfield Dr**

| Movement | PM | MID | AM |
|---|---|---|---|
| | 0.83 | 0.83 | 0.74 |
| | 0.89 | 0.82 | 0.93 |
| | 0.85 | 0.85 | 0.91 |



**Weber St**



| | | | | |
|---|---|---|---|---|
| 0.81 | 0.89 | 0.74 | AM | |
| 0.66 | 0.81 | 0.83 | MID | |
| 0.77 | 0.82 | 0.71 | PM | |
| Movement | | | | |

**West Approach PHF**

| | |
|---|---|
| AM Peak: | 0.92 |
| Mid-day Peak: | 0.84 |
| PM Peak: | 0.90 |

**South Approach PHF**

| | |
|---|---|
| AM Peak: | 0.86 |
| Mid-day Peak: | 0.81 |
| PM Peak: | 0.85 |

**Comments**

**Intersection:** Weber St & Northfield Dr
**GeoID:** 8117
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 22-May-18
**Name:** AT02-NS
**Weather:** Cloudy

| | | | EASTBOUND | | | WESTBOUND | | | NORTHBOUND | | | SOUTHBOUND | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Approach Control* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | *Signalized* | | | | |
| *Movement* | | | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | LT | THRU | RT | | |
| *Approach Lanes* | | | 1 | 2 | < | 1 | 2 | 1 | 1 | 2 | < | 2 | 2 | < | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 28 | 177 | 14 | 5 | 54 | 28 | 5 | 34 | 26 | 66 | 71 | 26 | 534 | |
| 7:45 | to | 8:00 | 43 | 239 | 26 | 16 | 64 | 24 | 13 | 33 | 25 | 48 | 96 | 18 | 645 | |
| 8:00 | to | 8:15 | 39 | 165 | 33 | 21 | 79 | 23 | 16 | 47 | 26 | 34 | 83 | 7 | 573 | |
| 8:15 | to | 8:30 | 44 | 206 | 32 | 18 | 101 | 27 | 14 | 46 | 18 | 55 | 98 | 9 | 668 | 2,420 |
| 8:30 | to | 8:45 | 69 | 200 | 36 | 29 | 75 | 31 | 12 | 56 | 34 | 37 | 100 | 8 | 687 | 2,573 |
| 8:45 | to | 9:00 | 52 | 211 | 30 | 32 | 99 | 31 | 10 | 51 | 22 | 46 | 85 | 11 | 680 | 2,608 |
| 9:00 | to | 9:15 | 54 | 175 | 19 | 22 | 72 | 23 | 15 | 57 | 17 | 41 | 57 | 19 | 571 | 2,606 |
| 9:15 | to | 9:30 | 29 | 165 | 25 | 24 | 56 | 45 | 12 | 56 | 18 | 39 | 69 | 14 | 552 | 2,490 |
| 9:30 | to | 9:45 | 40 | 154 | 23 | 16 | 87 | 31 | 17 | 45 | 22 | 53 | 66 | 12 | 566 | 2,369 |
| 9:45 | to | 10:00 | 21 | 160 | 26 | 15 | 76 | 40 | 17 | 57 | 10 | 38 | 43 | 14 | 517 | 2,206 |
| 10:00 | to | 10:15 | 20 | 119 | 19 | 25 | 79 | 20 | 20 | 41 | 18 | 37 | 45 | 15 | 458 | 2,093 |
| 10:15 | to | 10:30 | 22 | 113 | 25 | 18 | 76 | 24 | 23 | 45 | 21 | 50 | 50 | 17 | 484 | 2,025 |
| **AM Peak Hour** | | | | | | | | | | | | | | | | |
| **8:00** | **to** | **9:00** | **204** | **782** | **131** | **100** | **354** | **112** | **52** | **200** | **100** | **172** | **366** | **35** | **2,608** | |
| **# of trucks in peak** | | | 1 | 3 | 1 | 1 | 8 | 0 | 0 | 4 | 0 | 1 | 7 | 2 | 28 | |
| **# of heavies in peak** | | | 2 | 6 | 2 | 0 | 9 | 4 | 1 | 7 | 3 | 12 | 7 | 2 | 55 | |
| **% heavies (Total)** | | | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% | 3% | |
| 12:00 | to | 12:15 | 27 | 97 | 22 | 22 | 119 | 38 | 35 | 116 | 22 | 56 | 78 | 23 | 655 | |
| 12:15 | to | 12:30 | 23 | 99 | 14 | 21 | 120 | 34 | 23 | 96 | 24 | 52 | 95 | 22 | 623 | |
| 12:30 | to | 12:45 | 16 | 102 | 17 | 33 | 108 | 58 | 16 | 83 | 19 | 58 | 73 | 20 | 603 | |
| 12:45 | to | 13:00 | 24 | 131 | 22 | 37 | 109 | 29 | 19 | 79 | 28 | 49 | 90 | 15 | 632 | 2,513 |
| 13:00 | to | 13:15 | 30 | 111 | 24 | 26 | 94 | 30 | 41 | 71 | 20 | 58 | 72 | 16 | 593 | 2,451 |
| 13:15 | to | 13:30 | 16 | 93 | 25 | 27 | 122 | 34 | 24 | 78 | 24 | 36 | 61 | 18 | 558 | 2,386 |
| 13:30 | to | 13:45 | 24 | 93 | 13 | 19 | 102 | 34 | 16 | 68 | 19 | 44 | 66 | 16 | 514 | 2,297 |
| 13:45 | to | 14:00 | 21 | 106 | 17 | 26 | 119 | 29 | 22 | 71 | 18 | 34 | 66 | 34 | 563 | 2,228 |
| **Midday Peak Hour** | | | | | | | | | | | | | | | | |
| **12:00** | **to** | **13:00** | **90** | **429** | **75** | **113** | **456** | **159** | **93** | **374** | **93** | **215** | **336** | **80** | **2,513** | |
| **# of trucks in peak** | | | 2 | 8 | 0 | 0 | 6 | 4 | 0 | 6 | 1 | 2 | 4 | 0 | 33 | |
| **# of heavies in peak** | | | 3 | 11 | 0 | 5 | 6 | 3 | 0 | 3 | 4 | 12 | 3 | 1 | 51 | |
| **% heavies (Total)** | | | 6% | 4% | 0% | 4% | 3% | 4% | 0% | 2% | 5% | 7% | 2% | 1% | 3% | |
| 15:00 | to | 15:15 | 47 | 115 | 18 | 23 | 167 | 35 | 22 | 42 | 14 | 73 | 79 | 51 | 686 | |
| 15:15 | to | 15:30 | 32 | 126 | 17 | 42 | 151 | 41 | 44 | 77 | 34 | 78 | 72 | 28 | 742 | |
| 15:30 | to | 15:45 | 30 | 94 | 28 | 32 | 192 | 34 | 32 | 68 | 20 | 78 | 77 | 55 | 740 | |
| 15:45 | to | 16:00 | 26 | 116 | 14 | 25 | 162 | 33 | 28 | 92 | 28 | 50 | 77 | 47 | 698 | 2,866 |
| 16:00 | to | 16:15 | 30 | 109 | 18 | 46 | 227 | 34 | 38 | 72 | 22 | 85 | 77 | 36 | 794 | 2,974 |
| 16:15 | to | 16:30 | 32 | 118 | 19 | 31 | 196 | 39 | 43 | 87 | 21 | 59 | 89 | 54 | 788 | 3,020 |
| 16:30 | to | 16:45 | 19 | 112 | 20 | 32 | 253 | 32 | 36 | 92 | 17 | 115 | 83 | 57 | 868 | 3,148 |
| 16:45 | to | 17:00 | 22 | 105 | 20 | 38 | 257 | 33 | 32 | 98 | 25 | 79 | 105 | 52 | 866 | 3,316 |
| 17:00 | to | 17:15 | 30 | 105 | 22 | 40 | 263 | 42 | 43 | 103 | 11 | 84 | 94 | 68 | 905 | 3,427 |
| 17:15 | to | 17:30 | 38 | 121 | 18 | 37 | 267 | 36 | 49 | 127 | 20 | 76 | 106 | 74 | 969 | 3,608 |
| 17:30 | to | 17:45 | 39 | 102 | 15 | 37 | 285 | 36 | 60 | 87 | 15 | 60 | 105 | 42 | 883 | 3,623 |
| 17:45 | to | 18:00 | 30 | 144 | 28 | 37 | 195 | 39 | 41 | 78 | 18 | 54 | 68 | 48 | 780 | 3,537 |
| **PM Peak Hour** | | | | | | | | | | | | | | | | |
| **16:45** | **to** | **17:45** | **129** | **433** | **75** | **152** | **1,072** | **147** | **184** | **415** | **71** | **299** | **410** | **236** | **3,623** | |
| **# of trucks in peak** | | | 1 | 8 | 2 | 0 | 4 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 25 | |
| **# of heavies in peak** | | | 1 | 7 | 0 | 1 | 6 | 1 | 1 | 4 | 1 | 6 | 4 | 0 | 32 | |
| **% heavies (Total)** | | | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% | 2% | |

**Intersection:** Weber St & Northfield Dr
**GeoID:** 8117
**Municipality:** Waterloo
**Major Road:** Northfield Dr

**Intersection Control:** Signalized
**Date:** Tuesday, 22-May-18
**Name:** AT02-NS
**Weather:** Cloudy

| PEDESTRIAN CROSSING | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Time | | | Crossing Approach | | | | | |
| | | | East App. | West App. | North App. | South App. | TOTAL | TOTAL HOUR |
| 7:30 | to | 7:45 | 5 | 7 | 3 | 5 | 20 | |
| 7:45 | to | 8:00 | 1 | 11 | 3 | 2 | 17 | |
| 8:00 | to | 8:15 | 1 | 3 | 4 | 0 | 8 | |
| 8:15 | to | 8:30 | 0 | 7 | 2 | 6 | 15 | 60 |
| 8:30 | to | 8:45 | 1 | 4 | 1 | 1 | 7 | 47 |
| 8:45 | to | 9:00 | 1 | 6 | 1 | 4 | 12 | 42 |
| 9:00 | to | 9:15 | 2 | 4 | 3 | 1 | 10 | 44 |
| 9:15 | to | 9:30 | 0 | 4 | 2 | 3 | 9 | 38 |
| 9:30 | to | 9:45 | 6 | 5 | 1 | 1 | 13 | 44 |
| 9:45 | to | 10:00 | 0 | 10 | 4 | 2 | 16 | 48 |
| 10:00 | to | 10:15 | 4 | 10 | 5 | 5 | 24 | 62 |
| 10:15 | to | 10:30 | 1 | 0 | 0 | 2 | 3 | 56 |
| **AM Peak Hour** | | | | | | | **154** | |
| **8:00** | **to** | **9:00** | **3** | **20** | **8** | **11** | **42** | |
| 12:00 | to | 12:15 | 5 | 5 | 2 | 3 | 15 | |
| 12:15 | to | 12:30 | 6 | 10 | 5 | 3 | 24 | |
| 12:30 | to | 12:45 | 8 | 5 | 12 | 3 | 28 | |
| 12:45 | to | 13:00 | 1 | 2 | 3 | 3 | 9 | 76 |
| 13:00 | to | 13:15 | 0 | 7 | 3 | 1 | 11 | 72 |
| 13:15 | to | 13:30 | 2 | 4 | 2 | 3 | 11 | 59 |
| 13:30 | to | 13:45 | 3 | 11 | 6 | 5 | 25 | 56 |
| 13:45 | to | 14:00 | 5 | 3 | 6 | 5 | 19 | 66 |
| **Midday Peak Hour** | | | | | | | **142** | |
| **12:00** | **to** | **13:00** | 20 | 22 | 22 | 12 | **76** | |
| 15:00 | to | 15:15 | 1 | 15 | 5 | 4 | 25 | |
| 15:15 | to | 15:30 | 2 | 4 | 1 | 3 | 10 | |
| 15:30 | to | 15:45 | 2 | 10 | 1 | 4 | 17 | |
| 15:45 | to | 16:00 | 3 | 6 | 2 | 4 | 15 | 67 |
| 16:00 | to | 16:15 | 4 | 14 | 3 | 4 | 25 | 67 |
| 16:15 | to | 16:30 | 4 | 13 | 4 | 3 | 24 | 81 |
| 16:30 | to | 16:45 | 3 | 5 | 2 | 6 | 16 | 80 |
| 16:45 | to | 17:00 | 5 | 9 | 0 | 5 | 19 | 84 |
| 17:00 | to | 17:15 | 3 | 12 | 3 | 7 | 25 | 84 |
| 17:15 | to | 17:30 | 9 | 13 | 9 | 5 | 36 | 96 |
| 17:30 | to | 17:45 | 6 | 11 | 3 | 4 | 24 | 104 |
| 17:45 | to | 18:00 | 3 | 4 | 3 | 4 | 14 | 99 |
| **PM Peak Hour** | | | | | | | **250** | |
| **16:45** | **to** | **17:45** | 23 | 45 | 15 | 21 | **104** | |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020


# Turning Movement Data

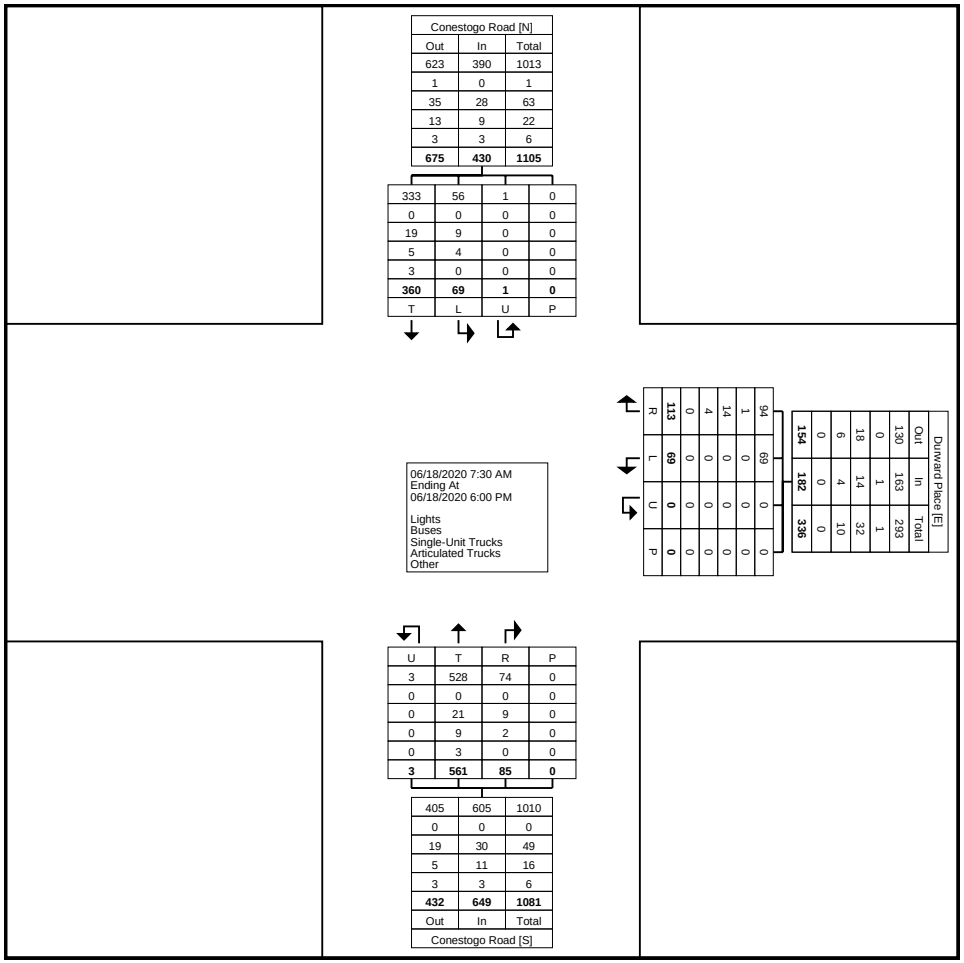
| Start Time | Durward Place Westbound | | | | | Conestogo Road Northbound | | | | | Conestogo Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 7:30 AM | 0 | 2 | 0 | 0 | 2 | 15 | 6 | 0 | 0 | 21 | 3 | 11 | 0 | 0 | 14 | 37 |
| 7:45 AM | 0 | 1 | 0 | 0 | 1 | 14 | 4 | 0 | 0 | 18 | 4 | 12 | 0 | 0 | 16 | 35 |
| Hourly Total | 0 | 3 | 0 | 0 | 3 | 29 | 10 | 0 | 0 | 39 | 7 | 23 | 0 | 0 | 30 | 72 |
| 8:00 AM | 0 | 2 | 0 | 0 | 2 | 9 | 5 | 0 | 0 | 14 | 3 | 13 | 0 | 0 | 16 | 32 |
| 8:15 AM | 1 | 2 | 0 | 0 | 3 | 9 | 5 | 0 | 0 | 14 | 2 | 4 | 0 | 0 | 6 | 23 |
| 8:30 AM | 0 | 2 | 0 | 0 | 2 | 15 | 2 | 0 | 0 | 17 | 0 | 12 | 0 | 0 | 12 | 31 |
| 8:45 AM | 4 | 2 | 0 | 0 | 6 | 15 | 3 | 0 | 0 | 18 | 4 | 10 | 0 | 0 | 14 | 38 |
| Hourly Total | 5 | 8 | 0 | 0 | 13 | 48 | 15 | 0 | 0 | 63 | 9 | 39 | 0 | 0 | 48 | 124 |
| 9:00 AM | 0 | 2 | 0 | 0 | 2 | 17 | 1 | 0 | 0 | 18 | 3 | 12 | 0 | 0 | 15 | 35 |
| 9:15 AM | 1 | 3 | 0 | 0 | 4 | 16 | 1 | 0 | 0 | 17 | 0 | 14 | 0 | 0 | 14 | 35 |
| 9:30 AM | 1 | 2 | 0 | 0 | 3 | 21 | 0 | 0 | 0 | 21 | 3 | 7 | 0 | 0 | 10 | 34 |
| 9:45 AM | 1 | 2 | 0 | 0 | 3 | 12 | 4 | 1 | 0 | 17 | 2 | 8 | 0 | 0 | 10 | 30 |
| Hourly Total | 3 | 9 | 0 | 0 | 12 | 66 | 6 | 1 | 0 | 73 | 8 | 41 | 0 | 0 | 49 | 134 |
| 10:00 AM | 2 | 3 | 0 | 0 | 5 | 17 | 2 | 0 | 0 | 19 | 1 | 8 | 0 | 0 | 9 | 33 |
| 10:15 AM | 1 | 6 | 0 | 0 | 7 | 13 | 1 | 0 | 0 | 14 | 6 | 11 | 0 | 0 | 17 | 38 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 3 | 9 | 0 | 0 | 12 | 30 | 3 | 0 | 0 | 33 | 7 | 19 | 0 | 0 | 26 | 71 |
| 12:00 PM | 5 | 5 | 0 | 0 | 10 | 30 | 1 | 0 | 0 | 31 | 0 | 10 | 0 | 0 | 10 | 51 |
| 12:15 PM | 2 | 2 | 0 | 0 | 4 | 24 | 5 | 0 | 0 | 29 | 5 | 10 | 0 | 0 | 15 | 48 |
| 12:30 PM | 2 | 4 | 0 | 0 | 6 | 27 | 3 | 0 | 0 | 30 | 4 | 11 | 0 | 0 | 15 | 51 |
| 12:45 PM | 0 | 2 | 0 | 0 | 2 | 17 | 1 | 0 | 0 | 18 | 2 | 12 | 0 | 0 | 14 | 34 |
| Hourly Total | 9 | 13 | 0 | 0 | 22 | 98 | 10 | 0 | 0 | 108 | 11 | 43 | 0 | 0 | 54 | 184 |
| 1:00 PM | 1 | 3 | 0 | 0 | 4 | 13 | 3 | 0 | 0 | 16 | 1 | 22 | 1 | 0 | 24 | 44 |
| 1:15 PM | 4 | 1 | 0 | 0 | 5 | 10 | 3 | 0 | 0 | 13 | 2 | 12 | 0 | 0 | 14 | 32 |
| 1:30 PM | 1 | 4 | 0 | 0 | 5 | 15 | 3 | 0 | 0 | 18 | 4 | 11 | 0 | 0 | 15 | 38 |
| 1:45 PM | 1 | 1 | 0 | 0 | 2 | 8 | 5 | 0 | 0 | 13 | 2 | 7 | 0 | 0 | 9 | 24 |
| Hourly Total | 7 | 9 | 0 | 0 | 16 | 46 | 14 | 0 | 0 | 60 | 9 | 52 | 1 | 0 | 62 | 138 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3:00 PM | 2 | 4 | 0 | 0 | 6 | 19 | 4 | 0 | 0 | 23 | 2 | 9 | 0 | 0 | 11 | 40 |
| 3:15 PM | 4 | 2 | 0 | 0 | 6 | 15 | 5 | 0 | 0 | 20 | 5 | 13 | 0 | 0 | 18 | 44 |
| 3:30 PM | 13 | 12 | 0 | 0 | 25 | 21 | 4 | 0 | 0 | 25 | 0 | 15 | 0 | 0 | 15 | 65 |
| 3:45 PM | 2 | 7 | 0 | 0 | 9 | 26 | 4 | 0 | 0 | 30 | 4 | 15 | 0 | 0 | 19 | 58 |
| Hourly Total | 21 | 25 | 0 | 0 | 46 | 81 | 17 | 0 | 0 | 98 | 11 | 52 | 0 | 0 | 63 | 207 |
| 4:00 PM | 5 | 4 | 0 | 0 | 9 | 29 | 2 | 1 | 0 | 32 | 4 | 19 | 0 | 0 | 23 | 64 |
| 4:15 PM | 4 | 7 | 0 | 0 | 11 | 21 | 3 | 1 | 0 | 25 | 1 | 15 | 0 | 0 | 16 | 52 |
| 4:30 PM | 4 | 10 | 0 | 0 | 14 | 36 | 1 | 0 | 0 | 37 | 2 | 17 | 0 | 0 | 19 | 70 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:45 PM | 1 | 6 | 0 | 0 | 7 | 16 | 2 | 0 | 0 | 18 | 0 | 10 | 0 | 0 | 10 | 35 |
| Hourly Total | 14 | 27 | 0 | 0 | 41 | 102 | 8 | 2 | 0 | 112 | 7 | 61 | 0 | 0 | 68 | 221 |
| 5:00 PM | 2 | 4 | 0 | 0 | 6 | 19 | 0 | 0 | 0 | 19 | 0 | 14 | 0 | 0 | 14 | 39 |
| 5:15 PM | 2 | 3 | 0 | 0 | 5 | 15 | 1 | 0 | 0 | 16 | 0 | 9 | 0 | 0 | 9 | 30 |
| 5:30 PM | 1 | 3 | 0 | 0 | 4 | 13 | 1 | 0 | 0 | 14 | 0 | 4 | 0 | 0 | 4 | 22 |
| 5:45 PM | 2 | 0 | 0 | 0 | 2 | 14 | 0 | 0 | 0 | 14 | 0 | 3 | 0 | 0 | 3 | 19 |
| Hourly Total | 7 | 10 | 0 | 0 | 17 | 61 | 2 | 0 | 0 | 63 | 0 | 30 | 0 | 0 | 30 | 110 |
| Grand Total | 69 | 113 | 0 | 0 | 182 | 561 | 85 | 3 | 0 | 649 | 69 | 360 | 1 | 0 | 430 | 1261 |
| Approach % | 37.9 | 62.1 | 0.0 | - | - | 86.4 | 13.1 | 0.5 | - | - | 16.0 | 83.7 | 0.2 | - | - | - |
| Total % | 5.5 | 9.0 | 0.0 | - | 14.4 | 44.5 | 6.7 | 0.2 | - | 51.5 | 5.5 | 28.5 | 0.1 | - | 34.1 | - |
| Lights | 69 | 94 | 0 | - | 163 | 528 | 74 | 3 | - | 605 | 56 | 333 | 1 | - | 390 | 1158 |
| % Lights | 100.0 | 83.2 | - | - | 89.6 | 94.1 | 87.1 | 100.0 | - | 93.2 | 81.2 | 92.5 | 100.0 | - | 90.7 | 91.8 |
| Buses | 0 | 1 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Buses | 0.0 | 0.9 | - | - | 0.5 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.1 |
| Single-Unit Trucks | 0 | 14 | 0 | - | 14 | 21 | 9 | 0 | - | 30 | 9 | 19 | 0 | - | 28 | 72 |
| % Single-Unit Trucks | 0.0 | 12.4 | - | - | 7.7 | 3.7 | 10.6 | 0.0 | - | 4.6 | 13.0 | 5.3 | 0.0 | - | 6.5 | 5.7 |
| Articulated Trucks | 0 | 4 | 0 | - | 4 | 9 | 2 | 0 | - | 11 | 4 | 5 | 0 | - | 9 | 24 |
| % Articulated Trucks | 0.0 | 3.5 | - | - | 2.2 | 1.6 | 2.4 | 0.0 | - | 1.7 | 5.8 | 1.4 | 0.0 | - | 2.1 | 1.9 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 3 | 0 | 0 | - | 3 | 0 | 3 | 0 | - | 3 | 6 |
| % Bicycles on Road | 0.0 | 0.0 | - | - | 0.0 | 0.5 | 0.0 | 0.0 | - | 0.5 | 0.0 | 0.8 | 0.0 | - | 0.7 | 0.5 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020


Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020

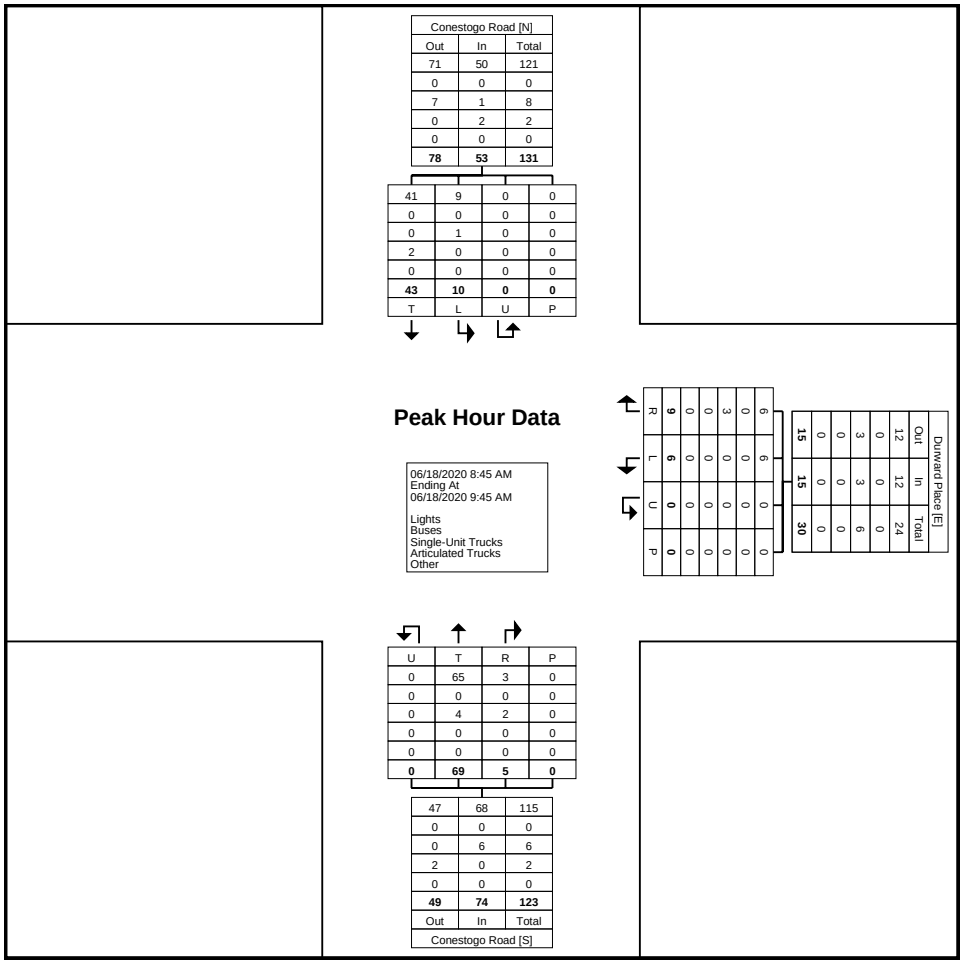

# Turning Movement Peak Hour Data (8:45 AM)

| Start Time | Durward Place Westbound | | | | | Conestogo Road Northbound | | | | | Conestogo Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 8:45 AM | 4 | 2 | 0 | 0 | 6 | 15 | 3 | 0 | 0 | 18 | 4 | 10 | 0 | 0 | 14 | 38 |
| 9:00 AM | 0 | 2 | 0 | 0 | 2 | 17 | 1 | 0 | 0 | 18 | 3 | 12 | 0 | 0 | 15 | 35 |
| 9:15 AM | 1 | 3 | 0 | 0 | 4 | 16 | 1 | 0 | 0 | 17 | 0 | 14 | 0 | 0 | 14 | 35 |
| 9:30 AM | 1 | 2 | 0 | 0 | 3 | 21 | 0 | 0 | 0 | 21 | 3 | 7 | 0 | 0 | 10 | 34 |
| Total | 6 | 9 | 0 | 0 | 15 | 69 | 5 | 0 | 0 | 74 | 10 | 43 | 0 | 0 | 53 | 142 |
| Approach % | 40.0 | 60.0 | 0.0 | - | - | 93.2 | 6.8 | 0.0 | - | - | 18.9 | 81.1 | 0.0 | - | - | - |
| Total % | 4.2 | 6.3 | 0.0 | - | 10.6 | 48.6 | 3.5 | 0.0 | - | 52.1 | 7.0 | 30.3 | 0.0 | - | 37.3 | - |
| PHF | 0.375 | 0.750 | 0.000 | - | 0.625 | 0.821 | 0.417 | 0.000 | - | 0.881 | 0.625 | 0.768 | 0.000 | - | 0.883 | 0.934 |
| Lights | 6 | 6 | 0 | - | 12 | 65 | 3 | 0 | - | 68 | 9 | 41 | 0 | - | 50 | 130 |
| % Lights | 100.0 | 66.7 | - | - | 80.0 | 94.2 | 60.0 | - | - | 91.9 | 90.0 | 95.3 | - | - | 94.3 | 91.5 |
| Buses | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Buses | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Single-Unit Trucks | 0 | 3 | 0 | - | 3 | 4 | 2 | 0 | - | 6 | 1 | 0 | 0 | - | 1 | 10 |
| % Single-Unit Trucks | 0.0 | 33.3 | - | - | 20.0 | 5.8 | 40.0 | - | - | 8.1 | 10.0 | 0.0 | - | - | 1.9 | 7.0 |
| Articulated Trucks | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | - | 2 | 2 |
| % Articulated Trucks | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 4.7 | - | - | 3.8 | 1.4 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020


Turning Movement Peak Hour Data Plot (8:45 AM)

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519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020

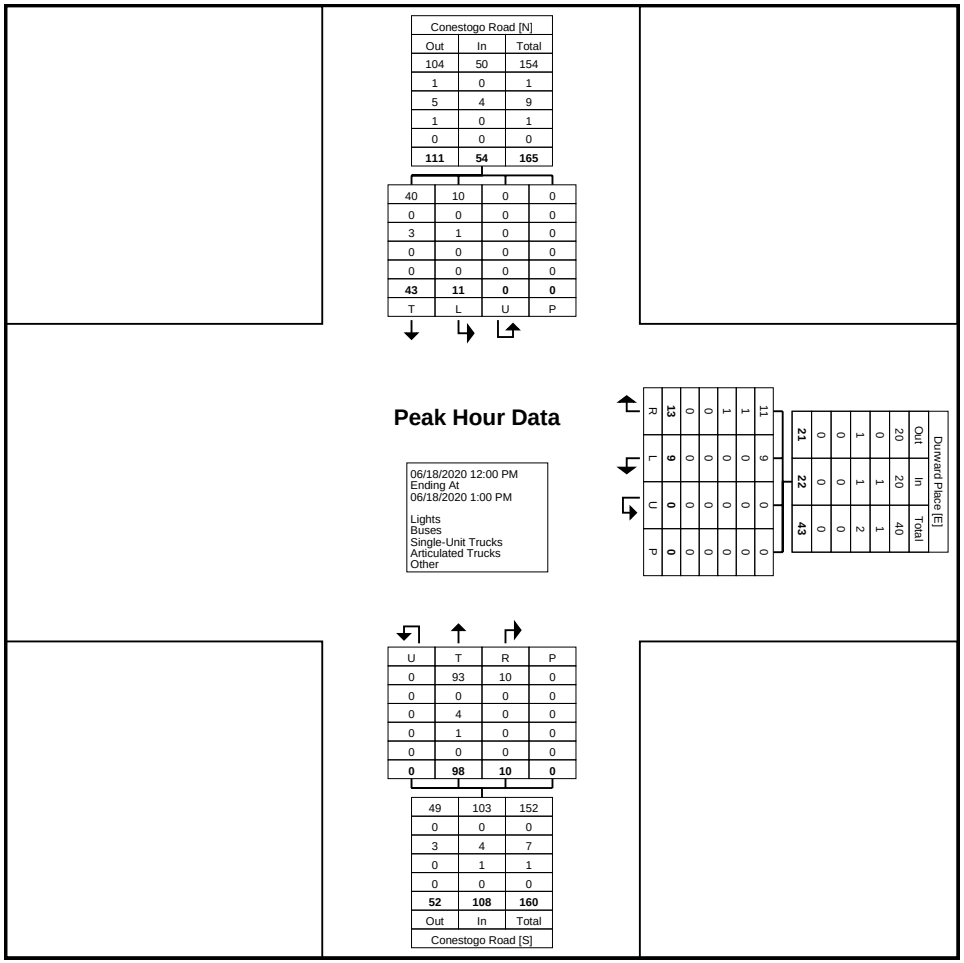

# Turning Movement Peak Hour Data (12:00 PM)

| Start Time | Durward Place Westbound | | | | | Conestogo Road Northbound | | | | | Conestogo Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 12:00 PM | 5 | 5 | 0 | 0 | 10 | 30 | 1 | 0 | 0 | 31 | 0 | 10 | 0 | 0 | 10 | 51 |
| 12:15 PM | 2 | 2 | 0 | 0 | 4 | 24 | 5 | 0 | 0 | 29 | 5 | 10 | 0 | 0 | 15 | 48 |
| 12:30 PM | 2 | 4 | 0 | 0 | 6 | 27 | 3 | 0 | 0 | 30 | 4 | 11 | 0 | 0 | 15 | 51 |
| 12:45 PM | 0 | 2 | 0 | 0 | 2 | 17 | 1 | 0 | 0 | 18 | 2 | 12 | 0 | 0 | 14 | 34 |
| Total | 9 | 13 | 0 | 0 | 22 | 98 | 10 | 0 | 0 | 108 | 11 | 43 | 0 | 0 | 54 | 184 |
| Approach % | 40.9 | 59.1 | 0.0 | - | - | 90.7 | 9.3 | 0.0 | - | - | 20.4 | 79.6 | 0.0 | - | - | - |
| Total % | 4.9 | 7.1 | 0.0 | - | 12.0 | 53.3 | 5.4 | 0.0 | - | 58.7 | 6.0 | 23.4 | 0.0 | - | 29.3 | - |
| PHF | 0.450 | 0.650 | 0.000 | - | 0.550 | 0.817 | 0.500 | 0.000 | - | 0.871 | 0.550 | 0.896 | 0.000 | - | 0.900 | 0.902 |
| Lights | 9 | 11 | 0 | - | 20 | 93 | 10 | 0 | - | 103 | 10 | 40 | 0 | - | 50 | 173 |
| % Lights | 100.0 | 84.6 | - | - | 90.9 | 94.9 | 100.0 | - | - | 95.4 | 90.9 | 93.0 | - | - | 92.6 | 94.0 |
| Buses | 0 | 1 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Buses | 0.0 | 7.7 | - | - | 4.5 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.5 |
| Single-Unit Trucks | 0 | 1 | 0 | - | 1 | 4 | 0 | 0 | - | 4 | 1 | 3 | 0 | - | 4 | 9 |
| % Single-Unit Trucks | 0.0 | 7.7 | - | - | 4.5 | 4.1 | 0.0 | - | - | 3.7 | 9.1 | 7.0 | - | - | 7.4 | 4.9 |
| Articulated Trucks | 0 | 0 | 0 | - | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | - | 0 | 1 |
| % Articulated Trucks | 0.0 | 0.0 | - | - | 0.0 | 1.0 | 0.0 | - | - | 0.9 | 0.0 | 0.0 | - | - | 0.0 | 0.5 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Bicycles on Road | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020


Turning Movement Peak Hour Data Plot (12:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020

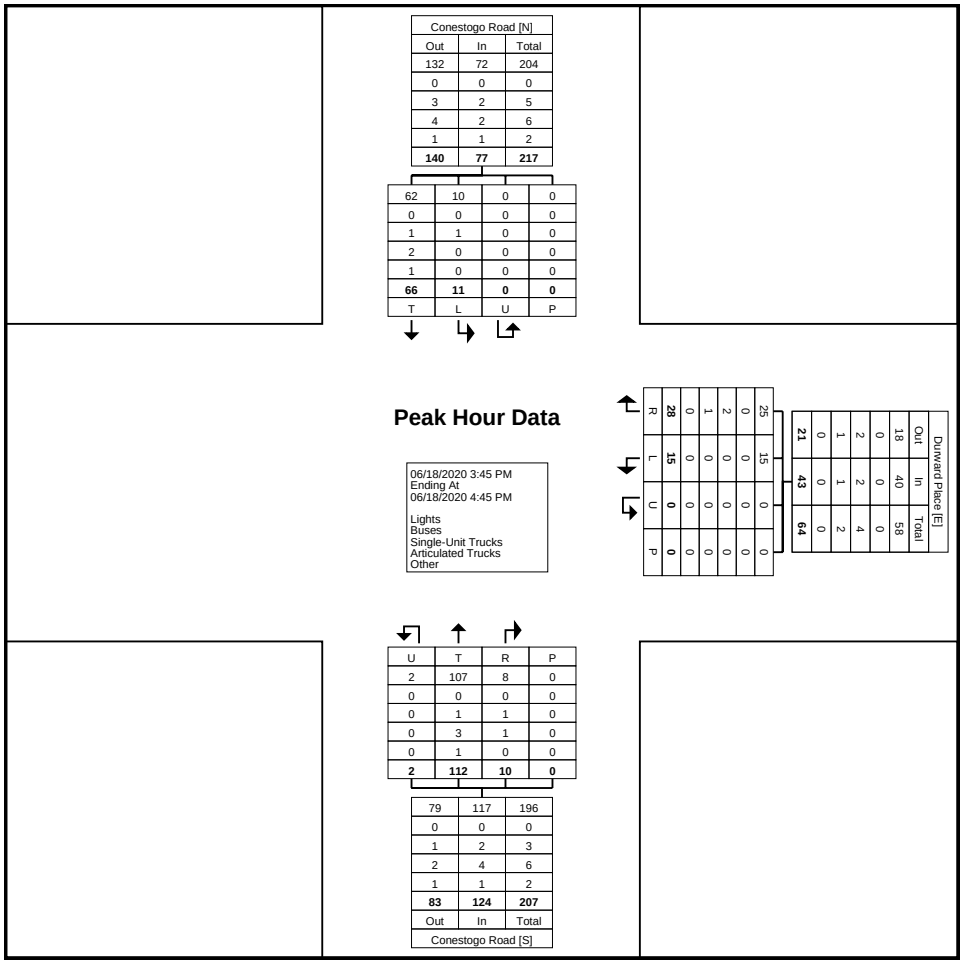

# Turning Movement Peak Hour Data (3:45 PM)

| Start Time | Durward Place Westbound | | | | | Conestogo Road Northbound | | | | | Conestogo Road Southbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | Int. Total |
| 3:45 PM | 2 | 7 | 0 | 0 | 9 | 26 | 4 | 0 | 0 | 30 | 4 | 15 | 0 | 0 | 19 | 58 |
| 4:00 PM | 5 | 4 | 0 | 0 | 9 | 29 | 2 | 1 | 0 | 32 | 4 | 19 | 0 | 0 | 23 | 64 |
| 4:15 PM | 4 | 7 | 0 | 0 | 11 | 21 | 3 | 1 | 0 | 25 | 1 | 15 | 0 | 0 | 16 | 52 |
| 4:30 PM | 4 | 10 | 0 | 0 | 14 | 36 | 1 | 0 | 0 | 37 | 2 | 17 | 0 | 0 | 19 | 70 |
| Total | 15 | 28 | 0 | 0 | 43 | 112 | 10 | 2 | 0 | 124 | 11 | 66 | 0 | 0 | 77 | 244 |
| Approach % | 34.9 | 65.1 | 0.0 | - | - | 90.3 | 8.1 | 1.6 | - | - | 14.3 | 85.7 | 0.0 | - | - | - |
| Total % | 6.1 | 11.5 | 0.0 | - | 17.6 | 45.9 | 4.1 | 0.8 | - | 50.8 | 4.5 | 27.0 | 0.0 | - | 31.6 | - |
| PHF | 0.750 | 0.700 | 0.000 | - | 0.768 | 0.778 | 0.625 | 0.500 | - | 0.838 | 0.688 | 0.868 | 0.000 | - | 0.837 | 0.871 |
| Lights | 15 | 25 | 0 | - | 40 | 107 | 8 | 2 | - | 117 | 10 | 62 | 0 | - | 72 | 229 |
| % Lights | 100.0 | 89.3 | - | - | 93.0 | 95.5 | 80.0 | 100.0 | - | 94.4 | 90.9 | 93.9 | - | - | 93.5 | 93.9 |
| Buses | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 |
| % Buses | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Single-Unit Trucks | 0 | 2 | 0 | - | 2 | 1 | 1 | 0 | - | 2 | 1 | 1 | 0 | - | 2 | 6 |
| % Single-Unit Trucks | 0.0 | 7.1 | - | - | 4.7 | 0.9 | 10.0 | 0.0 | - | 1.6 | 9.1 | 1.5 | - | - | 2.6 | 2.5 |
| Articulated Trucks | 0 | 1 | 0 | - | 1 | 3 | 1 | 0 | - | 4 | 0 | 2 | 0 | - | 2 | 7 |
| % Articulated Trucks | 0.0 | 3.6 | - | - | 2.3 | 2.7 | 10.0 | 0.0 | - | 3.2 | 0.0 | 3.0 | - | - | 2.6 | 2.9 |
| Bicycles on Road | 0 | 0 | 0 | - | 0 | 1 | 0 | 0 | - | 1 | 0 | 1 | 0 | - | 1 | 2 |
| % Bicycles on Road | 0.0 | 0.0 | - | - | 0.0 | 0.9 | 0.0 | 0.0 | - | 0.8 | 0.0 | 1.5 | - | - | 1.3 | 0.8 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020


Turning Movement Peak Hour Data Plot (3:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada  N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Conestogo Road & Durward Place
Site Code: 200039
Start Date: 06/18/2020

Semi-actuated operation
Actuated protected/permissive SB left-turn phase
Offsets are percentages of the cycle length related to the beginning of University Street green

**Signal Timing in Effect:** 07:00 - 10:30 Monday to Friday

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **King Street** | | | | | Offset 61% | | |
| SBL Green Arrow | Min | 5.0 | seconds | | | | |
| | Ext | 3.0 | seconds | | | | |
| | Max | 7.0 | seconds | | | | |
| SBL Amber Arrow | | 3.0 | seconds | | | | |
| All Red | | 1.0 | seconds | | | | |
| Green | | 49.0 | seconds | | | | |
| Amber | | 3.7 | seconds | | Walk | 37.0 | seconds |
| All Red | | 2.3 | seconds | | FDW | 12.0 | seconds |
| **Hwy 85 NB Ramp** | | | | | Pedestrian Call | | |
| Green | Min | 10.0 | seconds | | Green/Walk | 10.0 | seconds |
| | Ext | 3.0 | seconds | | Green/FDW | 11.0 | seconds |
| | Max | 38.6 | seconds | | Green/SDW | 17.6 | seconds |
| Amber | | 3.3 | seconds | | Amber | 3.3 | seconds |
| All Red | | 2.1 | seconds | | All Red | 2.1 | seconds |
| TOTAL | | 110.0 | seconds | | | | |

**Signal Timing in Effect:** 10:30 - 14:30, 19:00 - 22:00 Mon to Fri, 08:30 - 22:00 Sat, 10:00 - 20:00 Sun

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **King Street** | | | | | Offset 1% | | |
| SBL Green Arrow | Min | 5.0 | seconds | | | | |
| | Ext | 3.0 | seconds | | | | |
| | Max | 7.0 | seconds | | | | |
| SBL Amber Arrow | | 3.0 | seconds | | | | |
| All Red | | 1.0 | seconds | | | | |
| Green | | 54.5 | seconds | | | | |
| Amber | | 3.7 | seconds | | Walk | 42.5 | seconds |
| All Red | | 2.3 | seconds | | FDW | 12.0 | seconds |
| **Hwy 85 NB Ramp** | | | | | Pedestrian Call | | |
| Green | Min | 10.0 | seconds | | Green/Walk | 10.0 | seconds |
| | Ext | 3.0 | seconds | | Green/FDW | 11.0 | seconds |
| | Max | 33.1 | seconds | | Green/SDW | 12.1 | seconds |
| Amber | | 3.3 | seconds | | Amber | 3.3 | seconds |
| All Red | | 2.1 | seconds | | All Red | 2.1 | seconds |
| TOTAL | | 110.0 | seconds | | | | |

**Signal Timing in Effect:** 14:30 - 19:00 Monday to Friday

**King Street** Offset 88%

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SBL | Green Arrow | Min | 5.0 | seconds | | | |
| | | Ext | 3.0 | seconds | | | |
| | | Max | 7.0 | seconds | | | |
| SBL | Amber Arrow | | 3.0 | seconds | | | |
| All Red | | | 1.0 | seconds | | | |
| Green | | | 49.0 | seconds | | | |
| Amber | | | 3.7 | seconds | Walk | 37.0 | seconds |
| All Red | | | 2.3 | seconds | FDW | 12.0 | seconds |

**Hwy 85 NB Ramp**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Green | | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | | Ext | 3.0 | seconds | Green/FDW | 11.0 | seconds |
| | | Max | 38.6 | seconds | Green/SDW | 17.6 | seconds |
| Amber | | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | | 2.1 | seconds | All Red | 2.1 | seconds |
| TOTAL | | | 110.0 | seconds | | | |

Pedestrian Call

**Signal Timing in Effect:** All Other Times

**King Street** Runs Free

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SBL | Green Arrow | Min | 5.0 | seconds | | | |
| | | Ext | 3.0 | seconds | | | |
| | | Max | 7.0 | seconds | | | |
| SBL | Amber Arrow | | 3.0 | seconds | | | |
| All Red | | | 1.0 | seconds | | | |
| Green | | | 35.0 | seconds | | | |
| Amber | | | 3.7 | seconds | Walk | 23.0 | seconds |
| All Red | | | 2.3 | seconds | FDW | 12.0 | seconds |

**Hwy 85 NB Ramp**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Green | | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | | Ext | 3.0 | seconds | Green/FDW | 11.0 | seconds |
| | | Max | 25.0 | seconds | Green/SDW | 4.0 | seconds |
| Amber | | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | | 2.1 | seconds | All Red | 2.1 | seconds |

Pedestrian Call

Semi-actuated operation
Actuated protected/permissive SB left-turn phase
Offsets are percentages of the cycle length related to the beginning of University Street green

**Signal Timing in Effect:** 07:00 - 10:30 Monday to Friday

**King Street** Offset 56%

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SBL | Green Arrow | Min | 5.0 | seconds | | | |
| | | Ext | 5.0 | seconds | | | |
| | | Max | 7.0 | seconds | | | |
| SBL | Amber Arrow | | 3.0 | seconds | | | |
| All Red | | | 1.0 | seconds | | | |
| Green | | | 60.1 | seconds | | | |
| Amber | | | 3.7 | seconds | Walk | 50.1 | seconds |
| All Red | | | 2.2 | seconds | FDW | 10.0 | seconds |

**Manulife/Hwy 85 SB Ramp**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Pedestrian Call | | |
| Green | | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | | Ext | 3.0 | seconds | Green/FDW | 12.0 | seconds |
| | | Max | 26.3 | seconds | Green/SDW | 4.3 | seconds |
| Amber | | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | | 3.4 | seconds | All Red | 3.4 | seconds |
| TOTAL | | | 110.0 | seconds | | | |

**Signal Timing in Effect:** 10:30 - 14:30, 19:00 - 22:00 Mon to Fri, 08:30 - 22:00 Sat, 10:00 - 20:00 Sun

**King Street** Offest 22%

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Green | | | 60.1 | seconds | | | |
| Amber | | | 3.7 | seconds | Walk | 50.1 | seconds |
| All Red | | | 2.2 | seconds | FDW | 10.0 | seconds |

**Manulife/Hwy 85 SB Ramp**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Pedestrian Call | | |
| Green | | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | | Ext | 3.0 | seconds | Green/FDW | 12.0 | seconds |
| | | Max | 37.3 | seconds | Green/SDW | 15.3 | seconds |
| Amber | | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | | 3.4 | seconds | All Red | 3.4 | seconds |
| TOTAL | | | 110.0 | seconds | | | |

**Signal Timing in Effect:** 14:30 - 19:00 Monday to Friday

**King Street** Offest 88%

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Green | | | 54.6 | seconds | | | |
| Amber | | | 3.7 | seconds | Walk | 44.6 | seconds |

| | | | | | | |
|---|---|---|---|---|---|---|
| All Red | | 2.2 | seconds | FDW | 10.0 | seconds |
| **Manulife/Hwy 85 SB Ramp** | | | | Pedestrian Call | | |
| Green | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | Ext | 3.0 | seconds | Green/FDW | 12.0 | seconds |
| | Max | 42.8 | seconds | Green/SDW | 20.8 | seconds |
| Amber | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | 3.4 | seconds | All Red | 3.4 | seconds |
| TOTAL | | 110.0 | seconds | | | |

| **Signal Timing in Effect:** | All Other Times | | | | | |
|---|---|---|---|---|---|---|
| **King Street** | | | | Runs Free | | |
| Green | | 35.0 | seconds | | | |
| Amber | | 3.7 | seconds | Walk | 25.0 | seconds |
| All Red | | 2.2 | seconds | FDW | 10.0 | seconds |
| **Manulife/Hwy 85 SB Ramp** | | | | Pedestrian Call | | |
| Green | Min | 10.0 | seconds | Green/Walk | 10.0 | seconds |
| | Ext | 3.0 | seconds | Green/FDW | 12.0 | seconds |
| | Max | 25.0 | seconds | Green/SDW | 3.0 | seconds |
| Amber | | 3.3 | seconds | Amber | 3.3 | seconds |
| All Red | | 3.4 | seconds | All Red | 3.4 | seconds |

INT # 10 **KING STREET at Conestoga Mall/Conestogo Road** T08-50/ 16W

Fully-Actuated Operation (Returns to phase 2 & 6)
Actuated protected/permissive left-turn phase on Northbound, Southbound, Westbound directions

**Signal Timing in Effect:** 07:00 - 12:00 Monday to Friday

**KING STREET**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NBL Green Arrow | Min | 5.0 | seconds | | SBL Green Arrow | Min | 5.0 | seconds | |
| | Ext | 3.0 | seconds | | | Ext | 3.0 | seconds | |
| | Max | 10.0 | seconds | | | Max | 10.0 | seconds | |
| NBL Amber Arrow | | 3.0 | seconds | | SBL Amber Arrow | | 3.0 | seconds | |
| All Red | | 1.0 | seconds | | All Red | | 2.0 | seconds | |
| Green | Min | 20.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | **West Side** | | | **East Side** | |
| | Max | 40.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 15.0 | seconds | FDW | 10.0 | seconds |
| All Red | | 3.0 | seconds | SDW | 15.0 | seconds | SDW | 20.0 | seconds |

**NB RTA overlapped with phase 7 & 2 (if phase 2 ped is not active)**

**CONESTOGO MALL**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | | | | | |
| | Max | 12.0 | seconds | | | | | | |
| WBL Amber Arrow | | 4.0 | seconds | | | | | | |
| All Red | | 2.0 | seconds | | | | | | |
| Green | Min | 10.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | **North Side** | | | **South Side** | |
| | Max | 25.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 21.0 | seconds | FDW | 20.0 | seconds |
| All Red | | 3.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 | seconds |

**Signal Timing in Effect:** 12:00 - 22:00 Monday to Friday, 08:30 - 22:00 Saturday, 09:00 - 19:00 Sunday

**KING STREET**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NBL Green Arrow | Min | 5.0 | seconds | | SBL Green Arrow | Min | 5.0 | seconds | |
| | Ext | 3.0 | seconds | | | Ext | 3.0 | seconds | |
| | Max | 6.0 | seconds | | | Max | 15.0 | seconds | |
| NBL Amber Arrow | | 3.0 | seconds | | SBL Amber Arrow | | 3.0 | seconds | |
| All Red | | 1.0 | seconds | | All Red | | 2.0 | seconds | |
| Green | Min | 20.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | **West Side** | | | **East Side** | |
| | Max | 35.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 15.0 | seconds | FDW | 10.0 | seconds |
| All Red | | 3.0 | seconds | SDW | 10.0 | seconds | SDW | 15.0 | seconds |

**NB RTA overlapped with phase 7 & 2 (if phase 2 ped is not active)**

**CONESTOGO MALL**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | | | | | |
| | Max | 20.0 | seconds | | | | | | |
| WBL Amber Arrow | | 4.0 | seconds | | | | | | |
| All Red | | 2.0 | seconds | | | | | | |
| Green | Min | 10.0 | seconds | | | | | | |
| | Ext | 3.0 | seconds | | **North Side** | | | **South Side** | |
| | Max | 25.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 21.0 | seconds | FDW | 20.0 | seconds |
| All Red | | 3.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 | seconds |

**Signal Timing in Effect:** All Other Times

**KING STREET**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NBL Green Arrow | Min | 5.0 | seconds | | SBL Green Arrow | Min | 5.0 | seconds | | |
| | Ext | 3.0 | seconds | | | Ext | 3.0 | seconds | | |
| | Max | 10.0 | seconds | | | Max | 10.0 | seconds | | |
| NBL Amber Arrow | | 3.0 | seconds | | SBL Amber Arrow | | 3.0 | seconds | | |
| All Red | | 1.0 | seconds | | All Red | | 2.0 | seconds | | |
| Green | Min | 20.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | **West Side** | | | **East Side** | | |
| | Max | 30.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| Amber | | 4.0 | seconds | FDW | 15.0 | seconds | FDW | 10.0 | seconds | |
| All Red | | 3.0 | seconds | SDW | 5.0 | seconds | SDW | 10.0 | seconds | |

**NB RTA overlapped with phase 7 & 2 (if phase 2 ped is not active)**

**CONESTOGO MALL**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | | | | | | |
| | Max | 12.0 | seconds | | | | | | | |
| WBL Amber Arrow | | 4.0 | seconds | | | | | | | |
| All Red | | 2.0 | seconds | | | | | | | |
| Green | Min | 10.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | **North Side** | | | **South Side** | | |
| | Max | 20.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| Amber | | 4.0 | seconds | FDW | 21.0 | seconds | FDW | 20.0 | seconds | |
| All Red | | 3.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 | seconds | |

**Signal Timing in Effect:** LRT timing plan

**KING STREET**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NBL Green Arrow | Min | 5.0 | seconds | | SBL Green Arrow | Min | 5.0 | seconds | | |
| | Ext | 3.0 | seconds | | | Ext | 3.0 | seconds | | |
| | Max | 8.0 | seconds | | | Max | 8.0 | seconds | | |
| NBL Amber Arrow | | 3.0 | seconds | | SBL Amber Arrow | | 3.0 | seconds | | |
| All Red | | 1.0 | seconds | | All Red | | 2.0 | seconds | | |
| Green | Min | 10.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | **West Side** | | | **East Side** | | |
| | Max | 15.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| Amber | | 4.0 | seconds | FDW | 15.0 | seconds | FDW | 10.0 | seconds | |
| All Red | | 3.0 | seconds | SDW | -10.0 | seconds | SDW | -5.0 | seconds | |

**LRT PHASE INSERTION**

| | | | | |
|---|---|---|---|---|
| Pre-flash | | 7.0 | seconds | |
| Green | Min | 20.0 | seconds | |
| | Ext | 3.0 | seconds | |
| | Max | 30.0 | seconds | |
| | NS Bike Green | 25.0 | seconds | |
| Amber (Post flash) | | 4.0 | seconds | |
| All Red | | 8.0 | seconds | - extends to 12 sec using red extension |

**CONESTOGO MALL**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | | | | | | |
| | Max | 10.0 | seconds | | | | | | | |
| WBL Amber Arrow | | 4.0 | seconds | | | | | | | |
| All Red | | 2.0 | seconds | | | | | | | |
| Green | Min | 10.0 | seconds | | | | | | | |
| | Ext | 3.0 | seconds | | **North Side** | | | **South Side** | | |
| | Max | 15.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| Amber | | 4.0 | seconds | FDW | 21.0 | seconds | FDW | 20.0 | seconds | |
| All Red | | 3.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 | seconds | |

| | | | | |
|---|---|---|---|---|
| Pre-flash | | 7.0 | seconds | |
| Green | Min | 20.0 | seconds | |
| | Ext | 3.0 | seconds | |
| | Max | 30.0 | seconds | |
| | NS Bike Green | 25.0 | seconds | |
| Amber (Post flash) | | 4.0 | seconds | |
| All Red | | 8.0 | seconds | - extends to 12 sec using red extension |

INT # 502 **KING STREET at Northfield Drive** T08-50/ 26W

Fully-Actuated Operation (returns to phases 2& 6)
Actuated protected/permissive left-turn phases on all approaches

**Signal Timing Effect:** 0600-2200 Mon-Fri, 0800-2200 Sat, 0900-1900 Sun

**King Street**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NBL | Green Arrow | Min | 5.0 | seconds | | SBL | Green Arrow | Min | 5.0 | seconds | |
| | | Ext | 5.0 | seconds | | | | Ext | 4.0 | seconds | |
| | | Max | 15.0 | seconds | | | | Max | 15.0 | seconds | |
| NBL | Amber Arrow | | 3.0 | seconds | | SBL | Amber Arrow | | 3.0 | seconds | |
| All Red | | | 1.0 | seconds | | All Red | | | 1.0 | seconds | |
| Green | | Min | 20.0 | seconds | Phase 2 - East side | | | Phase 6 - West side | | | |
| | | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| | | Max | 30.0 | seconds | FDW | 15.0 | seconds | FDW | 17.0 | seconds | |
| Amber | | | 4.0 | seconds | SDW | 5.0 | seconds | SDW | 3.0 | seconds | |
| All Red | | | 3.0 | seconds | | | | | | | |

**Northfield Drive**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EBL | Green Arrow | Min | 5.0 | seconds | | WBL | Green Arrow | Min | 8.0 | seconds | |
| | | Ext | 5.0 | seconds | | | | Ext | 5.0 | seconds | |
| | | Max | 15.0 | seconds | | | | Max | 25.0 | seconds | |
| EBL | Amber Arrow | | 3.0 | seconds | | WBL | Amber Arrow | | 4.0 | seconds | |
| All Red | | | 1.0 | seconds | | All Red | | | 2.0 | seconds | |
| Green | | Min | 20.0 | seconds | Phase 4 - North side | | | Phase 8 - South side | | | |
| | | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| | | Max | 40.0 | seconds | FDW | 22.0 | seconds | FDW | 23.0 | seconds | |
| Amber | | | 4.0 | seconds | SDW | 8.0 | seconds | SDW | 7.0 | seconds | |
| All Red | | | 4.0 | seconds | | | | | | | |

**Signal Timing Effect:** All Other Times

**King Street**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NBL | Green Arrow | Min | 5.0 | seconds | | SBL | Green Arrow | Min | 5.0 | seconds | |
| | | Ext | 5.0 | seconds | | | | Ext | 4.0 | seconds | |
| | | Max | 10.0 | seconds | | | | Max | 10.0 | seconds | |
| NBL | Amber Arrow | | 3.0 | seconds | | SBL | Amber Arrow | | 3.0 | seconds | |
| All Red | | | 1.0 | seconds | | All Red | | | 1.0 | seconds | |
| Green | | Min | 20.0 | seconds | Phase 2 - East side | | | Phase 6 - West side | | | |
| | | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| | | Max | 30.0 | seconds | FDW | 15.0 | seconds | FDW | 17.0 | seconds | |
| Amber | | | 4.0 | seconds | SDW | 5.0 | seconds | SDW | 3.0 | seconds | |
| All Red | | | 3.0 | seconds | | | | | | | |

**Northfield Drive**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EBL | Green Arrow | Min | 5.0 | seconds | | WBL | Green Arrow | Min | 8.0 | seconds | |
| | | Ext | 5.0 | seconds | | | | Ext | 5.0 | seconds | |
| | | Max | 10.0 | seconds | | | | Max | 18.0 | seconds | |
| EBL | Amber Arrow | | 3.0 | seconds | | WBL | Amber Arrow | | 4.0 | seconds | |
| All Red | | | 1.0 | seconds | | All Red | | | 2.0 | seconds | |
| Green | | Min | 20.0 | seconds | Phase 4 - North side | | | Phase 8 - South side | | | |
| | | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 | seconds | |
| | | Max | 30.0 | seconds | FDW | 22.0 | seconds | FDW | 23.0 | seconds | |
| Amber | | | 4.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 | seconds | |
| All Red | | | 4.0 | seconds | | | | | | | |

**Signal Timing Effect:** LRT Plan

**King Street**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NBL Green Arrow | Min | 5.0 | seconds | SBL Green Arrow | Min | 5.0 | seconds | |
| | Ext | 5.0 | seconds | | Ext | 4.0 | seconds | |
| | Max | 10.0 | seconds | | Max | 10.0 | seconds | |
| NBL Amber Arrow | | 3.0 | seconds | SBL Amber Arrow | | 3.0 | seconds | |
| All Red | | 1.0 | seconds | All Red | | 1.0 | seconds | |
| Green | Min | 20.0 | seconds | Phase 2 - East side | | | Phase 6 - West side | |
| | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 seconds |
| | Max | 25.0 | seconds | FDW | 15.0 | seconds | FDW | 17.0 seconds |
| Amber | | 4.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 seconds |
| All Red | | 3.0 | seconds | | | | | |

**LRT PHASE INSERTION**

| | | | |
|---|---|---|---|
| Pre-flash | | 6.0 | seconds |
| Green | Min | 10.0 | seconds |
| | Ext | 3.0 | seconds |
| | Max | 25.0 | seconds |
| | NB Bike Green | 30.0 | seconds |
| | SB Bike Green | 30.0 | seconds |
| Amber (Post flash) | | 4.0 | seconds |
| All Red | | 12.0 | seconds |

**Northfield Drive**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | WBL Green Arrow | Min | 8.0 | seconds | |
| | Ext | 5.0 | seconds | | Ext | 5.0 | seconds | |
| | Max | 10.0 | seconds | | Max | 10.0 | seconds | |
| EBL Amber Arrow | | 3.0 | seconds | WBL Amber Arrow | | 4.0 | seconds | |
| All Red | | 1.0 | seconds | All Red | | 2.0 | seconds | |
| Green | Min | 20.0 | seconds | Phase 4 - North side | | | Phase 8 - South side | |
| | Ext | 4.0 | seconds | Walk | 10.0 | seconds | Walk | 10.0 seconds |
| | Max | 25.0 | seconds | FDW | 22.0 | seconds | FDW | 23.0 seconds |
| Amber | | 4.0 | seconds | SDW | 0.0 | seconds | SDW | 0.0 seconds |
| All Red | | 4.0 | seconds | | | | | |

**LRT PHASE INSERTION**

| | | | |
|---|---|---|---|
| Pre-flash | | 6.0 | seconds |
| Green | Min | 10.0 | seconds |
| | Ext | 3.0 | seconds |
| | Max | 25.0 | seconds |
| | NB Bike Green | 30.0 | seconds |
| | SB Bike Green | 30.0 | seconds |
| Amber (Post flash) | | 4.0 | seconds |
| All Red | | 12.0 | seconds |

INT # 503 **NORTHFIELD DRIVE at Colby Drive/Conestogo Road** T08-50/ 71W

Semi-Actuated Operation
Actuated protected/permissive eastbound and westbound left-turn phases

**Signal Timing in Effect:** 600-1200, 1300-1500 Mon-Fri, 0830-19:00 Sat 1000-18:00 Sun

**NORTHFIELD DRIVE**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 4.0 | seconds |
| | Max | 20.0 | seconds | | | | Max | 15.0 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 2.0 | seconds |
| Green | | 40.0 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | | 29.0 | seconds | | |
| All Red | | 2.0 | seconds | FDW | | 11.0 | seconds | | |

**Colby/Conestogo**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 4.0 | seconds | | | |
| | Max | 25.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 19.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 0.0 | seconds |

**Signal Timing in Effect:** 1200 - 1300, 1500-1900 Mon - Fri

**NORTHFIELD DRIVE**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 4.0 | seconds |
| | Max | 25.0 | seconds | | | | Max | 12.0 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 2.0 | seconds |
| Green | | 40.0 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | | 29.0 | seconds | | |
| All Red | | 2.0 | seconds | FDW | | 11.0 | seconds | | |

**Colby/Conestogo**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 4.0 | seconds | | | |
| | Max | 35.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 19.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 6.0 | seconds |

**Signal Timing in Effect:** All Other Times

**NORTHFIELD DRIVE**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 4.0 | seconds |
| | Max | 8.0 | seconds | | | | Max | 8.0 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 2.0 | seconds |
| Green | | 30.0 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | | 19.0 | seconds | | |
| All Red | | 2.0 | seconds | FDW | | 11.0 | seconds | | |

**Colby/Conestogo**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 4.0 | seconds | | | |
| | Max | 25.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 19.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 0.0 | seconds |

**Signal Timing in Effect:** LRT PLAN

**NORTHFIELD DRIVE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WBL Green Arrow | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | Ext | 4.0 | seconds |
| | Max | 10.0 | seconds | | | Max | 10.0 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WBL Amber Arrow | | 3.0 | seconds |
| All Red | | 3.0 | seconds | | All Red | | 3.0 | seconds |
| Green | | 40.0 | seconds | | | | | |
| Amber | | 4.0 | seconds | Walk | | 29.0 | seconds | |
| All Red | | 2.0 | seconds | FDW | | 11.0 | seconds | |

**LRT phase - Concurrent with main street through traffic**

| | | | | | | |
|---|---|---|---|---|---|---|
| Pre-flash | | 6.0 | seconds | | | |
| Green | Min | 10.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 20.0 | seconds | | | |
| | SB Bike Green | 35.0 | seconds | | | |
| Amber (Post flash) | | 4.0 | seconds | | | |
| All Red | | 5.0 | seconds | | | |

**Colby/Conestogo**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 4.0 | seconds | | | |
| | Max | 20.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 19.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 0.0 | seconds |

INT # 504 **NORTHFIELD DRIVE at Parkside Drive** T08-50/ 69W

Semi-Actuated Operation
Actuated protected/permissive Westbound left-turn phase
Offsets are percentages of the cycle length related to the beginning of Northfield Drive green

**Signal Timing in Effect:** 06:30 - 09:00 Mon to Fri, 07:30 - 14:00 Sat
**Northfield Drive** **Offset:69%**

| | | | | | | |
|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 26.0 | seconds | | | |
| WBL Amber Arrow | | 3.0 | seconds | | | |
| All Red | | 1.0 | seconds | | | |
| Green | | 48.0 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 40.0 | seconds |
| All Red | | 2.0 | seconds | FDW | 8.0 | seconds |

**Parkside Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 30.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 18.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 2.0 | seconds |
| Total | | 120.0 | seconds | | | |

**Signal Timing in Effect:** 09:00 - 15:00, 18:00 - 22:00 Mon to Fri, 14:00 - 22:00 Sat, 11:00- 18:00 Sun
**Northfield Drive** **Offset:19%**

| | | | | | | |
|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 15.8 | seconds | | | |
| WBL Amber Arrow | | 3.0 | seconds | | | |
| All Red | | 1.0 | seconds | | | |
| Green | | 50.1 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 42.1 | seconds |
| All Red | | 2.0 | seconds | FDW | 8.0 | seconds |

**Parkside Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 28.1 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 18.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 0.1 | seconds |
| Total | | 110.0 | seconds | | | |

**Signal Timing in Effect:** 15:00 - 16:00, 16:30 - 18:00 Mon to Fri
**Northfield Drive** **Offset:99%**

| | | | | | | |
|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 17.6 | seconds | | | |
| WBL Amber Arrow | | 3.0 | seconds | | | |
| All Red | | 1.0 | seconds | | | |
| Green | | 52.8 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 44.8 | seconds |
| All Red | | 2.0 | seconds | FDW | 8.0 | seconds |

**Parkside Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 33.6 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 18.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 5.6 | seconds |
| Total | | 120.0 | seconds | | | |

**Signal Timing in Effect:** 16:00 - 16:30 Monday to Friday

**Northfield Drive** **Offset:99%**

| | | | | | | |
|---|---|---|---|---|---|---|
| WBL Green Arrow | Min | 5.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 14.0 | seconds | | | |
| WBL Amber Arrow | | 3.0 | seconds | | | |
| All Red | | 1.0 | seconds | | | |
| Green | | 36.0 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 28.0 | seconds |
| All Red | | 2.0 | seconds | FDW | 8.0 | seconds |

**Parkside Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 54.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 18.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 26.0 | seconds |
| Total | | 120.0 | seconds | | | |

**Signal Timing in Effect:** All Other Times

**Northfield Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | | 30.0 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 22.0 | seconds |
| All Red | | 2.0 | seconds | FDW | 8.0 | seconds |

**Parkside Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | Min | 8.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 20.0 | seconds | Walk | 10.0 | seconds |
| Amber | | 4.0 | seconds | FDW | 18.0 | seconds |
| All Red | | 2.0 | seconds | SDW | 0.0 | seconds |

INT # 14 **WEBER STREET at Northfield Drive** T08-50/ 46W

Fixed Time Operation
Actuated protected/permissive left-turn phase on all approaches
Offsets are percentages of the cycle length related to the beginning of Weber Street green

**Signal Timing In Effect:** 06:30 - 09:00 Monday to Friday, 07:30 - 14:00 Saturday

**Weber Street** **Offset: 13%**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SBL Green Arrow | Min | 7.0 | seconds | | NBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 3.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 16.8 | seconds | | | | Max | 6.8 | seconds |
| SBL Amber Arrow | | 4.0 | seconds | | NBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 30.0 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 11.0 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 19.0 | seconds | | | |

**Northfield Drive**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WB Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 12.8 | seconds | | | | Max | 8.0 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WB Amber Arrow | | | 3.0 | seconds |
| All Red | | 1.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 38.4 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 14.4 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 24.0 | seconds | | | |
| TOTAL | | 120.0 | seconds | | | | | | |

**Signal Timing In Effect:** 09:00 - 15:00, 18:00 - 22:00 Mon to Fri, 14:00 - 22:00 Sat, 11:00 - 22:00 Sun

**Weber Street** **Offset: 69%**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SBL Green Arrow | Min | 7.0 | seconds | | NBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 3.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 14.9 | seconds | | | | Max | 10.3 | seconds |
| SBL Amber Arrow | | 4.0 | seconds | | NBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 29.2 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 10.2 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 19.0 | seconds | | | |

**Northfield Drive**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WB Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 12.5 | seconds | | | | Max | 12.5 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WB Amber Arrow | | | 3.0 | seconds |
| All Red | | 1.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 31.4 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 7.4 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 24.0 | seconds | | | |
| TOTAL | | 110.0 | seconds | | | | | | |

**Signal Timing In Effect:** 15:00 - 18:00 Monday to Friday

**Weber Street** **Offset: 61%**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SBL Green Arrow | Min | 7.0 | seconds | | NBL Green Arrow | | Min | 5.0 | seconds |
| | Ext | 3.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 20.4 | seconds | | | | Max | 17.6 | seconds |
| SBL Amber Arrow | | 4.0 | seconds | | NBL Amber Arrow | | | 3.0 | seconds |
| All Red | | 2.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 27.6 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 8.6 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 19.0 | seconds | | | |

**Northfield Drive**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| EBL Green Arrow | Min | 5.0 | seconds | | WB Green Arrow | | Min | 5.0 | seconds |
| | Ext | 4.0 | seconds | | | | Ext | 3.0 | seconds |
| | Max | 9.2 | seconds | | | | Max | 11.6 | seconds |
| EBL Amber Arrow | | 3.0 | seconds | | WB Amber Arrow | | | 3.0 | seconds |
| All Red | | 1.0 | seconds | | All Red | | | 1.0 | seconds |
| Green | | 38.4 | seconds | | | | | | |
| Amber | | 4.0 | seconds | Walk | 14.4 | seconds | | | |
| All Red | | 2.0 | seconds | FDW | 24.0 | seconds | | | |
| TOTAL | | 120.0 | seconds | | | | | | |

**Signal Timing In Effect:** All Other Times

**Weber Street** **Offset: 94%**

| | | | | | | |
|---|---|---|---|---|---|---|
| SBL Green Arrow | Min | 7.0 | seconds | | | |
| | Ext | 3.0 | seconds | | | |
| | Max | 13.0 | seconds | | | |
| SBL Amber Arrow | | 4.0 | seconds | | | |
| All Red | | 2.0 | seconds | | | |
| Green | | 31.0 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 12.0 | seconds |
| All Red | | 2.0 | seconds | FDW | 19.0 | seconds |

**Northfield Drive**

| | | | | | | |
|---|---|---|---|---|---|---|
| Green | | 38.0 | seconds | | | |
| Amber | | 4.0 | seconds | Walk | 14.0 | seconds |
| All Red | | 2.0 | seconds | FDW | 24.0 | seconds |
| TOTAL | | 100.0 | seconds | | | |

# Appendix C

## Existing Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 204 | 782 | 131 | 100 | 351 | 112 | 52 | 200 | 100 | 172 | 366 | 35 |
| Future Volume (vph) | 204 | 782 | 131 | 100 | 351 | 112 | 52 | 200 | 100 | 172 | 366 | 35 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.978 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3251 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.429 | | | 0.163 | | | 0.516 | | | 0.451 | | |
| Satd. Flow (perm) | 751 | 3251 | 0 | 286 | 3438 | 1403 | 886 | 3036 | 0 | 740 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 71 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 204 | 782 | 131 | 100 | 351 | 112 | 52 | 200 | 100 | 172 | 366 | 35 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 204 | 913 | 0 | 100 | 351 | 112 | 52 | 300 | 0 | 172 | 401 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.6 | 45.2 | | 48.7 | 41.0 | 41.0 | 40.5 | 33.9 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.45 | 0.73 | | 0.48 | 0.29 | 0.18 | 0.15 | 0.33 | | 0.39 | 0.33 | |

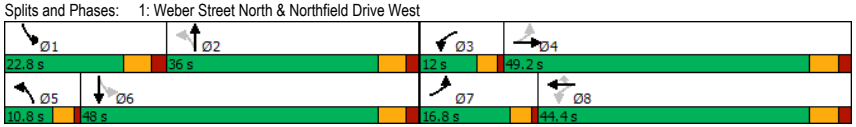




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.0 | 35.0 | | 26.0 | 29.5 | 0.7 | 20.4 | 26.6 | | 23.0 | 27.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.0 | 35.0 | | 26.0 | 29.5 | 0.7 | 20.4 | 26.6 | | 23.0 | 27.1 | |
| LOS | C | C | | C | C | A | C | C | | C | C | |
| Approach Delay | | 32.6 | | | 23.1 | | | 25.7 | | | 25.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 29.4 | 100.0 | | 13.4 | 33.6 | 0.0 | 7.1 | 22.8 | | 25.4 | 36.6 | |
| Queue Length 95th (m) | 46.2 | 125.5 | | 24.0 | 46.6 | 0.0 | 14.8 | 37.0 | | 41.2 | 50.3 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 462 | 1256 | | 212 | 1194 | 612 | 349 | 923 | | 463 | 1204 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.44 | 0.73 | | 0.47 | 0.29 | 0.18 | 0.15 | 0.33 | | 0.37 | 0.33 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.1 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.73 | | | |
| Intersection Signal Delay: 28.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 92.6% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1075 | 26 | 293 | 491 | 79 | 13 | 3 | 301 | 67 | 24 | 1 |
| Future Volume (vph) | 1 | 1075 | 26 | 293 | 491 | 79 | 13 | 3 | 301 | 67 | 24 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.961 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1586 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.438 | | | 0.125 | | | | 0.859 | | 0.747 | | |
| Satd. Flow (perm) | 776 | 3262 | 0 | 213 | 3204 | 0 | 0 | 1415 | 1376 | 1155 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 301 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1075 | 26 | 293 | 491 | 79 | 13 | 3 | 301 | 67 | 24 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1101 | 0 | 293 | 570 | 0 | 0 | 16 | 301 | 67 | 25 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 56.3 | 56.3 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.72 | | 0.79 | 0.27 | | | 0.04 | 0.51 | 0.22 | 0.06 | |

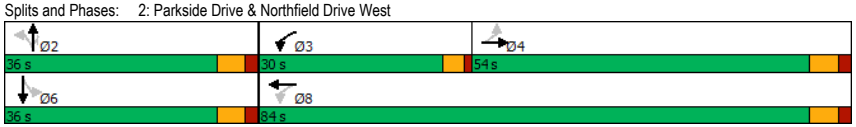




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 29.9 | | 35.3 | 8.0 | | | 33.2 | 7.3 | 36.6 | 32.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 29.9 | | 35.3 | 8.0 | | | 33.2 | 7.3 | 36.6 | 32.4 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 29.9 | | | 17.2 | | | 8.6 | | | 35.5 | |
| Approach LOS | | C | | | B | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 113.6 | | 40.0 | 25.7 | | | 3.0 | 0.0 | 13.0 | 4.5 | |
| Queue Length 95th (m) | 1.3 | 153.4 | | 70.6 | 34.2 | | | 8.9 | 22.9 | 26.0 | 11.8 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 364 | 1531 | | 447 | 2146 | | | 377 | 587 | 308 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.72 | | 0.66 | 0.27 | | | 0.04 | 0.51 | 0.22 | 0.06 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.79 | | | |
| Intersection Signal Delay: 22.7 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 108 | 588 | 48 | 9 | 570 | 76 | 21 | 14 | 24 | 55 | 9 | 44 |
| Future Volume (vph) | 108 | 588 | 48 | 9 | 570 | 76 | 21 | 14 | 24 | 55 | 9 | 44 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.945 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.983 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1298 | 0 | 0 | 1309 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.877 | | | 0.850 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1158 | 0 | 0 | 1140 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 24 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 108 | 588 | 48 | 9 | 570 | 76 | 21 | 14 | 24 | 55 | 9 | 44 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 108 | 636 | 0 | 9 | 646 | 0 | 0 | 59 | 0 | 0 | 108 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.5 | 58.6 | | 7.1 | 48.0 | | | 13.5 | | | 13.5 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.62 | | | 0.17 | | | 0.17 | |
| v/c Ratio | 0.44 | 0.26 | | 0.06 | 0.33 | | | 0.27 | | | 0.48 | |

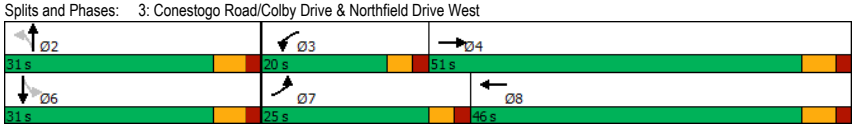




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 37.8 | 5.5 | | 37.1 | 11.5 | | | 22.8 | | | 29.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 37.8 | 5.5 | | 37.1 | 11.5 | | | 22.8 | | | 29.7 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.2 | | | 11.8 | | | 22.8 | | | 29.7 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 15.6 | 13.3 | | 1.3 | 27.7 | | | 4.8 | | | 10.6 | |
| Queue Length 95th (m) | 33.2 | 42.4 | | 6.2 | 53.5 | | | 15.8 | | | 27.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 451 | 2428 | | 316 | 1937 | | | 422 | | | 421 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.24 | 0.26 | | 0.03 | 0.33 | | | 0.14 | | | 0.26 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.9 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.48 | | | |
| Intersection Signal Delay: 12.7 | | Intersection LOS: B | |
| Intersection Capacity Utilization 61.8% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 123 | 346 | 100 | 212 | 295 | 57 | 115 | 320 | 137 | 96 | 258 | 75 |
| Future Volume (vph) | 123 | 346 | 100 | 212 | 295 | 57 | 115 | 320 | 137 | 96 | 258 | 75 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.540 | | | 0.950 | | | 0.539 | | | 0.414 | | |
| Satd. Flow (perm) | 912 | 3065 | 0 | 2963 | 3103 | 0 | 854 | 2966 | 0 | 718 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 46 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 123 | 346 | 100 | 212 | 295 | 57 | 115 | 320 | 137 | 96 | 258 | 75 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 123 | 446 | 0 | 212 | 352 | 0 | 115 | 457 | 0 | 96 | 258 | 75 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 36.0 | 25.5 | | 14.6 | 29.6 | | 45.0 | 34.6 | | 42.1 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.36 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.35 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.31 | 0.55 | | 0.49 | 0.38 | | 0.25 | 0.43 | | 0.25 | 0.23 | 0.13 |

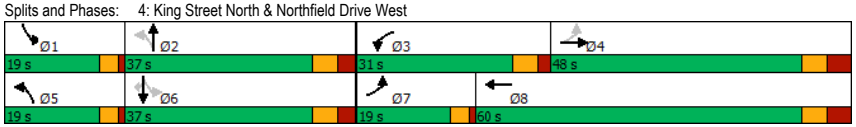




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.6 | 33.6 | | 43.8 | 28.1 | | 17.3 | 24.8 | | 17.4 | 26.1 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.6 | 33.6 | | 43.8 | 28.1 | | 17.3 | 24.8 | | 17.4 | 26.1 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 30.6 | | | 34.0 | | | 23.3 | | | 19.7 | |
| Approach LOS | | C | | | C | | | C | | | B | |
| Queue Length 50th (m) | 14.5 | 38.3 | | 20.1 | 27.6 | | 12.3 | 32.0 | | 10.1 | 19.1 | 0.0 |
| Queue Length 95th (m) | 27.8 | 60.5 | | 35.0 | 44.8 | | 27.2 | 56.1 | | 22.8 | 35.3 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 476 | 1377 | | 810 | 1762 | | 503 | 1059 | | 478 | 1134 | 565 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.26 | 0.32 | | 0.26 | 0.20 | | 0.23 | 0.43 | | 0.20 | 0.23 | 0.13 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 99.7 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Actuated-Uncoordinated | | | |
| Maximum v/c Ratio: 0.55 | | | |
| Intersection Signal Delay: 27.3 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.4% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.920 | | | 0.987 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1463 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1463 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 108 | 0 | 0 | 54 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 98 | 10 | 11 | 43 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 175 | 173 | 43 | 168 | 168 | 103 | 43 | 0 | 0 | 108 | 0 | 0 |
| Stage 1 | 65 | 65 | - | 103 | 103 | - | - | - | - | - | - | - |
| Stage 2 | 110 | 108 | - | 65 | 65 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 792 | 724 | 1033 | 800 | 728 | 936 | 1579 | - | - | 1440 | - | - |
| Stage 1 | 951 | 845 | - | 908 | 814 | - | - | - | - | - | - | - |
| Stage 2 | 900 | 810 | - | 951 | 845 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 776 | 718 | 1033 | 795 | 722 | 936 | 1579 | - | - | 1440 | - | - |
| Mov Cap-2 Maneuver | 776 | 718 | - | 795 | 722 | - | - | - | - | - | - | - |
| Stage 1 | 951 | 838 | - | 908 | 814 | - | - | - | - | - | - | - |
| Stage 2 | 888 | 810 | - | 943 | 838 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.2 | 0 | 1.5 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1579 | - | - | - | 873 | 1440 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.025 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.2 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 27 | 12 | 44 | 195 | 28 | 28 | 129 | 572 | 219 | 26 | 391 | 50 |
| Future Volume (vph) | 27 | 12 | 44 | 195 | 28 | 28 | 129 | 572 | 219 | 26 | 391 | 50 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.882 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1377 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.720 | | | 0.950 | | | 0.422 | | | 0.950 | | |
| Satd. Flow (perm) | 1149 | 1377 | 0 | 3013 | 1347 | 0 | 732 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 44 | | | 28 | | | | | | 15 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 27 | 12 | 44 | 195 | 28 | 28 | 129 | 572 | 219 | 26 | 391 | 50 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 27 | 56 | 0 | 195 | 56 | 0 | 129 | 572 | 219 | 26 | 441 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.4 | 26.5 | | 55.8 | 52.0 | 65.4 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.57 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.16 | 0.24 | | 0.44 | 0.14 | | 0.24 | 0.29 | 0.22 | 0.23 | 0.29 | |

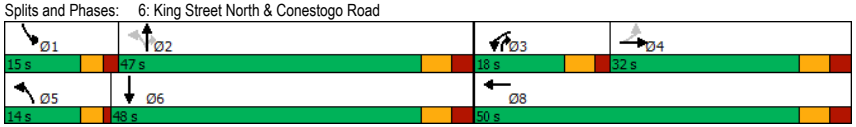




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.8 | 18.1 | | 40.9 | 14.9 | | 9.6 | 13.4 | 6.3 | 45.2 | 15.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.8 | 18.1 | | 40.9 | 14.9 | | 9.6 | 13.4 | 6.3 | 45.2 | 15.7 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.2 | | | 35.1 | | | 11.2 | | | 17.4 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 4.8 | 2.1 | | 18.4 | 3.8 | | 10.1 | 25.9 | 8.6 | 4.9 | 26.7 | |
| Queue Length 95th (m) | 13.1 | 13.6 | | 29.7 | 12.9 | | 18.9 | 52.7 | 29.3 | 13.1 | 39.1 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 352 | 453 | | 469 | 693 | | 544 | 1961 | 1014 | 150 | 1519 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.12 | | 0.42 | 0.08 | | 0.24 | 0.29 | 0.22 | 0.17 | 0.29 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 112 | | |
| Actuated Cycle Length: 92 | | |
| Natural Cycle: 65 | | |
| Control Type: Actuated-Uncoordinated | | |
| Maximum v/c Ratio: 0.44 | | |
| Intersection Signal Delay: 17.0 | | Intersection LOS: B |
| Intersection Capacity Utilization 47.0% | | ICU Level of Service A |
| Analysis Period (min) 15 | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 216 | 657 | 281 | 95 | 0 | 474 |
| Future Volume (vph) | 216 | 657 | 281 | 95 | 0 | 474 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3271 | 1488 | 3063 | 0 | 1757 | 3539 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3271 | 1468 | 3063 | 0 | 1757 | 3539 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 538 | 56 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 3 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 15% | 1% | 2% |
| Adj. Flow (vph) | 235 | 714 | 305 | 103 | 0 | 515 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 235 | 714 | 408 | 0 | 0 | 515 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 25.6 | 25.6 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.65 | | | 0.65 |
| v/c Ratio | 0.27 | 0.91 | 0.20 | | | 0.22 |





| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 27.5 | 25.1 | 7.6 | | | 8.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 27.5 | 25.1 | 7.6 | | | 8.8 |
| LOS | C | C | A | | | A |
| Approach Delay | 25.7 | | 7.6 | | | 8.8 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 18.5 | 34.9 | 13.1 | | | 20.0 |
| Queue Length 95th (m) | 27.9 | 97.9 | 28.3 | | | 39.5 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1374 | 928 | 2013 | | | 2304 |
| 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 | 0.17 | 0.77 | 0.20 | | | 0.22 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 96.5 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.91 | | | |
| Intersection Signal Delay: 17.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 91.8% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 7:



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 59 | 292 | 20 | 0 | 21 | 0 | 487 | 259 | 213 | 900 | 358 |
| Future Volume (vph) | 3 | 59 | 292 | 20 | 0 | 21 | 0 | 487 | 259 | 213 | 900 | 358 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1444 | 1606 | 0 | 1305 | 0 | 3438 | 1444 | 1686 | 3471 | 1328 |
| Flt Permitted | 0.950 | | | 0.715 | | | | | | 0.404 | | |
| Satd. Flow (perm) | 1667 | 1900 | 1409 | 1195 | 0 | 1275 | 0 | 3438 | 1401 | 714 | 3471 | 1288 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 150 | | | 68 | | | 282 | | | 389 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 64 | 317 | 22 | 0 | 23 | 0 | 529 | 282 | 232 | 978 | 389 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 64 | 317 | 22 | 0 | 23 | 0 | 529 | 282 | 232 | 978 | 389 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 20.9 | 20.9 | 20.9 | 20.9 | | 20.9 | | 62.2 | 62.2 | 73.2 | 73.2 | 71.3 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.20 | 0.20 | | 0.20 | | 0.61 | 0.61 | 0.72 | 0.72 | 0.70 |
| v/c Ratio | 0.01 | 0.16 | 0.78 | 0.09 | | 0.07 | | 0.25 | 0.29 | 0.40 | 0.39 | 0.38 |

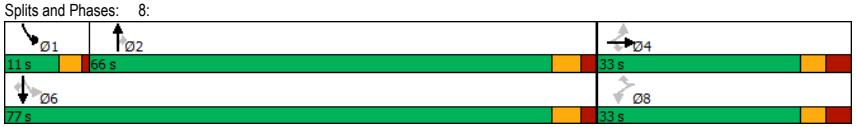




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.4 | 33.3 | 32.5 | | 0.4 | | 10.4 | 2.2 | 7.9 | 6.9 | 1.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.4 | 33.3 | 32.5 | | 0.4 | | 10.4 | 2.2 | 7.9 | 6.9 | 1.9 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 33.3 | | | 16.1 | | | 7.5 | | | 5.9 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.1 | 33.3 | 3.7 | | 0.0 | | 25.1 | 0.0 | 14.0 | 37.1 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.3 | 66.5 | 10.4 | | 0.0 | | 41.0 | 11.6 | 29.2 | 62.0 | 10.5 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 474 | 540 | 508 | 340 | | 411 | | 2092 | 963 | 578 | 2487 | 1016 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.62 | 0.06 | | 0.06 | | 0.25 | 0.29 | 0.40 | 0.39 | 0.38 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.2 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 10.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 87.0% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8:



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 129 | 433 | 75 | 152 | 1072 | 147 | 184 | 415 | 71 | 299 | 410 | 236 |
| Future Volume (vph) | 129 | 433 | 75 | 152 | 1072 | 147 | 184 | 415 | 71 | 299 | 410 | 236 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.336 | | | 0.296 | | | 0.283 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 586 | 3574 | 1421 | 511 | 3238 | 0 | 487 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 111 | | 15 | | | 95 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 129 | 433 | 75 | 152 | 1072 | 147 | 184 | 415 | 71 | 299 | 410 | 236 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 129 | 508 | 0 | 152 | 1072 | 147 | 184 | 486 | 0 | 299 | 646 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.2 | | 53.3 | 42.8 | 42.8 | 45.3 | 32.0 | | 56.0 | 38.7 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.45 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.70 | 0.46 | | 0.43 | 0.84 | 0.25 | 0.57 | 0.55 | | 0.71 | 0.61 | |

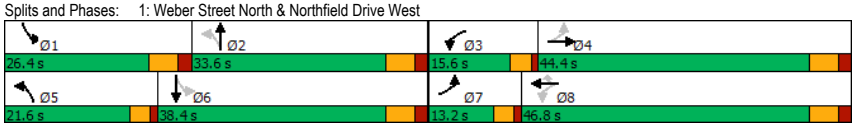




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 44.2 | 31.7 | | 23.3 | 42.8 | 9.7 | 27.3 | 39.8 | | 30.7 | 32.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 44.2 | 31.7 | | 23.3 | 42.8 | 9.7 | 27.3 | 39.8 | | 30.7 | 32.1 | |
| LOS | D | C | | C | D | A | C | D | | C | C | |
| Approach Delay | | 34.2 | | | 37.1 | | | 36.3 | | | 31.6 | |
| Approach LOS | | C | | | D | | | D | | | C | |
| Queue Length 50th (m) | 18.5 | 51.1 | | 22.2 | 130.4 | 6.0 | 26.7 | 54.1 | | 47.1 | 60.5 | |
| Queue Length 95th (m) | #45.2 | 68.7 | | 36.9 | 161.0 | 21.5 | 42.5 | 72.9 | | 69.9 | 85.4 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 187 | 1108 | | 371 | 1278 | 579 | 382 | 877 | | 445 | 1063 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.69 | 0.46 | | 0.41 | 0.84 | 0.25 | 0.48 | 0.55 | | 0.67 | 0.61 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 119.7 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.84 | | |
| Intersection Signal Delay: 35.0 | | Intersection LOS: D |
| Intersection Capacity Utilization 97.1% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 792 | 33 | 370 | 1364 | 85 | 48 | 18 | 466 | 58 | 21 | 12 |
| Future Volume (vph) | 3 | 792 | 33 | 370 | 1364 | 85 | 48 | 18 | 466 | 58 | 21 | 12 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1534 | 0 |
| Flt Permitted | 0.166 | | | 0.225 | | | | 0.806 | | 0.714 | | |
| Satd. Flow (perm) | 294 | 3282 | 0 | 391 | 3301 | 0 | 0 | 1299 | 1417 | 1137 | 1534 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 352 | | 12 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 792 | 33 | 370 | 1364 | 85 | 48 | 18 | 466 | 58 | 21 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 825 | 0 | 370 | 1449 | 0 | 0 | 66 | 466 | 58 | 33 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 55.5 | 55.5 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.02 | 0.53 | | 0.85 | 0.67 | | | 0.18 | 0.72 | 0.18 | 0.08 | |

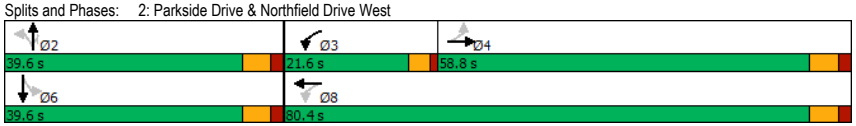




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.0 | 23.3 | | 31.2 | 14.6 | | | 33.6 | 16.4 | 33.8 | 22.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.0 | 23.3 | | 31.2 | 14.6 | | | 33.6 | 16.4 | 33.8 | 22.7 | |
| LOS | B | C | | C | B | | | C | B | C | C | |
| Approach Delay | | 23.3 | | | 18.0 | | | 18.5 | | | 29.8 | |
| Approach LOS | | C | | | B | | | B | | | C | |
| Queue Length 50th (m) | 0.4 | 71.2 | | 36.1 | 101.7 | | | 12.1 | 22.7 | 10.7 | 3.7 | |
| Queue Length 95th (m) | 2.4 | 95.6 | | #76.1 | 138.0 | | | 24.1 | 64.6 | 22.1 | 11.8 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 139 | 1559 | | 444 | 2157 | | | 395 | 675 | 345 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.53 | | 0.83 | 0.67 | | | 0.17 | 0.69 | 0.17 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 19.7 | | Intersection LOS: B |
| Intersection Capacity Utilization 118.3% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 63 | 753 | 41 | 11 | 717 | 32 | 119 | 9 | 26 | 94 | 27 | 243 |
| Future Volume (vph) | 63 | 753 | 41 | 11 | 717 | 32 | 119 | 9 | 26 | 94 | 27 | 243 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.452 | | | 0.882 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 671 | 0 | 0 | 1219 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 63 | 753 | 41 | 11 | 717 | 32 | 119 | 9 | 26 | 94 | 27 | 243 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 63 | 794 | 0 | 11 | 749 | 0 | 0 | 154 | 0 | 0 | 364 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.2 | 56.4 | | 7.4 | 47.0 | | | 29.5 | | | 29.5 | |
| Actuated g/C Ratio | 0.11 | 0.59 | | 0.08 | 0.49 | | | 0.31 | | | 0.31 | |
| v/c Ratio | 0.36 | 0.42 | | 0.09 | 0.47 | | | 0.73 | | | 0.84 | |

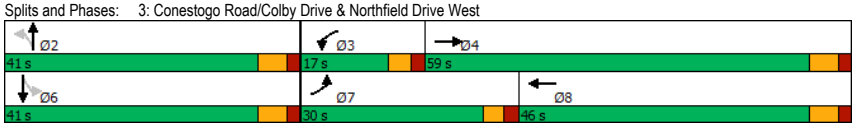




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.5 | 13.4 | | 47.8 | 19.9 | | | 49.6 | | | 41.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 48.5 | 13.4 | | 47.8 | 19.9 | | | 49.6 | | | 41.2 | |
| LOS | D | B | | D | B | | | D | | | D | |
| Approach Delay | | 16.0 | | | 20.4 | | | 49.6 | | | 41.2 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 11.6 | 40.8 | | 2.0 | 53.6 | | | 24.2 | | | 48.8 | |
| Queue Length 95th (m) | 27.3 | 81.2 | | 8.5 | 83.2 | | | #61.1 | | | #109.5 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 452 | 1894 | | 211 | 1606 | | | 266 | | | 529 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.14 | 0.42 | | 0.05 | 0.47 | | | 0.58 | | | 0.69 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 96.2 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.84 | | |
| Intersection Signal Delay: 24.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 74.3% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 157 | 490 | 102 | 224 | 438 | 66 | 145 | 365 | 161 | 102 | 426 | 166 |
| Future Volume (vph) | 157 | 490 | 102 | 224 | 438 | 66 | 145 | 365 | 161 | 102 | 426 | 166 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3185 | 0 | 3176 | 3212 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.370 | | | 0.950 | | | 0.377 | | | 0.355 | | |
| Satd. Flow (perm) | 645 | 3185 | 0 | 3124 | 3212 | 0 | 637 | 3127 | 0 | 606 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 166 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 157 | 490 | 102 | 224 | 438 | 66 | 145 | 365 | 161 | 102 | 426 | 166 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 157 | 592 | 0 | 224 | 504 | 0 | 145 | 526 | 0 | 102 | 426 | 166 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 40.8 | 29.2 | | 15.0 | 32.5 | | 46.6 | 35.2 | | 42.9 | 33.3 | 33.3 |
| Actuated g/C Ratio | 0.39 | 0.28 | | 0.14 | 0.31 | | 0.44 | 0.33 | | 0.41 | 0.32 | 0.32 |
| v/c Ratio | 0.43 | 0.66 | | 0.50 | 0.50 | | 0.37 | 0.49 | | 0.30 | 0.38 | 0.29 |

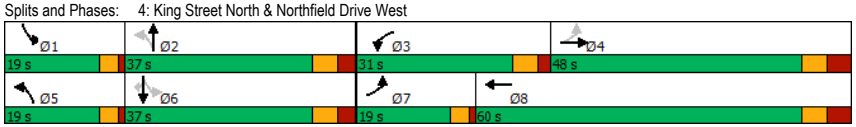




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.2 | 36.8 | | 46.7 | 31.0 | | 21.2 | 28.5 | | 20.5 | 30.9 | 6.4 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.2 | 36.8 | | 46.7 | 31.0 | | 21.2 | 28.5 | | 20.5 | 30.9 | 6.4 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 33.5 | | | 35.8 | | | 26.9 | | | 23.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 19.5 | 57.2 | | 22.9 | 45.1 | | 17.4 | 41.5 | | 11.9 | 36.7 | 0.0 |
| Queue Length 95th (m) | 34.0 | 83.4 | | 39.2 | 65.8 | | 37.5 | 72.9 | | 27.3 | 62.8 | 17.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 419 | 1357 | | 824 | 1735 | | 432 | 1079 | | 422 | 1122 | 580 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.37 | 0.44 | | 0.27 | 0.29 | | 0.34 | 0.49 | | 0.24 | 0.38 | 0.29 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 105.1 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.66 | | |
| Intersection Signal Delay: 30.1 | | Intersection LOS: C |
| Intersection Capacity Utilization 77.4% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 122 | 0 | 0 | 77 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 112 | 10 | 11 | 66 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 219 | 210 | 66 | 205 | 205 | 117 | 66 | 0 | 0 | 122 | 0 | 0 |
| Stage 1 | 88 | 88 | - | 117 | 117 | - | - | - | - | - | - | - |
| Stage 2 | 131 | 122 | - | 88 | 88 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 741 | 691 | 1003 | 757 | 695 | 911 | 1549 | - | - | 1423 | - | - |
| Stage 1 | 925 | 826 | - | 892 | 803 | - | - | - | - | - | - | - |
| Stage 2 | 877 | 799 | - | 925 | 826 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 714 | 685 | 1003 | 752 | 689 | 911 | 1549 | - | - | 1423 | - | - |
| Mov Cap-2 Maneuver | 714 | 685 | - | 752 | 689 | - | - | - | - | - | - | - |
| Stage 1 | 925 | 819 | - | 892 | 803 | - | - | - | - | - | - | - |
| Stage 2 | 850 | 799 | - | 918 | 819 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.5 | 0 | 1.1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1549 | - | - | - | 848 | 1423 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.051 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.5 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 37 | 60 | 167 | 318 | 10 | 60 | 70 | 607 | 370 | 73 | 730 | 32 |
| Future Volume (vph) | 37 | 60 | 167 | 318 | 10 | 60 | 70 | 607 | 370 | 73 | 730 | 32 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.890 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1434 | 0 | 3146 | 1340 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.711 | | | 0.950 | | | 0.299 | | | 0.950 | | |
| Satd. Flow (perm) | 1260 | 1434 | 0 | 3107 | 1340 | 0 | 530 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 109 | | | 60 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 37 | 60 | 167 | 318 | 10 | 60 | 70 | 607 | 370 | 73 | 730 | 32 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 37 | 227 | 0 | 318 | 70 | 0 | 70 | 607 | 370 | 73 | 762 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 18.6 | 18.6 | | 17.5 | 40.2 | | 48.4 | 43.8 | 61.3 | 11.2 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.38 | | 0.46 | 0.42 | 0.59 | 0.11 | 0.47 | |
| v/c Ratio | 0.17 | 0.66 | | 0.60 | 0.13 | | 0.22 | 0.41 | 0.43 | 0.43 | 0.50 | |

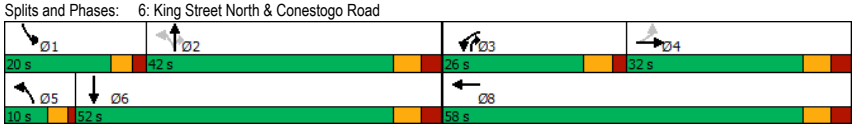




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.3 | 30.9 | | 46.6 | 7.1 | | 16.4 | 25.5 | 14.4 | 53.9 | 22.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.3 | 30.9 | | 46.6 | 7.1 | | 16.4 | 25.5 | 14.4 | 53.9 | 22.8 | |
| LOS | D | C | | D | A | | B | C | B | D | C | |
| Approach Delay | | 32.0 | | | 39.5 | | | 21.0 | | | 25.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.0 | 23.8 | | 33.0 | 1.3 | | 6.8 | 48.7 | 38.2 | 15.0 | 59.4 | |
| Queue Length 95th (m) | 17.0 | 52.2 | | 52.6 | 10.0 | | 17.7 | 84.0 | 81.0 | 32.1 | 96.6 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 341 | 468 | | 670 | 729 | | 312 | 1482 | 921 | 249 | 1530 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.11 | 0.49 | | 0.47 | 0.10 | | 0.22 | 0.41 | 0.40 | 0.29 | 0.50 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 104.6 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.66 | | | |
| Intersection Signal Delay: 26.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 65.8% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 188 | 611 | 526 | 127 | 0 | 1251 |
| Future Volume (vph) | 188 | 611 | 526 | 127 | 0 | 1251 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 338 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 204 | 664 | 572 | 138 | 0 | 1360 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 204 | 664 | 710 | 0 | 0 | 1360 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.20 | 0.99 | 0.37 | | | 0.63 |

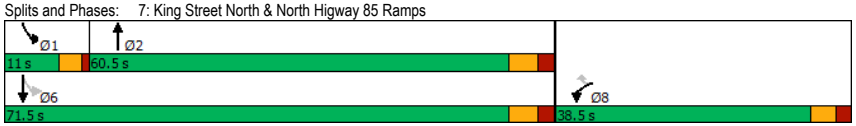




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.3 | 50.7 | 10.6 | | | 15.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.3 | 50.7 | 10.6 | | | 15.1 |
| LOS | C | D | B | | | B |
| Approach Delay | 45.4 | | 10.6 | | | 15.1 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 17.3 | 86.7 | 36.7 | | | 94.8 |
| Queue Length 95th (m) | 26.7 | #169.6 | 48.5 | | | 116.8 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 674 | 1925 | | | 2150 |
| 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 | 0.99 | 0.37 | | | 0.63 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.99 | | | |
| Intersection Signal Delay: 23.0 | | Intersection LOS: C | |
| Intersection Capacity Utilization 93.3% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 1 | 183 | 155 | 0 | 277 | 0 | 813 | 357 | 21 | 924 | 625 |
| Future Volume (vph) | 22 | 1 | 183 | 155 | 0 | 277 | 0 | 813 | 357 | 21 | 924 | 625 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.289 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 512 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 75 | | | 108 | | | 388 | | | 679 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 24 | 1 | 199 | 168 | 0 | 301 | 0 | 884 | 388 | 23 | 1004 | 679 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 24 | 1 | 199 | 168 | 0 | 301 | 0 | 884 | 388 | 23 | 1004 | 679 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 49.5 | 49.5 | 49.5 | 49.5 | | 49.5 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (%) | 45.0% | 45.0% | 45.0% | 45.0% | | 45.0% | | 55.0% | 55.0% | 55.0% | 55.0% | 55.0% |
| Maximum Green (s) | 42.8 | 42.8 | 42.8 | 42.8 | | 42.8 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 20.1 | 20.1 | 20.1 | 20.1 | | 20.1 | | 56.8 | 56.8 | 56.8 | 56.8 | 56.8 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.24 | 0.24 | | 0.24 | | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 |
| v/c Ratio | 0.06 | 0.00 | 0.52 | 0.55 | | 0.70 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.59 |

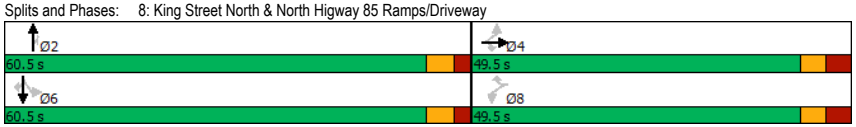




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 24.1 | 23.0 | 21.9 | 35.3 | | 27.7 | | 7.5 | 1.9 | 7.3 | 8.0 | 3.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.1 | 23.0 | 21.9 | 35.3 | | 27.7 | | 7.5 | 1.9 | 7.3 | 8.0 | 3.1 |
| LOS | C | C | C | D | | C | | A | A | A | A | A |
| Approach Delay | | 22.1 | | | 30.4 | | | 5.8 | | | 6.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 3.2 | 0.1 | 17.7 | 25.1 | | 29.8 | | 29.9 | 0.0 | 1.2 | 35.6 | 0.0 |
| Queue Length 95th (m) | 9.1 | 1.3 | 37.8 | 44.4 | | 57.0 | | 56.7 | 11.1 | 5.3 | 66.7 | 13.8 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 905 | 1023 | 771 | 694 | | 839 | | 2367 | 1079 | 342 | 2367 | 1150 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.03 | 0.00 | 0.26 | 0.24 | | 0.36 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.59 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 84.9 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 10.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix D

## Internal Capture

| NCHRP 8-51 Internal Trip Capture Estimation Tool | | | |
|---|---|---|---|
| **Project Name:** | 200039 | **Organization:** | PTSL |
| **Project Location:** | 525-565 Conestogo Road | **Performed By:** | Amo |
| **Scenario Description:** | Site Plan | **Date:** | Jun-21 |
| **Analysis Year:** | 2037 | **Checked By:** | MB |
| **Analysis Period:** | **AM Street Peak Hour** | **Date:** | Jun-21 |

**Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)**

| Land Use | Development Data (*For Information Only*) | | | Estimated Vehicle-Trips | | |
|---|---|---|---|---|---|---|
| | ITE LUCs[1] | Quantity | Units | Total | Entering | Exiting |
| Office | 710 | 196 | 1000 Sq. ft | 211 | 181 | 30 |
| Retail | 820 | 21 | 1000 Sq. ft | 162 | 100 | 62 |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 221-222 | 2,534 | Units | 745 | 181 | 564 |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |
| Total | | | | 1118 | 462 | 656 |

**Table 2-A: Mode Split and Vehicle Occupancy Estimates**

| Land Use | Entering Trips | | | Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | % Transit | % Non-Motorized | Veh. Occ. | % Transit | % Non-Motorized |
| Office | 1.05 | | | 1.08 | | |
| Retail | 1.13 | | | 1.18 | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 1.16 | | | 1.16 | | |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |

**Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

**Table 4-A: Internal Person-Trip Origin-Destination Matrix***

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 9 | 0 | 0 | 0 | 0 |
| Retail | 8 | | 0 | 0 | 4 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 6 | 7 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 5-A: Computations Summary**

| | Total | Entering | Exiting |
|---|---|---|---|
| All Person-Trips | 1,272 | 513 | 759 |
| Internal Capture Percentage | 5% | 7% | 4% |
| | | | |
| External Vehicle-Trips[3] | 1,058 | 432 | 626 |
| External Transit-Trips[4] | 0 | 0 | 0 |
| External Non-Motorized Trips[4] | 0 | 0 | 0 |

**Table 6-A: Internal Trip Capture Percentages by Land Use**

| Land Use | Entering Trips | Exiting Trips |
|---|---|---|
| Office | 7% | 28% |
| Retail | 14% | 16% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 2% | 2% |
| Hotel | N/A | N/A |

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

| | |
|---|---|
| **Project Name:** | 200039 |
| **Analysis Period:** | **AM Street Peak Hour** |

**Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends**

| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.05 | 181 | 190 | 1.08 | 30 | 32 |
| Retail | 1.13 | 100 | 113 | 1.18 | 62 | 73 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.16 | 181 | 210 | 1.16 | 564 | 654 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

**Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 9 | 20 | 0 | 0 | 0 |
| Retail | 21 | | 9 | 0 | 10 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 13 | 7 | 131 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 36 | 0 | 0 | 0 | 0 |
| Retail | 8 | | 0 | 0 | 4 | 0 |
| Restaurant | 27 | 9 | | 0 | 11 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 6 | 19 | 0 | 0 | | 0 |
| Hotel | 6 | 5 | 0 | 0 | 0 | |

**Table 9-A (D): Internal and External Trips Summary (Entering Trips)**

| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 14 | 176 | 190 | 168 | 0 | 0 |
| Retail | 16 | 97 | 113 | 86 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 4 | 206 | 210 | 178 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

**Table 9-A (O): Internal and External Trips Summary (Exiting Trips)**

| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 9 | 23 | 32 | 21 | 0 | 0 |
| Retail | 12 | 61 | 73 | 52 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 13 | 641 | 654 | 553 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 8-51 Internal Trip Capture Estimation Tool | | | |
|---|---|---|---|
| **Project Name:** | 200039 | **Organization:** | PTSL |
| **Project Location:** | 525-565 Conestogo Road | **Performed By:** | Amo |
| **Scenario Description:** | Site Plan | **Date:** | Jun-21 |
| **Analysis Year:** | 2037 | **Checked By:** | MB |
| **Analysis Period:** | **PM Street Peak Hour** | **Date:** | Jun-21 |

**Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)**

| Land Use | Development Data (*For Information Only*) | | | Estimated Vehicle-Trips | | |
|---|---|---|---|---|---|---|
| | ITE LUCs[1] | Quantity | Units | Total | Entering | Exiting |
| Office | 710 | 196 | 1000 Sq. ft | 216 | 35 | 181 |
| Retail | 820 | 21 | 1000 Sq. ft | 174 | 84 | 90 |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 221-222 | 2,534 | Units | 903 | 551 | 352 |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |
| Total | | | | 1293 | 670 | 623 |

**Table 2-A: Mode Split and Vehicle Occupancy Estimates**

| Land Use | Entering Trips | | | Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | % Transit | % Non-Motorized | Veh. Occ. | % Transit | % Non-Motorized |
| Office | 1.17 | | | 1.06 | | |
| Retail | 1.30 | | | 1.33 | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 1.22 | | | 1.22 | | |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |

**Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

**Table 4-A: Internal Person-Trip Origin-Destination Matrix***

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 35 | 0 | 0 | 0 | 0 |
| Retail | 2 | | 0 | 0 | 13 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 4 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 5-A: Computations Summary**

| | Total | Entering | Exiting |
|---|---|---|---|
| All Person-Trips | 1,563 | 822 | 741 |
| Internal Capture Percentage | 7% | 7% | 7% |
| | | | |
| External Vehicle-Trips[3] | 1,201 | 626 | 575 |
| External Transit-Trips[4] | 0 | 0 | 0 |
| External Non-Motorized Trips[4] | 0 | 0 | 0 |

**Table 6-A: Internal Trip Capture Percentages by Land Use**

| Land Use | Entering Trips | Exiting Trips |
|---|---|---|
| Office | 7% | 18% |
| Retail | 36% | 13% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 2% | 1% |
| Hotel | N/A | N/A |

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

*Estimation Tool Developed by the Texas Transportation Institute*

| | |
|---|---|
| **Project Name:** | 200039 |
| **Analysis Period:** | **AM Street Peak Hour** |

**Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends**

| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.17 | 35 | 41 | 1.06 | 181 | 192 |
| Retail | 1.30 | 84 | 109 | 1.33 | 90 | 120 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.22 | 551 | 672 | 1.22 | 352 | 429 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

**Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 54 | 121 | 0 | 2 | 0 |
| Retail | 35 | | 16 | 0 | 17 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 9 | 4 | 86 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 35 | 0 | 0 | 0 | 0 |
| Retail | 2 | | 0 | 0 | 13 | 0 |
| Restaurant | 6 | 9 | | 0 | 34 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 1 | 19 | 0 | 0 | | 0 |
| Hotel | 1 | 4 | 0 | 0 | 0 | |

**Table 9-A (D): Internal and External Trips Summary (Entering Trips)**

| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 3 | 38 | 41 | 32 | 0 | 0 |
| Retail | 39 | 70 | 109 | 54 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 13 | 659 | 672 | 540 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

**Table 9-A (O): Internal and External Trips Summary (Exiting Trips)**

| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 35 | 157 | 192 | 148 | 0 | 0 |
| Retail | 15 | 105 | 120 | 79 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 5 | 424 | 429 | 348 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

# Appendix E

## 2025 Background Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Future Volume (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.978 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3251 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.420 | | | 0.150 | | | 0.510 | | | 0.442 | | |
| Satd. Flow (perm) | 735 | 3251 | 0 | 263 | 3438 | 1403 | 875 | 3036 | 0 | 725 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 210 | 941 | 0 | 103 | 362 | 115 | 54 | 309 | 0 | 177 | 413 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.3 | | 48.6 | 40.9 | 40.9 | 40.3 | 33.8 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.47 | 0.75 | | 0.52 | 0.30 | 0.19 | 0.16 | 0.34 | | 0.41 | 0.34 | |

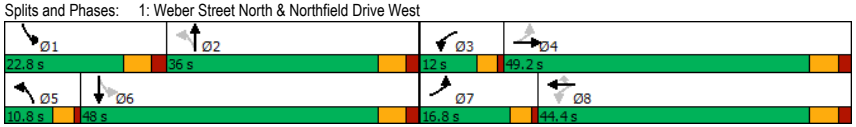




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.4 | 35.8 | | 27.6 | 29.7 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.4 | 35.8 | | 27.6 | 29.7 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 33.4 | | | 23.6 | | | 26.2 | | | 26.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 30.4 | 104.3 | | 13.9 | 34.8 | 0.0 | 7.4 | 24.0 | | 26.3 | 38.0 | |
| Queue Length 95th (m) | 47.5 | 130.5 | | 24.7 | 48.0 | 0.0 | 15.2 | 38.3 | | 42.4 | 51.8 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 455 | 1255 | | 204 | 1190 | 611 | 345 | 918 | | 460 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.46 | 0.75 | | 0.50 | 0.30 | 0.19 | 0.16 | 0.34 | | 0.38 | 0.34 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 118.2 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.75 | | |
| Intersection Signal Delay: 28.7 | | Intersection LOS: C |
| Intersection Capacity Utilization 93.3% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Future Volume (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.961 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1586 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.429 | | | 0.107 | | | | 0.859 | | 0.747 | | |
| Satd. Flow (perm) | 760 | 3262 | 0 | 183 | 3204 | 0 | 0 | 1415 | 1376 | 1155 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 311 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1139 | 0 | 303 | 590 | 0 | 0 | 16 | 311 | 69 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.9 | 54.9 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.46 | 0.46 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.76 | | 0.81 | 0.27 | | | 0.04 | 0.52 | 0.22 | 0.06 | |

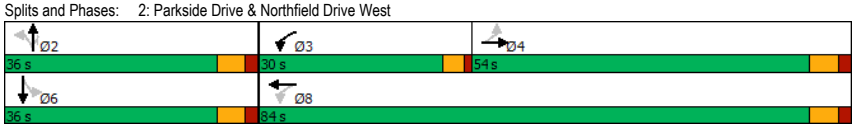




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 32.3 | | 40.7 | 8.0 | | | 33.2 | 7.3 | 36.7 | 32.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 32.3 | | 40.7 | 8.0 | | | 33.2 | 7.3 | 36.7 | 32.5 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 32.3 | | | 19.1 | | | 8.6 | | | 35.6 | |
| Approach LOS | | C | | | B | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 123.4 | | 47.1 | 27.0 | | | 3.0 | 0.0 | 13.4 | 4.6 | |
| Queue Length 95th (m) | 1.3 | 161.4 | | 79.3 | 35.5 | | | 8.9 | 23.6 | 26.7 | 12.2 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 347 | 1493 | | 433 | 2146 | | | 377 | 595 | 308 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.76 | | 0.70 | 0.27 | | | 0.04 | 0.52 | 0.22 | 0.06 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.81 | | | |
| Intersection Signal Delay: 24.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Future Volume (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.945 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.982 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1296 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.873 | | | 0.847 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1152 | 0 | 0 | 1136 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 25 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 111 | 655 | 0 | 9 | 665 | 0 | 0 | 61 | 0 | 0 | 111 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.6 | 58.2 | | 7.2 | 47.5 | | | 13.7 | | | 13.7 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.61 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.45 | 0.27 | | 0.06 | 0.34 | | | 0.27 | | | 0.49 | |

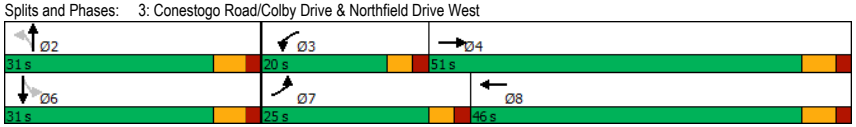




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 37.9 | 5.7 | | 37.4 | 11.8 | | | 22.7 | | | 30.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 37.9 | 5.7 | | 37.4 | 11.8 | | | 22.7 | | | 30.1 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.4 | | | 12.2 | | | 22.7 | | | 30.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 16.1 | 14.0 | | 1.3 | 29.1 | | | 4.9 | | | 11.1 | |
| Queue Length 95th (m) | 34.2 | 44.5 | | 6.3 | 56.3 | | | 16.3 | | | 28.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 456 | 2424 | | 319 | 1929 | | | 425 | | | 424 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.24 | 0.27 | | 0.03 | 0.34 | | | 0.14 | | | 0.26 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 12.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 62.3% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Future Volume (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.529 | | | 0.950 | | | 0.532 | | | 0.406 | | |
| Satd. Flow (perm) | 894 | 3065 | 0 | 2963 | 3103 | 0 | 843 | 2966 | 0 | 704 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 127 | 460 | 0 | 218 | 363 | 0 | 117 | 467 | 0 | 98 | 263 | 77 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 36.4 | 25.8 | | 14.8 | 29.9 | | 45.2 | 34.7 | | 42.2 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.36 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.35 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.32 | 0.57 | | 0.50 | 0.39 | | 0.26 | 0.44 | | 0.26 | 0.23 | 0.14 |

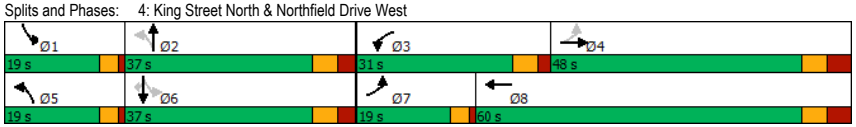


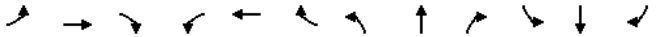


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.7 | 34.2 | | 44.2 | 28.3 | | 17.7 | 25.4 | | 17.8 | 26.6 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.7 | 34.2 | | 44.2 | 28.3 | | 17.7 | 25.4 | | 17.8 | 26.6 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.0 | | | 34.3 | | | 23.8 | | | 20.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 15.1 | 40.1 | | 20.8 | 28.8 | | 12.6 | 33.1 | | 10.3 | 19.6 | 0.0 |
| Queue Length 95th (m) | 28.7 | 62.8 | | 36.2 | 46.5 | | 27.9 | 58.5 | | 23.6 | 36.6 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 470 | 1367 | | 804 | 1750 | | 497 | 1055 | | 470 | 1126 | 562 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.27 | 0.34 | | 0.27 | 0.21 | | 0.24 | 0.44 | | 0.21 | 0.23 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 100.4 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.57 | | | |
| Intersection Signal Delay: 27.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.6% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.920 | | | 0.988 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 110 | 0 | 0 | 55 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 178 | 176 | 44 | 171 | 171 | 105 | 44 | 0 | 0 | 110 | 0 | 0 |
| Stage 1 | 66 | 66 | - | 105 | 105 | - | - | - | - | - | - | - |
| Stage 2 | 112 | 110 | - | 66 | 66 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 789 | 721 | 1032 | 797 | 726 | 933 | 1577 | - | - | 1438 | - | - |
| Stage 1 | 950 | 844 | - | 906 | 812 | - | - | - | - | - | - | - |
| Stage 2 | 898 | 808 | - | 950 | 844 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 773 | 715 | 1032 | 792 | 720 | 933 | 1577 | - | - | 1438 | - | - |
| Mov Cap-2 Maneuver | 773 | 715 | - | 792 | 720 | - | - | - | - | - | - | - |
| Stage 1 | 950 | 837 | - | 906 | 812 | - | - | - | - | - | - | - |
| Stage 2 | 885 | 808 | - | 942 | 837 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.2 | 0 | 1.5 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1577 | - | - | - | 870 | 1438 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.025 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.2 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Future Volume (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.882 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1377 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.416 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1377 | 0 | 3013 | 1347 | 0 | 722 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 45 | | | 29 | | | | | | 15 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 57 | 0 | 199 | 58 | 0 | 132 | 584 | 224 | 27 | 450 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.4 | 26.6 | | 55.8 | 52.0 | 65.4 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.56 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.17 | 0.24 | | 0.45 | 0.14 | | 0.25 | 0.30 | 0.22 | 0.23 | 0.30 | |

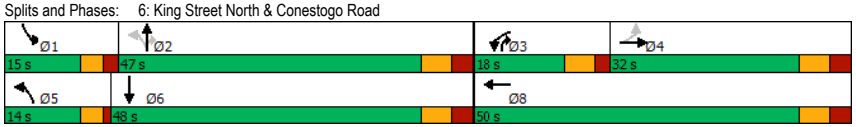




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.8 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.3 | | | 35.1 | | | 11.2 | | | 17.5 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 5.0 | 2.1 | | 18.7 | 4.0 | | 10.4 | 26.6 | 8.9 | 5.0 | 27.5 | |
| Queue Length 95th (m) | 13.5 | 13.6 | | 30.3 | 13.2 | | 19.3 | 54.1 | 30.1 | 13.5 | 40.0 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 352 | 453 | | 469 | 693 | | 539 | 1960 | 1013 | 150 | 1518 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.13 | | 0.42 | 0.08 | | 0.24 | 0.30 | 0.22 | 0.18 | 0.30 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 92.1 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.45 | | | |
| Intersection Signal Delay: 17.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 47.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 220 | 668 | 286 | 97 | 0 | 482 |
| Future Volume (vph) | 220 | 668 | 286 | 97 | 0 | 482 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1553 | 3280 | 0 | 1056 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1533 | 3280 | 0 | 1056 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 513 | 56 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 239 | 726 | 311 | 105 | 0 | 524 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 239 | 726 | 416 | 0 | 0 | 524 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 27.0 | 27.0 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.64 | | | 0.64 |
| v/c Ratio | 0.25 | 0.92 | 0.20 | | | 0.23 |

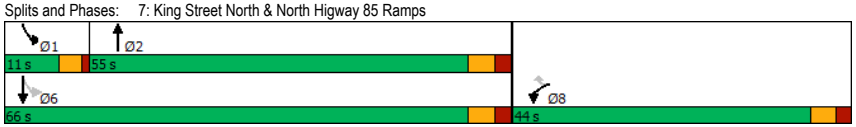




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.9 | 26.7 | 8.0 | | | 9.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.9 | 26.7 | 8.0 | | | 9.4 |
| LOS | C | C | A | | | A |
| Approach Delay | 26.8 | | 8.0 | | | 9.4 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 18.8 | 44.7 | 14.5 | | | 22.2 |
| Queue Length 95th (m) | 28.1 | 107.7 | 28.4 | | | 40.3 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1435 | 935 | 2124 | | | 2248 |
| 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 | 0.17 | 0.78 | 0.20 | | | 0.23 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 97.9 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.92 | | | |
| Intersection Signal Delay: 17.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 89.0% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 497 | 264 | 217 | 919 | 366 |
| Future Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 497 | 264 | 217 | 919 | 366 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.715 | | | | | | 0.398 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1279 | 0 | 1384 | 0 | 3438 | 1521 | 753 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 144 | | | 68 | | | 287 | | | 398 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 540 | 287 | 236 | 999 | 398 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 540 | 287 | 236 | 999 | 398 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 20.8 | 20.8 | 20.8 | 20.8 | | 20.8 | | 62.2 | 62.2 | 73.2 | 73.2 | 71.3 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.20 | 0.20 | | 0.20 | | 0.61 | 0.61 | 0.72 | 0.72 | 0.70 |
| v/c Ratio | 0.01 | 0.17 | 0.76 | 0.08 | | 0.07 | | 0.26 | 0.28 | 0.38 | 0.40 | 0.36 |

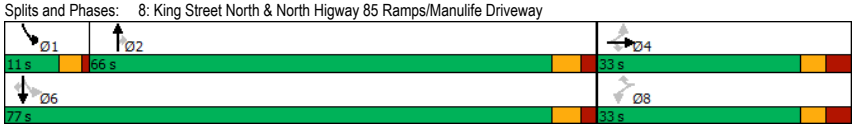




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.7 | 33.5 | 32.8 | 32.4 | | 0.4 | | 10.4 | 2.0 | 7.5 | 6.9 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.7 | 33.5 | 32.8 | 32.4 | | 0.4 | | 10.4 | 2.0 | 7.5 | 6.9 | 1.7 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 32.9 | | | 16.0 | | | 7.5 | | | 5.7 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.2 | 35.6 | 3.7 | | 0.0 | | 25.4 | 0.0 | 13.9 | 37.7 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.7 | 67.8 | 10.3 | | 0.0 | | 41.8 | 11.5 | 29.2 | 63.7 | 10.4 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 509 | 541 | 539 | 364 | | 443 | | 2095 | 1039 | 613 | 2491 | 1097 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.60 | 0.06 | | 0.05 | | 0.26 | 0.28 | 0.38 | 0.40 | 0.36 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.76 | | | |
| Intersection Signal Delay: 10.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Manulife Driveway



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 132 | 443 | 77 | 156 | 1097 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Future Volume (vph) | 132 | 443 | 77 | 156 | 1097 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.327 | | | 0.284 | | | 0.274 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 570 | 3574 | 1421 | 490 | 3238 | 0 | 472 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 111 | | 15 | | | 96 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 132 | 443 | 77 | 156 | 1097 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 132 | 520 | 0 | 156 | 1097 | 150 | 188 | 498 | 0 | 306 | 662 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.2 | | 53.4 | 42.8 | 42.8 | 45.5 | 32.0 | | 56.2 | 38.8 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.44 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.72 | 0.47 | | 0.45 | 0.86 | 0.26 | 0.59 | 0.57 | | 0.73 | 0.62 | |

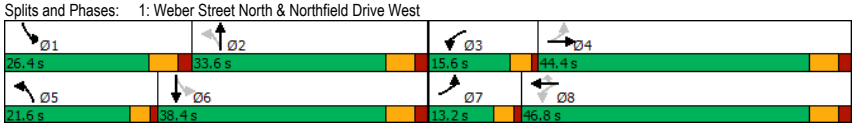




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 45.8 | 32.0 | | 23.8 | 44.3 | 10.1 | 28.0 | 40.2 | | 31.8 | 32.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 45.8 | 32.0 | | 23.8 | 44.3 | 10.1 | 28.0 | 40.2 | | 31.8 | 32.6 | |
| LOS | D | C | | C | D | B | C | D | | C | C | |
| Approach Delay | | 34.8 | | | 38.4 | | | 36.9 | | | 32.3 | |
| Approach LOS | | C | | | D | | | D | | | C | |
| Queue Length 50th (m) | 19.1 | 52.8 | | 23.0 | 135.5 | 6.5 | 27.3 | 55.9 | | 48.5 | 62.8 | |
| Queue Length 95th (m) | #47.4 | 70.5 | | 37.6 | #166.8 | 22.1 | 43.2 | 74.7 | | 71.7 | 88.0 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 187 | 1105 | | 365 | 1275 | 578 | 376 | 875 | | 441 | 1064 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.71 | 0.47 | | 0.43 | 0.86 | 0.26 | 0.50 | 0.57 | | 0.69 | 0.62 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.86 | | |
| Intersection Signal Delay: 35.9 | | Intersection LOS: D |
| Intersection Capacity Utilization 97.7% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 813 | 34 | 380 | 1401 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Future Volume (vph) | 3 | 813 | 34 | 380 | 1401 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.947 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1538 | 0 |
| Flt Permitted | 0.156 | | | 0.215 | | | | 0.804 | | 0.713 | | |
| Satd. Flow (perm) | 276 | 3282 | 0 | 373 | 3301 | 0 | 0 | 1296 | 1417 | 1136 | 1538 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 347 | | 12 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 813 | 34 | 380 | 1401 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 847 | 0 | 380 | 1488 | 0 | 0 | 67 | 479 | 60 | 34 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 55.2 | 55.2 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.02 | 0.55 | | 0.88 | 0.69 | | | 0.19 | 0.74 | 0.19 | 0.08 | |

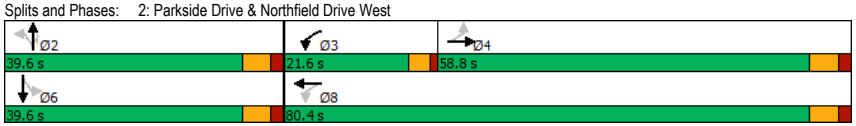




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 23.8 | | 36.5 | 15.0 | | | 33.6 | 18.3 | 34.0 | 23.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 23.8 | | 36.5 | 15.0 | | | 33.6 | 18.3 | 34.0 | 23.0 | |
| LOS | B | C | | D | B | | | C | B | C | C | |
| Approach Delay | | 23.8 | | | 19.4 | | | 20.2 | | | 30.0 | |
| Approach LOS | | C | | | B | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 73.7 | | 38.5 | 107.1 | | | 12.3 | 27.8 | 11.1 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 98.7 | | #100.2 | 144.6 | | | 24.5 | 71.7 | 22.7 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 129 | 1549 | | 435 | 2157 | | | 394 | 672 | 345 | 475 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.55 | | 0.87 | 0.69 | | | 0.17 | 0.71 | 0.17 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.88 | | |
| Intersection Signal Delay: 20.9 | | Intersection LOS: C |
| Intersection Capacity Utilization 119.5% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 64 | 771 | 42 | 11 | 734 | 33 | 122 | 9 | 27 | 96 | 28 | 249 |
| Future Volume (vph) | 64 | 771 | 42 | 11 | 734 | 33 | 122 | 9 | 27 | 96 | 28 | 249 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.448 | | | 0.881 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 665 | 0 | 0 | 1218 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 64 | 771 | 42 | 11 | 734 | 33 | 122 | 9 | 27 | 96 | 28 | 249 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 64 | 813 | 0 | 11 | 767 | 0 | 0 | 158 | 0 | 0 | 373 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.2 | 56.4 | | 7.4 | 46.9 | | | 30.2 | | | 30.2 | |
| Actuated g/C Ratio | 0.11 | 0.58 | | 0.08 | 0.48 | | | 0.31 | | | 0.31 | |
| v/c Ratio | 0.37 | 0.43 | | 0.09 | 0.48 | | | 0.74 | | | 0.85 | |

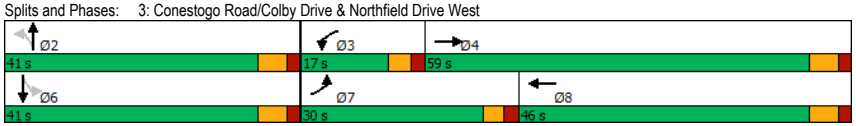




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.8 | 13.8 | | 48.0 | 20.5 | | | 50.8 | | | 42.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 48.8 | 13.8 | | 48.0 | 20.5 | | | 50.8 | | | 42.2 | |
| LOS | D | B | | D | C | | | D | | | D | |
| Approach Delay | | 16.4 | | | 20.9 | | | 50.8 | | | 42.2 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 12.0 | 43.8 | | 2.1 | 57.1 | | | 25.2 | | | 51.2 | |
| Queue Length 95th (m) | 27.5 | 83.7 | | 8.5 | 85.8 | | | #64.6 | | | #114.5 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 448 | 1879 | | 210 | 1590 | | | 262 | | | 525 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.14 | 0.43 | | 0.05 | 0.48 | | | 0.60 | | | 0.71 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 96.9 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 24.9 | | Intersection LOS: C |
| Intersection Capacity Utilization 75.0% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 161 | 502 | 104 | 229 | 448 | 68 | 147 | 371 | 164 | 104 | 433 | 169 |
| Future Volume (vph) | 161 | 502 | 104 | 229 | 448 | 68 | 147 | 371 | 164 | 104 | 433 | 169 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3186 | 0 | 3176 | 3212 | 0 | 1606 | 3126 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.362 | | | 0.950 | | | 0.370 | | | 0.345 | | |
| Satd. Flow (perm) | 631 | 3186 | 0 | 3125 | 3212 | 0 | 625 | 3126 | 0 | 589 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 169 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 161 | 502 | 104 | 229 | 448 | 68 | 147 | 371 | 164 | 104 | 433 | 169 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 161 | 606 | 0 | 229 | 516 | 0 | 147 | 535 | 0 | 104 | 433 | 169 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 41.5 | 29.7 | | 15.2 | 33.1 | | 46.8 | 35.2 | | 43.0 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.39 | 0.28 | | 0.14 | 0.31 | | 0.44 | 0.33 | | 0.41 | 0.32 | 0.32 |
| v/c Ratio | 0.44 | 0.67 | | 0.50 | 0.51 | | 0.38 | 0.50 | | 0.31 | 0.39 | 0.29 |

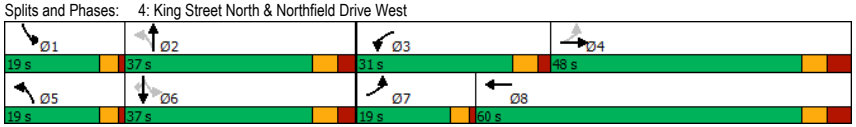


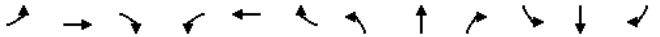


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.4 | 37.1 | | 47.1 | 31.1 | | 21.8 | 29.2 | | 21.1 | 31.5 | 6.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.4 | 37.1 | | 47.1 | 31.1 | | 21.8 | 29.2 | | 21.1 | 31.5 | 6.5 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 33.8 | | | 36.0 | | | 27.6 | | | 24.0 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 20.2 | 59.1 | | 23.6 | 46.6 | | 18.0 | 43.1 | | 12.3 | 38.0 | 0.0 |
| Queue Length 95th (m) | 34.8 | 86.1 | | 40.5 | 67.3 | | 38.7 | 75.6 | | 28.4 | 64.6 | 17.4 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 415 | 1347 | | 817 | 1721 | | 425 | 1071 | | 414 | 1113 | 579 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.45 | | 0.28 | 0.30 | | 0.35 | 0.50 | | 0.25 | 0.39 | 0.29 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 106 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.67 | | |
| Intersection Signal Delay: 30.5 | | Intersection LOS: C |
| Intersection Capacity Utilization 77.8% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 124 | 0 | 0 | 78 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 114 | 10 | 11 | 67 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 222 | 213 | 67 | 208 | 208 | 119 | 67 | 0 | 0 | 124 | 0 | 0 |
| Stage 1 | 89 | 89 | - | 119 | 119 | - | - | - | - | - | - | - |
| Stage 2 | 133 | 124 | - | 89 | 89 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 738 | 688 | 1002 | 754 | 692 | 909 | 1547 | - | - | 1421 | - | - |
| Stage 1 | 923 | 825 | - | 890 | 801 | - | - | - | - | - | - | - |
| Stage 2 | 875 | 797 | - | 923 | 825 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 711 | 682 | 1002 | 749 | 686 | 909 | 1547 | - | - | 1421 | - | - |
| Mov Cap-2 Maneuver | 711 | 682 | - | 749 | 686 | - | - | - | - | - | - | - |
| Stage 1 | 923 | 818 | - | 890 | 801 | - | - | - | - | - | - | - |
| Stage 2 | 848 | 797 | - | 916 | 818 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.5 | 0 | 1.1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1547 | - | - | - | 846 | 1421 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.051 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.5 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 61 | 170 | 323 | 10 | 61 | 71 | 617 | 376 | 74 | 742 | 33 |
| Future Volume (vph) | 38 | 61 | 170 | 323 | 10 | 61 | 71 | 617 | 376 | 74 | 742 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.890 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1434 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.711 | | | 0.950 | | | 0.291 | | | 0.950 | | |
| Satd. Flow (perm) | 1260 | 1434 | 0 | 3107 | 1339 | 0 | 516 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 109 | | | 61 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 61 | 170 | 323 | 10 | 61 | 71 | 617 | 376 | 74 | 742 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 231 | 0 | 323 | 71 | 0 | 71 | 617 | 376 | 74 | 775 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 18.8 | 18.8 | | 17.9 | 40.7 | | 48.4 | 43.8 | 61.7 | 11.2 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.39 | | 0.46 | 0.42 | 0.59 | 0.11 | 0.46 | |
| v/c Ratio | 0.17 | 0.67 | | 0.60 | 0.13 | | 0.23 | 0.42 | 0.44 | 0.43 | 0.51 | |

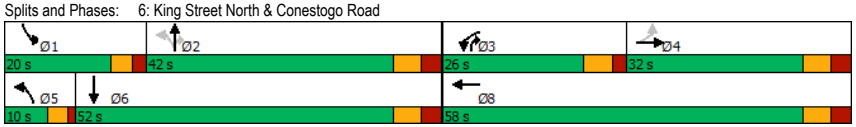




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.5 | 31.5 | | 46.7 | 7.0 | | 16.8 | 26.0 | 14.6 | 54.5 | 23.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.5 | 31.5 | | 46.7 | 7.0 | | 16.8 | 26.0 | 14.6 | 54.5 | 23.3 | |
| LOS | D | C | | D | A | | B | C | B | D | C | |
| Approach Delay | | 32.7 | | | 39.5 | | | 21.4 | | | 26.0 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.2 | 24.9 | | 33.8 | 1.3 | | 7.0 | 50.2 | 39.6 | 15.3 | 61.5 | |
| Queue Length 95th (m) | 17.4 | 53.3 | | 53.5 | 10.0 | | 17.8 | 85.6 | 82.7 | 32.6 | 98.7 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 340 | 466 | | 667 | 726 | | 305 | 1473 | 916 | 247 | 1522 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.11 | 0.50 | | 0.48 | 0.10 | | 0.23 | 0.42 | 0.41 | 0.30 | 0.51 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 105.2 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.67 | | | |
| Intersection Signal Delay: 26.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 66.6% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 190 | 618 | 532 | 128 | 0 | 1266 |
| Future Volume (vph) | 190 | 618 | 532 | 128 | 0 | 1266 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 334 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 207 | 672 | 578 | 139 | 0 | 1376 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 207 | 672 | 717 | 0 | 0 | 1376 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.20 | 1.00 | 0.37 | | | 0.64 |

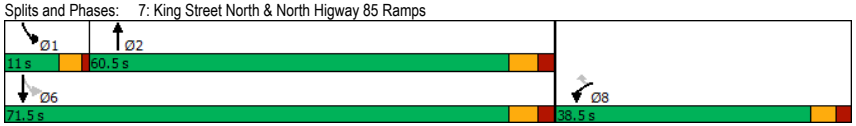




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.4 | 54.8 | 10.6 | | | 15.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.4 | 54.8 | 10.6 | | | 15.3 |
| LOS | C | D | B | | | B |
| Approach Delay | 48.6 | | 10.6 | | | 15.3 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 17.6 | 91.1 | 37.2 | | | 96.7 |
| Queue Length 95th (m) | 27.1 | #175.3 | 49.0 | | | 119.2 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 672 | 1925 | | | 2150 |
| 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 | 1.00 | 0.37 | | | 0.64 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.00 | | | |
| Intersection Signal Delay: 24.0 | | Intersection LOS: C | |
| Intersection Capacity Utilization 93.7% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 1 | 186 | 158 | 0 | 282 | 0 | 826 | 363 | 21 | 939 | 635 |
| Future Volume (vph) | 22 | 1 | 186 | 158 | 0 | 282 | 0 | 826 | 363 | 21 | 939 | 635 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.289 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 512 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 128 | | | 171 | | | 395 | | | 690 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 24 | 1 | 202 | 172 | 0 | 307 | 0 | 898 | 395 | 23 | 1021 | 690 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 24 | 1 | 202 | 172 | 0 | 307 | 0 | 898 | 395 | 23 | 1021 | 690 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 35.0 | 35.0 | 35.0 | 35.0 | | 35.0 | | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 31.8% | 31.8% | 31.8% | 31.8% | | 31.8% | | 68.2% | 68.2% | 68.2% | 68.2% | 68.2% |
| Maximum Green (s) | 28.3 | 28.3 | 28.3 | 28.3 | | 28.3 | | 69.1 | 69.1 | 69.1 | 69.1 | 69.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.2 | 21.2 | 21.2 | 21.2 | | 21.2 | | 71.2 | 71.2 | 71.2 | 71.2 | 71.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.07 | 0.00 | 0.52 | 0.63 | | 0.69 | | 0.36 | 0.35 | 0.06 | 0.41 | 0.58 |

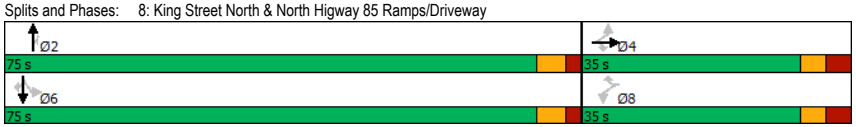




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.9 | 29.0 | 18.2 | 46.8 | | 24.2 | | 6.8 | 1.6 | 6.5 | 7.2 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.9 | 29.0 | 18.2 | 46.8 | | 24.2 | | 6.8 | 1.6 | 6.5 | 7.2 | 2.8 |
| LOS | C | C | B | D | | C | | A | A | A | A | A |
| Approach Delay | | 19.6 | | | 32.3 | | | 5.2 | | | 5.4 | |
| Approach LOS | | B | | | C | | | A | | | A | |
| Queue Length 50th (m) | 4.0 | 0.2 | 12.7 | 32.2 | | 25.0 | | 32.5 | 0.0 | 1.2 | 38.7 | 0.0 |
| Queue Length 95th (m) | 10.6 | 1.5 | 34.0 | 54.4 | | 54.9 | | 57.5 | 10.3 | 5.0 | 67.8 | 12.5 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 520 | 588 | 512 | 398 | | 571 | | 2509 | 1122 | 363 | 2509 | 1181 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.05 | 0.00 | 0.39 | 0.43 | | 0.54 | | 0.36 | 0.35 | 0.06 | 0.41 | 0.58 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 100.4 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.69 | | | |
| Intersection Signal Delay: 9.7 | | Intersection LOS: A | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix F

## 2025 Total Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 209 | 806 | 134 | 102 | 374 | 115 | 53 | 205 | 102 | 176 | 375 | 36 |
| Future Volume (vph) | 209 | 806 | 134 | 102 | 374 | 115 | 53 | 205 | 102 | 176 | 375 | 36 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.979 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3254 | 0 | 1670 | 3438 | 1430 | 1653 | 3035 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.411 | | | 0.151 | | | 0.511 | | | 0.443 | | |
| Satd. Flow (perm) | 720 | 3254 | 0 | 265 | 3438 | 1403 | 877 | 3035 | 0 | 727 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 209 | 806 | 134 | 102 | 374 | 115 | 53 | 205 | 102 | 176 | 375 | 36 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 209 | 940 | 0 | 102 | 374 | 115 | 53 | 307 | 0 | 176 | 411 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.6 | 45.2 | | 48.6 | 41.0 | 41.0 | 40.3 | 33.8 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.47 | 0.75 | | 0.51 | 0.31 | 0.19 | 0.15 | 0.33 | | 0.40 | 0.34 | |

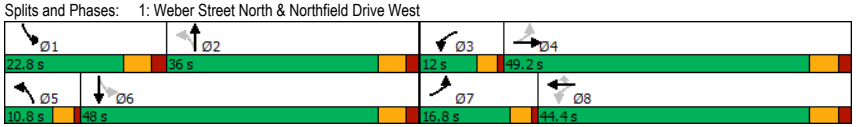




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.5 | 35.8 | | 27.3 | 29.8 | 0.7 | 20.5 | 27.0 | | 23.2 | 27.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.5 | 35.8 | | 27.3 | 29.8 | 0.7 | 20.5 | 27.0 | | 23.2 | 27.2 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 33.4 | | | 23.7 | | | 26.1 | | | 26.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 30.2 | 104.2 | | 13.7 | 36.1 | 0.0 | 7.2 | 23.7 | | 26.1 | 37.7 | |
| Queue Length 95th (m) | 47.1 | 130.2 | | 24.5 | 49.5 | 0.0 | 15.1 | 38.2 | | 42.2 | 51.7 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 450 | 1257 | | 205 | 1192 | 611 | 346 | 919 | | 460 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.46 | 0.75 | | 0.50 | 0.31 | 0.19 | 0.15 | 0.33 | | 0.38 | 0.34 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.1 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.75 | | | |
| Intersection Signal Delay: 28.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 93.2% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1109 | 27 | 301 | 519 | 81 | 13 | 3 | 309 | 69 | 25 | 1 |
| Future Volume (vph) | 1 | 1109 | 27 | 301 | 519 | 81 | 13 | 3 | 309 | 69 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.980 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.961 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3207 | 0 | 0 | 1586 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.425 | | | 0.144 | | | | 0.845 | | 0.747 | | |
| Satd. Flow (perm) | 753 | 3262 | 0 | 246 | 3207 | 0 | 0 | 1392 | 1376 | 1155 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 39 | | | | 309 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1109 | 27 | 301 | 519 | 81 | 13 | 3 | 309 | 69 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1136 | 0 | 301 | 600 | 0 | 0 | 16 | 309 | 69 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 56.0 | 56.0 | | 36.0 | 92.0 | | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | |
| Total Split (%) | 46.7% | 46.7% | | 30.0% | 76.7% | | 23.3% | 23.3% | 23.3% | 23.3% | 23.3% | |
| Maximum Green (s) | 50.0 | 50.0 | | 32.0 | 86.0 | | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 63.7 | 63.7 | | 88.0 | 88.0 | | | 24.0 | 24.0 | 24.0 | 24.0 | |
| Actuated g/C Ratio | 0.53 | 0.53 | | 0.73 | 0.73 | | | 0.20 | 0.20 | 0.20 | 0.20 | |
| v/c Ratio | 0.00 | 0.66 | | 0.73 | 0.25 | | | 0.06 | 0.59 | 0.30 | 0.08 | |

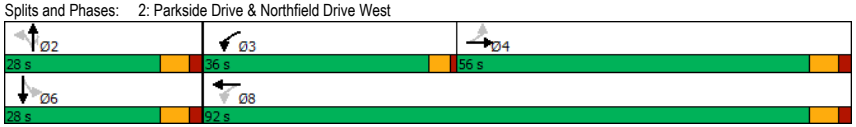




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 17.0 | 23.9 | | 24.9 | 5.2 | | | 39.7 | 9.7 | 45.0 | 38.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 17.0 | 23.9 | | 24.9 | 5.2 | | | 39.7 | 9.7 | 45.0 | 38.8 | |
| LOS | B | C | | C | A | | | D | A | D | D | |
| Approach Delay | | 23.9 | | | 11.8 | | | 11.1 | | | 43.3 | |
| Approach LOS | | C | | | B | | | B | | | D | |
| Queue Length 50th (m) | 0.1 | 102.4 | | 31.5 | 20.6 | | | 3.3 | 0.0 | 14.7 | 5.1 | |
| Queue Length 95th (m) | 1.2 | 150.8 | | 60.3 | 27.2 | | | 9.7 | 26.1 | 29.3 | 13.3 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 399 | 1731 | | 547 | 2362 | | | 278 | 522 | 231 | 328 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.66 | | 0.55 | 0.25 | | | 0.06 | 0.59 | 0.30 | 0.08 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.73 | | | |
| Intersection Signal Delay: 18.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 111 | 602 | 56 | 34 | 583 | 78 | 44 | 14 | 102 | 56 | 9 | 45 |
| Future Volume (vph) | 111 | 602 | 56 | 34 | 583 | 78 | 44 | 14 | 102 | 56 | 9 | 45 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.987 | | | 0.982 | | | 0.914 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.986 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3218 | 0 | 1519 | 3136 | 0 | 0 | 1228 | 0 | 0 | 1309 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.892 | | | 0.691 | |
| Satd. Flow (perm) | 1652 | 3218 | 0 | 1518 | 3136 | 0 | 0 | 1110 | 0 | 0 | 927 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 18 | | | 86 | | | 34 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 111.9 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.1 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 111 | 602 | 56 | 34 | 583 | 78 | 44 | 14 | 102 | 56 | 9 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 111 | 658 | 0 | 34 | 661 | 0 | 0 | 160 | 0 | 0 | 110 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 21.0 | 41.0 | | 29.0 | 49.0 | | 32.0 | 32.0 | | 32.0 | 32.0 | |
| Total Split (%) | 20.6% | 40.2% | | 28.4% | 48.0% | | 31.4% | 31.4% | | 31.4% | 31.4% | |
| Maximum Green (s) | 16.0 | 35.0 | | 24.0 | 43.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.9 | 51.4 | | 8.5 | 45.9 | | | 14.5 | | | 14.5 | |
| Actuated g/C Ratio | 0.15 | 0.63 | | 0.10 | 0.56 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.46 | 0.32 | | 0.22 | 0.37 | | | 0.60 | | | 0.57 | |

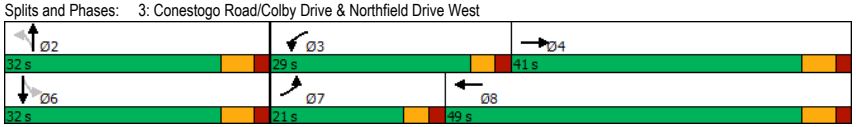




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 40.5 | 9.3 | | 40.3 | 12.5 | | | 26.1 | | | 35.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 40.5 | 9.3 | | 40.3 | 12.5 | | | 26.1 | | | 35.8 | |
| LOS | D | A | | D | B | | | C | | | D | |
| Approach Delay | | 13.8 | | | 13.8 | | | 26.1 | | | 35.8 | |
| Approach LOS | | B | | | B | | | C | | | D | |
| Queue Length 50th (m) | 17.0 | 26.1 | | 5.3 | 29.4 | | | 11.1 | | | 11.6 | |
| Queue Length 95th (m) | 36.3 | 51.4 | | 15.6 | 59.0 | | | 32.4 | | | 30.0 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 87.9 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 352 | 2033 | | 475 | 1776 | | | 445 | | | 347 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.32 | 0.32 | | 0.07 | 0.37 | | | 0.36 | | | 0.32 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 81.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.60 | | | |
| Intersection Signal Delay: 16.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 64.2% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 134 | 377 | 149 | 217 | 309 | 58 | 132 | 325 | 139 | 98 | 262 | 78 |
| Future Volume (vph) | 134 | 377 | 149 | 217 | 309 | 58 | 132 | 325 | 139 | 98 | 262 | 78 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.958 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3030 | 0 | 2974 | 3102 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.520 | | | 0.950 | | | 0.521 | | | 0.411 | | |
| Satd. Flow (perm) | 879 | 3030 | 0 | 2964 | 3102 | 0 | 826 | 2966 | 0 | 712 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 46 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 134 | 377 | 149 | 217 | 309 | 58 | 132 | 325 | 139 | 98 | 262 | 78 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 134 | 526 | 0 | 217 | 367 | 0 | 132 | 464 | 0 | 98 | 262 | 78 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 38.3 | 27.3 | | 15.0 | 31.3 | | 46.3 | 35.2 | | 42.5 | 33.3 | 33.3 |
| Actuated g/C Ratio | 0.37 | 0.27 | | 0.15 | 0.30 | | 0.45 | 0.34 | | 0.41 | 0.32 | 0.32 |
| v/c Ratio | 0.33 | 0.63 | | 0.50 | 0.38 | | 0.30 | 0.44 | | 0.26 | 0.24 | 0.14 |

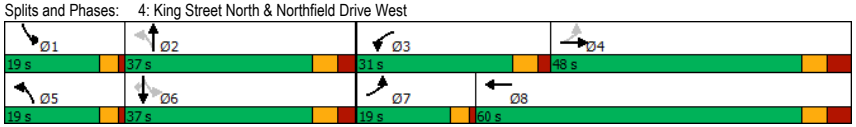




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.8 | 34.5 | | 45.6 | 28.3 | | 19.1 | 26.4 | | 18.8 | 28.0 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.8 | 34.5 | | 45.6 | 28.3 | | 19.1 | 26.4 | | 18.8 | 28.0 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.5 | | | 34.7 | | | 24.8 | | | 21.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 16.4 | 46.6 | | 21.4 | 29.9 | | 15.0 | 34.1 | | 10.8 | 20.5 | 0.0 |
| Queue Length 95th (m) | 29.8 | 71.3 | | 37.2 | 47.0 | | 32.8 | 61.0 | | 25.0 | 38.0 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 469 | 1333 | | 787 | 1712 | | 486 | 1046 | | 465 | 1101 | 553 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.29 | 0.39 | | 0.28 | 0.21 | | 0.27 | 0.44 | | 0.21 | 0.24 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 102.8 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.63 | | | |
| Intersection Signal Delay: 28.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.6% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.920 | | | 0.990 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1467 | 0 | 0 | 1431 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1467 | 0 | 0 | 1431 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 52.3 | | | 68.1 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.8 | | | 4.9 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 137 | 0 | 0 | 64 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 127 | 10 | 11 | 53 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 214 | 212 | 53 | 207 | 207 | 132 | 53 | 0 | 0 | 137 | 0 | 0 |
| Stage 1 | 75 | 75 | - | 132 | 132 | - | - | - | - | - | - | - |
| Stage 2 | 139 | 137 | - | 75 | 75 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 747 | 689 | 1020 | 755 | 693 | 902 | 1566 | - | - | 1405 | - | - |
| Stage 1 | 939 | 836 | - | 876 | 791 | - | - | - | - | - | - | - |
| Stage 2 | 869 | 787 | - | 939 | 836 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 732 | 683 | 1020 | 750 | 687 | 902 | 1566 | - | - | 1405 | - | - |
| Mov Cap-2 Maneuver | 732 | 683 | - | 750 | 687 | - | - | - | - | - | - | - |
| Stage 1 | 939 | 829 | - | 876 | 791 | - | - | - | - | - | - | - |
| Stage 2 | 856 | 787 | - | 931 | 829 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.4 | 0 | 1.3 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1566 | - | - | - | 833 | 1405 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.026 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.4 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 27 | 12 | 96 | 198 | 28 | 28 | 147 | 596 | 223 | 26 | 444 | 51 |
| Future Volume (vph) | 27 | 12 | 96 | 198 | 28 | 28 | 147 | 596 | 223 | 26 | 444 | 51 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.867 | | | 0.925 | | | | 0.850 | | 0.985 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1344 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3138 | 0 |
| Flt Permitted | 0.720 | | | 0.950 | | | 0.386 | | | 0.950 | | |
| Satd. Flow (perm) | 1149 | 1344 | 0 | 3016 | 1347 | 0 | 670 | 3471 | 1403 | 1240 | 3138 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 96 | | | 28 | | | | | | 13 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 27 | 12 | 96 | 198 | 28 | 28 | 147 | 596 | 223 | 26 | 444 | 51 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 27 | 108 | 0 | 198 | 56 | 0 | 147 | 596 | 223 | 26 | 495 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.4 | 13.4 | | 12.7 | 30.2 | | 55.7 | 51.8 | 64.5 | 8.5 | 44.1 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.13 | 0.32 | | 0.58 | 0.54 | 0.68 | 0.09 | 0.46 | |
| v/c Ratio | 0.17 | 0.40 | | 0.49 | 0.13 | | 0.30 | 0.32 | 0.23 | 0.23 | 0.34 | |

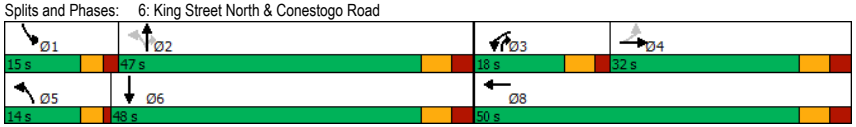




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.7 | 14.9 | | 42.9 | 14.7 | | 10.6 | 14.3 | 6.7 | 46.0 | 17.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.7 | 14.9 | | 42.9 | 14.7 | | 10.6 | 14.3 | 6.7 | 46.0 | 17.2 | |
| LOS | D | B | | D | B | | B | B | A | D | B | |
| Approach Delay | | 19.9 | | | 36.7 | | | 11.9 | | | 18.6 | |
| Approach LOS | | B | | | D | | | B | | | B | |
| Queue Length 50th (m) | 4.8 | 2.1 | | 18.6 | 3.8 | | 11.6 | 27.3 | 8.8 | 4.9 | 31.0 | |
| Queue Length 95th (m) | 12.9 | 17.5 | | 30.5 | 12.7 | | 22.0 | 56.5 | 31.1 | 13.3 | 45.5 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 337 | 462 | | 448 | 664 | | 493 | 1881 | 972 | 143 | 1454 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.23 | | 0.44 | 0.08 | | 0.30 | 0.32 | 0.23 | 0.18 | 0.34 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 95.5 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 17.7 | | Intersection LOS: B | |
| Intersection Capacity Utilization 48.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 219 | 689 | 291 | 96 | 0 | 578 |
| Future Volume (vph) | 219 | 689 | 291 | 96 | 0 | 578 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.963 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3502 | 1615 | 3285 | 0 | 1881 | 3539 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3502 | 1594 | 3285 | 0 | 1881 | 3539 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 526 | 54 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 3 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 15% | 1% | 2% |
| Adj. Flow (vph) | 238 | 749 | 316 | 104 | 0 | 628 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 238 | 749 | 420 | 0 | 0 | 628 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 26.9 | 26.9 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.64 | | | 0.64 |
| v/c Ratio | 0.25 | 0.91 | 0.20 | | | 0.28 |

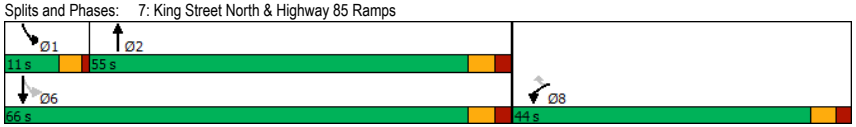




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.9 | 26.3 | 8.0 | | | 9.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.9 | 26.3 | 8.0 | | | 9.6 |
| LOS | C | C | A | | | A |
| Approach Delay | 26.5 | | 8.0 | | | 9.6 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 18.7 | 46.6 | 14.7 | | | 27.2 |
| Queue Length 95th (m) | 28.0 | 109.2 | 28.9 | | | 49.0 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1451 | 968 | 2129 | | | 2273 |
| 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 | 0.16 | 0.77 | 0.20 | | | 0.28 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 97.8 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.91 | | | |
| Intersection Signal Delay: 17.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 90.3% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 60 | 297 | 20 | 0 | 21 | 0 | 502 | 263 | 216 | 938 | 439 |
| Future Volume (vph) | 3 | 60 | 297 | 20 | 0 | 21 | 0 | 502 | 263 | 216 | 938 | 439 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.715 | | | | | | 0.395 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1279 | 0 | 1384 | 0 | 3438 | 1521 | 747 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 138 | | | 68 | | | 286 | | | 477 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 65 | 323 | 22 | 0 | 23 | 0 | 546 | 286 | 235 | 1020 | 477 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 65 | 323 | 22 | 0 | 23 | 0 | 546 | 286 | 235 | 1020 | 477 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 21.0 | 21.0 | 21.0 | 21.0 | | 21.0 | | 62.2 | 62.2 | 73.2 | 73.2 | 73.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.61 | 0.61 | 0.72 | 0.72 | 0.72 |
| v/c Ratio | 0.01 | 0.17 | 0.76 | 0.08 | | 0.07 | | 0.26 | 0.28 | 0.39 | 0.41 | 0.42 |

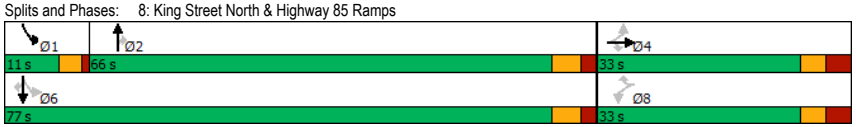




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.7 | 33.4 | 33.7 | 32.3 | | 0.4 | | 10.5 | 2.0 | 7.5 | 7.1 | 1.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.7 | 33.4 | 33.7 | 32.3 | | 0.4 | | 10.5 | 2.0 | 7.5 | 7.1 | 1.8 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 33.6 | | | 16.0 | | | 7.6 | | | 5.7 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.2 | 36.8 | 3.7 | | 0.0 | | 26.1 | 0.0 | 14.1 | 39.5 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.7 | 69.0 | 10.3 | | 0.0 | | 42.3 | 11.6 | 29.0 | 65.5 | 10.6 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 507 | 540 | 534 | 364 | | 442 | | 2091 | 1037 | 607 | 2486 | 1137 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.60 | 0.06 | | 0.05 | | 0.26 | 0.28 | 0.39 | 0.41 | 0.42 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.2 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.76 | | | |
| Intersection Signal Delay: 10.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.1% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 72 | 0 | 0 | 140 | 64 | 23 |
| Future Volume (vph) | 72 | 0 | 0 | 140 | 64 | 23 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.964 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1465 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1465 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 43.7 | | | 68.1 | 111.9 | |
| Travel Time (s) | 3.1 | | | 4.9 | 8.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 78 | 0 | 0 | 152 | 70 | 25 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 78 | 0 | 0 | 152 | 95 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 72 | 0 | 0 | 140 | 64 | 23 |
| Future Vol, veh/h | 72 | 0 | 0 | 140 | 64 | 23 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 78 | 0 | 0 | 152 | 70 | 25 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 235 | 83 | 95 | 0 | - | 0 |
| Stage 1 | 83 | - | - | - | - | - |
| Stage 2 | 152 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 753 | 976 | 1499 | - | - | - |
| Stage 1 | 940 | - | - | - | - | - |
| Stage 2 | 876 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 753 | 976 | 1499 | - | - | - |
| Mov Cap-2 Maneuver | 753 | - | - | - | - | - |
| Stage 1 | 940 | - | - | - | - | - |
| Stage 2 | 876 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.3 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1499 | - | 753 | - | - |
| HCM Lane V/C Ratio | - | - | 0.104 | - | - |
| HCM Control Delay (s) | 0 | - | 10.3 | - | - |
| HCM Lane LOS | A | - | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 27 | 51 | 16 | 110 | 53 | 9 |
| Future Volume (vph) | 27 | 51 | 16 | 110 | 53 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.912 | | | | 0.980 | |
| Flt Protected | 0.983 | | | 0.994 | | |
| Satd. Flow (prot) | 1670 | 0 | 0 | 1852 | 1825 | 0 |
| Flt Permitted | 0.983 | | | 0.994 | | |
| Satd. Flow (perm) | 1670 | 0 | 0 | 1852 | 1825 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 55.5 | | | 51.0 | 52.3 | |
| Travel Time (s) | 4.0 | | | 3.7 | 3.8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 29 | 55 | 17 | 120 | 58 | 10 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 84 | 0 | 0 | 137 | 68 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 24.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 3.2 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 27 | 51 | 16 | 110 | 53 | 9 |
| Future Vol, veh/h | 27 | 51 | 16 | 110 | 53 | 9 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 29 | 55 | 17 | 120 | 58 | 10 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 217 | 63 | 68 | 0 | - | 0 |
| Stage 1 | 63 | - | - | - | - | - |
| Stage 2 | 154 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 771 | 1002 | 1533 | - | - | - |
| Stage 1 | 960 | - | - | - | - | - |
| Stage 2 | 874 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 762 | 1002 | 1533 | - | - | - |
| Mov Cap-2 Maneuver | 762 | - | - | - | - | - |
| Stage 1 | 948 | - | - | - | - | - |
| Stage 2 | 874 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.4 | 0.9 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1533 | - | 903 | - | - |
| HCM Lane V/C Ratio | 0.011 | - | 0.094 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | 9.4 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 58.0 | | | 36.4 | 51.0 | |
| Travel Time (s) | 4.2 | | | 2.6 | 3.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 11.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 137 | 113 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 250 | 113 | 113 | 0 | - | 0 |
| Stage 1 | 113 | - | - | - | - | - |
| Stage 2 | 137 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Mov Cap-2 Maneuver | 739 | - | - | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1476 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1863 | 0 | 0 | 1863 | 1863 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1863 | 0 | 0 | 1863 | 1863 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 59.4 | | | 44.1 | 36.4 | |
| Travel Time (s) | 4.3 | | | 3.2 | 2.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 10.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 137 | 113 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 250 | 113 | 113 | 0 | - | 0 |
| Stage 1 | 113 | - | - | - | - | - |
| Stage 2 | 137 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Mov Cap-2 Maneuver | 739 | - | - | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1476 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 126 | 104 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 57.5 | | | 146.8 | 44.1 | |
| Travel Time (s) | 4.1 | | | 10.6 | 3.2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 137 | 113 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 11.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 126 | 104 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 137 | 113 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 250 | 113 | 113 | 0 | - | 0 |
| Stage 1 | 113 | - | - | - | - | - |
| Stage 2 | 137 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 739 | 940 | 1476 | - | - | - |
| Mov Cap-2 Maneuver | 739 | - | - | - | - | - |
| Stage 1 | 912 | - | - | - | - | - |
| Stage 2 | 890 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1476 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 132 | 458 | 77 | 156 | 1107 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Future Volume (vph) | 132 | 458 | 77 | 156 | 1107 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3188 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.091 | | | 0.340 | | | 0.241 | | | 0.279 | | |
| Satd. Flow (perm) | 158 | 3188 | 0 | 593 | 3574 | 1421 | 416 | 3238 | 0 | 480 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 116 | | 16 | | | 97 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 132 | 458 | 77 | 156 | 1107 | 150 | 188 | 425 | 73 | 306 | 420 | 242 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 132 | 535 | 0 | 156 | 1107 | 150 | 188 | 498 | 0 | 306 | 662 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 12.0 | 49.4 | | 14.0 | 51.4 | 51.4 | 17.0 | 36.6 | | 20.0 | 39.6 | |
| Total Split (%) | 10.0% | 41.2% | | 11.7% | 42.8% | 42.8% | 14.2% | 30.5% | | 16.7% | 33.0% | |
| Maximum Green (s) | 8.0 | 43.4 | | 10.0 | 45.4 | 45.4 | 13.0 | 30.6 | | 14.0 | 33.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 53.8 | 45.8 | | 57.0 | 47.4 | 47.4 | 44.7 | 32.6 | | 52.0 | 36.5 | |
| Actuated g/C Ratio | 0.45 | 0.38 | | 0.48 | 0.40 | 0.40 | 0.37 | 0.27 | | 0.43 | 0.30 | |
| v/c Ratio | 0.78 | 0.44 | | 0.43 | 0.78 | 0.24 | 0.67 | 0.56 | | 0.84 | 0.66 | |

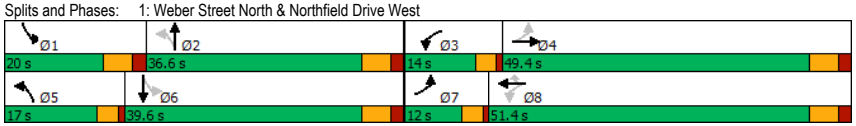




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 52.6 | 28.0 | | 20.8 | 36.7 | 7.9 | 34.5 | 39.1 | | 46.0 | 34.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 52.6 | 28.0 | | 20.8 | 36.7 | 7.9 | 34.5 | 39.1 | | 46.0 | 34.5 | |
| LOS | D | C | | C | D | A | C | D | | D | C | |
| Approach Delay | | 32.9 | | | 31.9 | | | 37.8 | | | 38.2 | |
| Approach LOS | | C | | | C | | | D | | | D | |
| Queue Length 50th (m) | 17.4 | 49.7 | | 20.9 | 124.8 | 5.2 | 28.9 | 54.0 | | 51.3 | 65.1 | |
| Queue Length 95th (m) | #50.0 | 65.8 | | 34.4 | 152.8 | 19.1 | 46.1 | 72.3 | | #84.0 | 86.8 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 170 | 1228 | | 373 | 1411 | 631 | 293 | 891 | | 364 | 1007 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.78 | 0.44 | | 0.42 | 0.78 | 0.24 | 0.64 | 0.56 | | 0.84 | 0.66 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.84 | | |
| Intersection Signal Delay: 34.8 | | Intersection LOS: C |
| Intersection Capacity Utilization 97.7% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 828 | 34 | 380 | 1411 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Future Volume (vph) | 3 | 828 | 34 | 380 | 1411 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.947 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1538 | 0 |
| Flt Permitted | 0.153 | | | 0.208 | | | | 0.804 | | 0.713 | | |
| Satd. Flow (perm) | 271 | 3282 | 0 | 361 | 3301 | 0 | 0 | 1296 | 1417 | 1136 | 1538 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 10 | | | | 344 | | 12 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 828 | 34 | 380 | 1411 | 87 | 49 | 18 | 479 | 60 | 22 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 862 | 0 | 380 | 1498 | 0 | 0 | 67 | 479 | 60 | 34 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 55.1 | 55.1 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.02 | 0.56 | | 0.89 | 0.69 | | | 0.19 | 0.74 | 0.19 | 0.08 | |

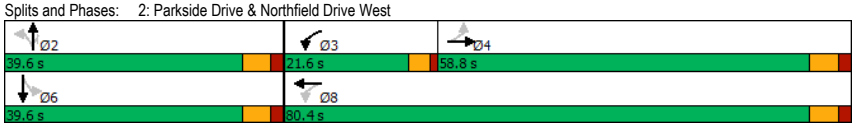




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.1 | | 38.8 | 15.2 | | | 33.6 | 18.6 | 34.0 | 23.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.1 | | 38.8 | 15.2 | | | 33.6 | 18.6 | 34.0 | 23.0 | |
| LOS | B | C | | D | B | | | C | B | C | C | |
| Approach Delay | | 24.1 | | | 19.9 | | | 20.5 | | | 30.0 | |
| Approach LOS | | C | | | B | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 75.6 | | 40.5 | 108.2 | | | 12.3 | 28.7 | 11.1 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 101.2 | | #103.3 | 146.1 | | | 24.5 | 72.7 | 22.7 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 127 | 1545 | | 429 | 2157 | | | 394 | 670 | 345 | 475 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.56 | | 0.89 | 0.69 | | | 0.17 | 0.71 | 0.17 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.89 | | |
| Intersection Signal Delay: 21.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 119.8% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 64 | 771 | 64 | 87 | 734 | 33 | 136 | 9 | 76 | 96 | 28 | 249 |
| Future Volume (vph) | 64 | 771 | 64 | 87 | 734 | 33 | 136 | 9 | 76 | 96 | 28 | 249 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.994 | | | 0.954 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.970 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3204 | 0 | 1547 | 3285 | 0 | 0 | 1407 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.507 | | | 0.858 | |
| Satd. Flow (perm) | 1648 | 3204 | 0 | 1546 | 3285 | 0 | 0 | 735 | 0 | 0 | 1186 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 8 | | | 5 | | | 28 | | | 108 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 124.3 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.9 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 64 | 771 | 64 | 87 | 734 | 33 | 136 | 9 | 76 | 96 | 28 | 249 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 64 | 835 | 0 | 87 | 767 | 0 | 0 | 221 | 0 | 0 | 373 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 13.0 | 46.0 | | 17.0 | 50.0 | | 54.0 | 54.0 | | 54.0 | 54.0 | |
| Total Split (%) | 11.1% | 39.3% | | 14.5% | 42.7% | | 46.2% | 46.2% | | 46.2% | 46.2% | |
| Maximum Green (s) | 8.0 | 40.0 | | 12.0 | 44.0 | | 48.0 | 48.0 | | 48.0 | 48.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 8.6 | 45.3 | | 11.0 | 47.5 | | | 30.6 | | | 30.6 | |
| Actuated g/C Ratio | 0.09 | 0.47 | | 0.11 | 0.49 | | | 0.32 | | | 0.32 | |
| v/c Ratio | 0.44 | 0.55 | | 0.49 | 0.47 | | | 0.87 | | | 0.83 | |

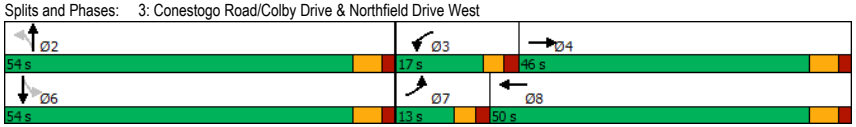




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 56.4 | 23.7 | | 54.4 | 20.4 | | | 59.2 | | | 37.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 56.4 | 23.7 | | 54.4 | 20.4 | | | 59.2 | | | 37.0 | |
| LOS | E | C | | D | C | | | E | | | D | |
| Approach Delay | | 26.0 | | | 23.9 | | | 59.2 | | | 37.0 | |
| Approach LOS | | C | | | C | | | E | | | D | |
| Queue Length 50th (m) | 12.2 | 63.2 | | 16.4 | 53.1 | | | 36.9 | | | 50.4 | |
| Queue Length 95th (m) | 30.1 | 114.4 | | 37.5 | 96.2 | | | 69.9 | | | 87.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 100.3 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 160 | 1515 | | 216 | 1626 | | | 407 | | | 687 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.40 | 0.55 | | 0.40 | 0.47 | | | 0.54 | | | 0.54 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 117 | | | |
| Actuated Cycle Length: 96 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.87 | | | |
| Intersection Signal Delay: 30.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 81.7% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 166 | 516 | 134 | 229 | 470 | 68 | 193 | 371 | 164 | 104 | 433 | 176 |
| Future Volume (vph) | 166 | 516 | 134 | 229 | 470 | 68 | 193 | 371 | 164 | 104 | 433 | 176 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.969 | | | 0.981 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3162 | 0 | 3176 | 3216 | 0 | 1606 | 3126 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.344 | | | 0.950 | | | 0.347 | | | 0.358 | | |
| Satd. Flow (perm) | 600 | 3162 | 0 | 3128 | 3216 | 0 | 587 | 3126 | 0 | 611 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 25 | | | 14 | | | 49 | | | | 176 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 166 | 516 | 134 | 229 | 470 | 68 | 193 | 371 | 164 | 104 | 433 | 176 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 166 | 650 | 0 | 229 | 538 | 0 | 193 | 535 | 0 | 104 | 433 | 176 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 43.7 | 31.6 | | 15.5 | 35.0 | | 49.5 | 36.6 | | 43.2 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.14 | 0.32 | | 0.45 | 0.33 | | 0.39 | 0.30 | 0.30 |
| v/c Ratio | 0.47 | 0.70 | | 0.51 | 0.52 | | 0.50 | 0.50 | | 0.31 | 0.40 | 0.31 |

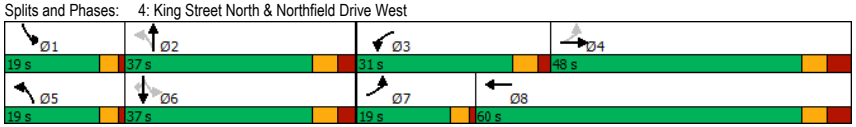




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.0 | 38.1 | | 49.1 | 31.7 | | 25.0 | 30.3 | | 22.2 | 33.6 | 6.7 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.0 | 38.1 | | 49.1 | 31.7 | | 25.0 | 30.3 | | 22.2 | 33.6 | 6.7 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 34.9 | | | 36.9 | | | 28.9 | | | 25.3 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 21.9 | 67.0 | | 25.0 | 51.4 | | 25.5 | 44.8 | | 12.9 | 41.0 | 0.0 |
| Queue Length 95th (m) | 35.5 | 92.7 | | 41.3 | 70.3 | | 51.9 | 78.3 | | 29.5 | 66.6 | 18.1 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 403 | 1296 | | 790 | 1666 | | 407 | 1074 | | 409 | 1076 | 570 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.41 | 0.50 | | 0.29 | 0.32 | | 0.47 | 0.50 | | 0.25 | 0.40 | 0.31 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 109.7 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 31.7 | | Intersection LOS: C | |
| Intersection Capacity Utilization 78.6% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.990 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.995 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1460 | 0 | 0 | 1463 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.995 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1460 | 0 | 0 | 1463 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 46.9 | | | 55.7 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.4 | | | 4.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 141 | 0 | 0 | 105 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 27.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 15 | 0 | 28 | 0 | 131 | 10 | 11 | 94 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 266 | 257 | 94 | 252 | 252 | 136 | 94 | 0 | 0 | 141 | 0 | 0 |
| Stage 1 | 116 | 116 | - | 136 | 136 | - | - | - | - | - | - | - |
| Stage 2 | 150 | 141 | - | 116 | 116 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 691 | 651 | 968 | 706 | 655 | 889 | 1513 | - | - | 1400 | - | - |
| Stage 1 | 894 | 803 | - | 872 | 788 | - | - | - | - | - | - | - |
| Stage 2 | 857 | 784 | - | 894 | 803 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 665 | 646 | 968 | 702 | 650 | 889 | 1513 | - | - | 1400 | - | - |
| Mov Cap-2 Maneuver | 665 | 646 | - | 702 | 650 | - | - | - | - | - | - | - |
| Stage 1 | 894 | 797 | - | 872 | 788 | - | - | - | - | - | - | - |
| Stage 2 | 830 | 784 | - | 887 | 797 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.7 | 0 | 0.8 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1513 | - | - | - | 813 | 1400 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.053 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.7 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 61 | 202 | 323 | 10 | 61 | 121 | 663 | 376 | 74 | 772 | 33 |
| Future Volume (vph) | 38 | 61 | 202 | 323 | 10 | 61 | 121 | 663 | 376 | 74 | 772 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.885 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1426 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.711 | | | 0.950 | | | 0.233 | | | 0.950 | | |
| Satd. Flow (perm) | 1260 | 1426 | 0 | 3109 | 1339 | 0 | 414 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 134 | | | 61 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 61 | 202 | 323 | 10 | 61 | 121 | 663 | 376 | 74 | 772 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 263 | 0 | 323 | 71 | 0 | 121 | 663 | 376 | 74 | 805 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 35.0 | 35.0 | | 19.0 | 54.0 | | 19.0 | 50.0 | 19.0 | 16.0 | 47.0 | |
| Total Split (%) | 29.2% | 29.2% | | 15.8% | 45.0% | | 15.8% | 41.7% | 15.8% | 13.3% | 39.2% | |
| Maximum Green (s) | 28.0 | 28.0 | | 13.0 | 47.0 | | 15.0 | 43.0 | 13.0 | 11.0 | 40.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 19.7 | 19.7 | | 14.8 | 38.5 | | 55.9 | 48.1 | 62.9 | 10.3 | 46.6 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.14 | 0.36 | | 0.52 | 0.45 | 0.59 | 0.10 | 0.44 | |
| v/c Ratio | 0.16 | 0.71 | | 0.74 | 0.14 | | 0.37 | 0.41 | 0.44 | 0.48 | 0.56 | |

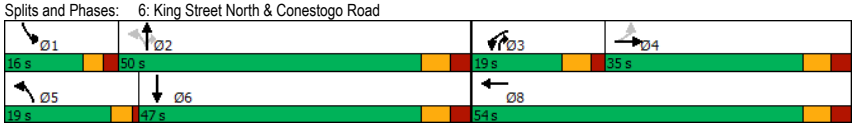




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 38.0 | 30.4 | | 56.7 | 7.8 | | 15.7 | 22.8 | 14.4 | 58.4 | 25.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 38.0 | 30.4 | | 56.7 | 7.8 | | 15.7 | 22.8 | 14.4 | 58.4 | 25.4 | |
| LOS | D | C | | E | A | | B | C | B | E | C | |
| Approach Delay | | 31.3 | | | 47.8 | | | 19.3 | | | 28.2 | |
| Approach LOS | | C | | | D | | | B | | | C | |
| Queue Length 50th (m) | 7.2 | 26.8 | | 35.5 | 1.4 | | 11.5 | 52.6 | 40.5 | 15.5 | 65.6 | |
| Queue Length 95th (m) | 16.8 | 56.0 | | #63.2 | 10.7 | | 25.6 | 82.1 | 79.9 | 33.7 | 107.2 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 369 | 512 | | 446 | 665 | | 411 | 1599 | 863 | 182 | 1439 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.10 | 0.51 | | 0.72 | 0.11 | | 0.29 | 0.41 | 0.44 | 0.41 | 0.56 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 106.5 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.74 | | | |
| Intersection Signal Delay: 27.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 72.8% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 190 | 692 | 554 | 128 | 0 | 1328 |
| Future Volume (vph) | 190 | 692 | 554 | 128 | 0 | 1328 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.972 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1615 | 3445 | 0 | 1900 | 3610 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1591 | 3445 | 0 | 1900 | 3610 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 294 | 37 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 3 | | 38 | 38 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 4% | 0% | 0% |
| Adj. Flow (vph) | 207 | 752 | 602 | 139 | 0 | 1443 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 207 | 752 | 741 | 0 | 0 | 1443 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.19 | 1.07 | 0.35 | | | 0.65 |

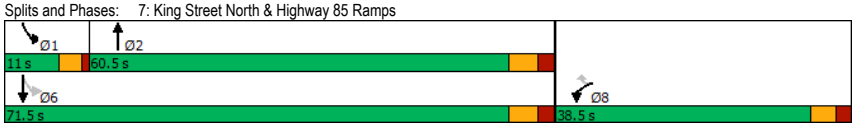




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.1 | 79.1 | 10.4 | | | 15.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.1 | 79.1 | 10.4 | | | 15.4 |
| LOS | C | E | B | | | B |
| Approach Delay | 68.1 | | 10.4 | | | 15.4 |
| Approach LOS | E | | B | | | B |
| Queue Length 50th (m) | 17.5 | ~140.4 | 38.0 | | | 102.8 |
| Queue Length 95th (m) | 26.9 | #215.8 | 49.3 | | | 125.5 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1087 | 700 | 2128 | | | 2215 |
| 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 | 0.19 | 1.07 | 0.35 | | | 0.65 |

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 115
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 95.3% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 1 | 186 | 158 | 0 | 282 | 0 | 848 | 363 | 21 | 953 | 683 |
| Future Volume (vph) | 22 | 1 | 186 | 158 | 0 | 282 | 0 | 848 | 363 | 21 | 953 | 683 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1553 | 1787 | 0 | 1615 | 0 | 3539 | 1583 | 1805 | 3539 | 1553 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.276 | | |
| Satd. Flow (perm) | 1800 | 1900 | 1485 | 1378 | 0 | 1591 | 0 | 3539 | 1542 | 524 | 3539 | 1502 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 69 | | | 98 | | | 395 | | | 742 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 24 | 1 | 202 | 172 | 0 | 307 | 0 | 922 | 395 | 23 | 1036 | 742 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 24 | 1 | 202 | 172 | 0 | 307 | 0 | 922 | 395 | 23 | 1036 | 742 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 49.5 | 49.5 | 49.5 | 49.5 | | 49.5 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (%) | 45.0% | 45.0% | 45.0% | 45.0% | | 45.0% | | 55.0% | 55.0% | 55.0% | 55.0% | 55.0% |
| Maximum Green (s) | 42.8 | 42.8 | 42.8 | 42.8 | | 42.8 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 19.7 | 19.7 | 19.7 | 19.7 | | 19.7 | | 56.7 | 56.7 | 56.7 | 56.7 | 56.7 |
| Actuated g/C Ratio | 0.23 | 0.23 | 0.23 | 0.23 | | 0.23 | | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 |
| v/c Ratio | 0.06 | 0.00 | 0.51 | 0.54 | | 0.69 | | 0.39 | 0.34 | 0.07 | 0.44 | 0.59 |

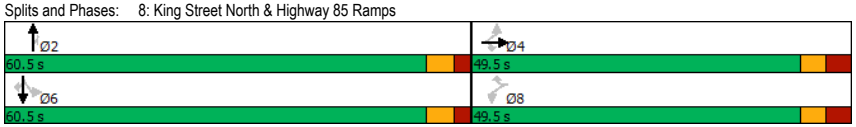




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 24.2 | 23.0 | 22.3 | 34.4 | | 28.0 | | 7.5 | 1.7 | 7.0 | 7.9 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.2 | 23.0 | 22.3 | 34.4 | | 28.0 | | 7.5 | 1.7 | 7.0 | 7.9 | 2.8 |
| LOS | C | C | C | C | | C | | A | A | A | A | A |
| Approach Delay | | 22.5 | | | 30.3 | | | 5.7 | | | 5.8 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 3.2 | 0.1 | 19.0 | 25.6 | | 32.0 | | 31.3 | 0.0 | 1.2 | 36.8 | 0.0 |
| Queue Length 95th (m) | 9.0 | 1.3 | 38.8 | 44.7 | | 58.9 | | 57.6 | 10.7 | 5.1 | 67.2 | 13.6 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 973 | 1027 | 834 | 745 | | 905 | | 2376 | 1165 | 351 | 2376 | 1252 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.00 | 0.24 | 0.23 | | 0.34 | | 0.39 | 0.34 | 0.07 | 0.44 | 0.59 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 84.5 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.69 | | | |
| Intersection Signal Delay: 9.8 | | Intersection LOS: A | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 46 | 0 | 0 | 159 | 105 | 71 |
| Future Volume (vph) | 46 | 0 | 0 | 159 | 105 | 71 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.946 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1438 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1438 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 47.0 | | | 55.7 | 124.3 | |
| Travel Time (s) | 3.4 | | | 4.0 | 8.9 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 50 | 0 | 0 | 173 | 114 | 77 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 50 | 0 | 0 | 173 | 191 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 22.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 46 | 0 | 0 | 159 | 105 | 71 |
| Future Vol, veh/h | 46 | 0 | 0 | 159 | 105 | 71 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 50 | 0 | 0 | 173 | 114 | 77 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 326 | 153 | 191 | 0 | - | 0 |
| Stage 1 | 153 | - | - | - | - | - |
| Stage 2 | 173 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 668 | 893 | 1383 | - | - | - |
| Stage 1 | 875 | - | - | - | - | - |
| Stage 2 | 857 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 668 | 893 | 1383 | - | - | - |
| Mov Cap-2 Maneuver | 668 | - | - | - | - | - |
| Stage 1 | 875 | - | - | - | - | - |
| Stage 2 | 857 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.8 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1383 | - | 668 | - | - |
| HCM Lane V/C Ratio | - | - | 0.075 | - | - |
| HCM Control Delay (s) | 0 | - | 10.8 | - | - |
| HCM Lane LOS | A | - | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 17 | 32 | 50 | 124 | 82 | 27 |
| Future Volume (vph) | 17 | 32 | 50 | 124 | 82 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.911 | | | | 0.967 | |
| Flt Protected | 0.983 | | | 0.986 | | |
| Satd. Flow (prot) | 1668 | 0 | 0 | 1837 | 1801 | 0 |
| Flt Permitted | 0.983 | | | 0.986 | | |
| Satd. Flow (perm) | 1668 | 0 | 0 | 1837 | 1801 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 52.7 | | | 47.0 | 46.9 | |
| Travel Time (s) | 3.8 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 18 | 35 | 54 | 135 | 89 | 29 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 53 | 0 | 0 | 189 | 118 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 26.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 17 | 32 | 50 | 124 | 82 | 27 |
| Future Vol, veh/h | 17 | 32 | 50 | 124 | 82 | 27 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 18 | 35 | 54 | 135 | 89 | 29 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 347 | 104 | 118 | 0 | - | 0 |
| Stage 1 | 104 | - | - | - | - | - |
| Stage 2 | 243 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 650 | 951 | 1470 | - | - | - |
| Stage 1 | 920 | - | - | - | - | - |
| Stage 2 | 797 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 624 | 951 | 1470 | - | - | - |
| Mov Cap-2 Maneuver | 624 | - | - | - | - | - |
| Stage 1 | 883 | - | - | - | - | - |
| Stage 2 | 797 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 9.8 | 2.2 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1470 | - | 805 | - | - |
| HCM Lane V/C Ratio | 0.037 | - | 0.066 | - | - |
| HCM Control Delay (s) | 7.5 | 0 | 9.8 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 41.2 | | | 47.9 | 47.0 | |
| Travel Time (s) | 3.0 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 14.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 189 | 124 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 313 | 124 | 124 | 0 | - | 0 |
| Stage 1 | 124 | - | - | - | - | - |
| Stage 2 | 189 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Mov Cap-2 Maneuver | 680 | - | - | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1463 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1863 | 0 | 0 | 1863 | 1863 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1863 | 0 | 0 | 1863 | 1863 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 54.7 | | | 43.4 | 47.9 | |
| Travel Time (s) | 3.9 | | | 3.1 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 12.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 189 | 124 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 313 | 124 | 124 | 0 | - | 0 |
| Stage 1 | 124 | - | - | - | - | - |
| Stage 2 | 189 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Mov Cap-2 Maneuver | 680 | - | - | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1463 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 174 | 114 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | |
| Flt Protected | | | | | | |
| Satd. Flow (prot) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 1520 | 0 | 0 | 1520 | 1520 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 38.7 | | | 145.4 | 43.4 | |
| Travel Time (s) | 2.8 | | | 10.5 | 3.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 189 | 124 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 14.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 174 | 114 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 0 | 0 | 189 | 124 | 0 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 313 | 124 | 124 | 0 | - | 0 |
| Stage 1 | 124 | - | - | - | - | - |
| Stage 2 | 189 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 680 | 927 | 1463 | - | - | - |
| Mov Cap-2 Maneuver | 680 | - | - | - | - | - |
| Stage 1 | 902 | - | - | - | - | - |
| Stage 2 | 843 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1463 | - | - | - | - |
| HCM Lane V/C Ratio | - | - | - | - | - |
| HCM Control Delay (s) | 0 | - | 0 | - | - |
| HCM Lane LOS | A | - | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | - |

# Appendix G

## 2027 Background Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Future Volume (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.978 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3251 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.420 | | | 0.150 | | | 0.510 | | | 0.442 | | |
| Satd. Flow (perm) | 735 | 3251 | 0 | 263 | 3438 | 1403 | 875 | 3036 | 0 | 725 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 210 | 806 | 135 | 103 | 362 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 210 | 941 | 0 | 103 | 362 | 115 | 54 | 309 | 0 | 177 | 413 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.3 | | 48.6 | 40.9 | 40.9 | 40.3 | 33.8 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.47 | 0.75 | | 0.52 | 0.30 | 0.19 | 0.16 | 0.34 | | 0.41 | 0.34 | |

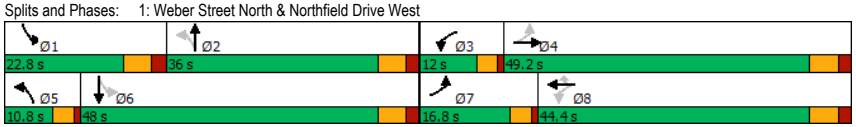




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.4 | 35.8 | | 27.6 | 29.7 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.4 | 35.8 | | 27.6 | 29.7 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 33.4 | | | 23.6 | | | 26.2 | | | 26.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 30.4 | 104.3 | | 13.9 | 34.8 | 0.0 | 7.4 | 24.0 | | 26.3 | 38.0 | |
| Queue Length 95th (m) | 47.5 | 130.5 | | 24.7 | 48.0 | 0.0 | 15.2 | 38.3 | | 42.4 | 51.8 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 455 | 1255 | | 204 | 1190 | 611 | 345 | 918 | | 460 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.46 | 0.75 | | 0.50 | 0.30 | 0.19 | 0.16 | 0.34 | | 0.38 | 0.34 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 118.2 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.75 | | |
| Intersection Signal Delay: 28.7 | | Intersection LOS: C |
| Intersection Capacity Utilization 93.3% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Future Volume (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.961 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1586 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.429 | | | 0.107 | | | | 0.859 | | 0.747 | | |
| Satd. Flow (perm) | 760 | 3262 | 0 | 183 | 3204 | 0 | 0 | 1415 | 1376 | 1155 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 311 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1112 | 27 | 303 | 508 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1139 | 0 | 303 | 590 | 0 | 0 | 16 | 311 | 69 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.9 | 54.9 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.46 | 0.46 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.76 | | 0.81 | 0.27 | | | 0.04 | 0.52 | 0.22 | 0.06 | |

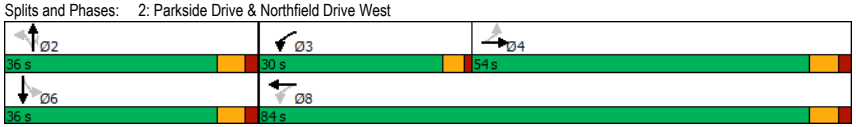




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 32.3 | | 40.7 | 8.0 | | | 33.2 | 7.3 | 36.7 | 32.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 32.3 | | 40.7 | 8.0 | | | 33.2 | 7.3 | 36.7 | 32.5 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 32.3 | | | 19.1 | | | 8.6 | | | 35.6 | |
| Approach LOS | | C | | | B | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 123.4 | | 47.1 | 27.0 | | | 3.0 | 0.0 | 13.4 | 4.6 | |
| Queue Length 95th (m) | 1.3 | 161.4 | | 79.3 | 35.5 | | | 8.9 | 23.6 | 26.7 | 12.2 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 347 | 1493 | | 433 | 2146 | | | 377 | 595 | 308 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.76 | | 0.70 | 0.27 | | | 0.04 | 0.52 | 0.22 | 0.06 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.81 | | | |
| Intersection Signal Delay: 24.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Future Volume (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.945 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.982 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1296 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.873 | | | 0.847 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1152 | 0 | 0 | 1136 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 25 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 111 | 606 | 49 | 9 | 587 | 78 | 22 | 14 | 25 | 57 | 9 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 111 | 655 | 0 | 9 | 665 | 0 | 0 | 61 | 0 | 0 | 111 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.6 | 58.2 | | 7.2 | 47.5 | | | 13.7 | | | 13.7 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.61 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.45 | 0.27 | | 0.06 | 0.34 | | | 0.27 | | | 0.49 | |

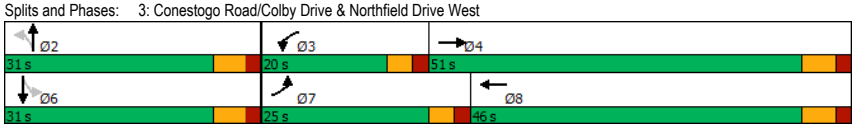




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 37.9 | 5.7 | | 37.4 | 11.8 | | | 22.7 | | | 30.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 37.9 | 5.7 | | 37.4 | 11.8 | | | 22.7 | | | 30.1 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.4 | | | 12.2 | | | 22.7 | | | 30.1 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 16.1 | 14.0 | | 1.3 | 29.1 | | | 4.9 | | | 11.1 | |
| Queue Length 95th (m) | 34.2 | 44.5 | | 6.3 | 56.3 | | | 16.3 | | | 28.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 456 | 2424 | | 319 | 1929 | | | 425 | | | 424 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.24 | 0.27 | | 0.03 | 0.34 | | | 0.14 | | | 0.26 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 12.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 62.3% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Future Volume (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.529 | | | 0.950 | | | 0.532 | | | 0.406 | | |
| Satd. Flow (perm) | 894 | 3065 | 0 | 2963 | 3103 | 0 | 843 | 2966 | 0 | 704 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 127 | 357 | 103 | 218 | 304 | 59 | 117 | 327 | 140 | 98 | 263 | 77 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 127 | 460 | 0 | 218 | 363 | 0 | 117 | 467 | 0 | 98 | 263 | 77 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 36.4 | 25.8 | | 14.8 | 29.9 | | 45.2 | 34.7 | | 42.2 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.36 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.35 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.32 | 0.57 | | 0.50 | 0.39 | | 0.26 | 0.44 | | 0.26 | 0.23 | 0.14 |

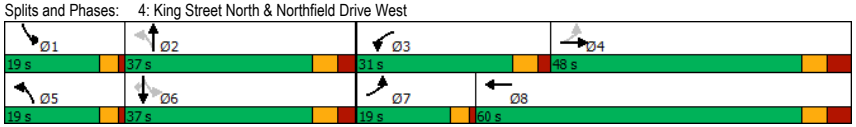




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.7 | 34.2 | | 44.2 | 28.3 | | 17.7 | 25.4 | | 17.8 | 26.6 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.7 | 34.2 | | 44.2 | 28.3 | | 17.7 | 25.4 | | 17.8 | 26.6 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.0 | | | 34.3 | | | 23.8 | | | 20.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 15.1 | 40.1 | | 20.8 | 28.8 | | 12.6 | 33.1 | | 10.3 | 19.6 | 0.0 |
| Queue Length 95th (m) | 28.7 | 62.8 | | 36.2 | 46.5 | | 27.9 | 58.5 | | 23.6 | 36.6 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 470 | 1367 | | 804 | 1750 | | 497 | 1055 | | 470 | 1126 | 562 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.27 | 0.34 | | 0.27 | 0.21 | | 0.24 | 0.44 | | 0.21 | 0.23 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 100.4 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.57 | | | |
| Intersection Signal Delay: 27.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.6% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.920 | | | 0.988 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1334 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 110 | 0 | 0 | 55 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 9 | 0 | 13 | 0 | 100 | 10 | 11 | 44 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 178 | 176 | 44 | 171 | 171 | 105 | 44 | 0 | 0 | 110 | 0 | 0 |
| Stage 1 | 66 | 66 | - | 105 | 105 | - | - | - | - | - | - | - |
| Stage 2 | 112 | 110 | - | 66 | 66 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 789 | 721 | 1032 | 797 | 726 | 933 | 1577 | - | - | 1438 | - | - |
| Stage 1 | 950 | 844 | - | 906 | 812 | - | - | - | - | - | - | - |
| Stage 2 | 898 | 808 | - | 950 | 844 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 773 | 715 | 1032 | 792 | 720 | 933 | 1577 | - | - | 1438 | - | - |
| Mov Cap-2 Maneuver | 773 | 715 | - | 792 | 720 | - | - | - | - | - | - | - |
| Stage 1 | 950 | 837 | - | 906 | 812 | - | - | - | - | - | - | - |
| Stage 2 | 885 | 808 | - | 942 | 837 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.2 | 0 | 1.5 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1577 | - | - | - | 870 | 1438 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.025 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.2 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Future Volume (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.882 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1377 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.416 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1377 | 0 | 3013 | 1347 | 0 | 722 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 45 | | | 29 | | | | | | 15 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 12 | 45 | 199 | 29 | 29 | 132 | 584 | 224 | 27 | 399 | 51 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 57 | 0 | 199 | 58 | 0 | 132 | 584 | 224 | 27 | 450 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.4 | 26.6 | | 55.8 | 52.0 | 65.4 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.56 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.17 | 0.24 | | 0.45 | 0.14 | | 0.25 | 0.30 | 0.22 | 0.23 | 0.30 | |

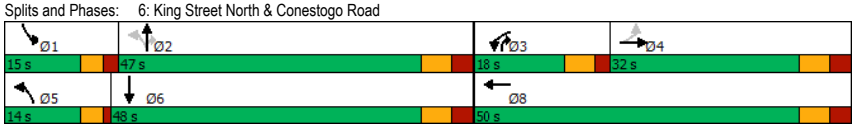




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.8 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.3 | | | 35.1 | | | 11.2 | | | 17.5 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 5.0 | 2.1 | | 18.7 | 4.0 | | 10.4 | 26.6 | 8.9 | 5.0 | 27.5 | |
| Queue Length 95th (m) | 13.5 | 13.6 | | 30.3 | 13.2 | | 19.3 | 54.1 | 30.1 | 13.5 | 40.0 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 352 | 453 | | 469 | 693 | | 539 | 1960 | 1013 | 150 | 1518 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.13 | | 0.42 | 0.08 | | 0.24 | 0.30 | 0.22 | 0.18 | 0.30 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 112 | | |
| Actuated Cycle Length: 92.1 | | |
| Natural Cycle: 65 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.45 | | |
| Intersection Signal Delay: 17.1 | | Intersection LOS: B |
| Intersection Capacity Utilization 47.3% | | ICU Level of Service A |
| Analysis Period (min) 15 | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 220 | 668 | 286 | 97 | 0 | 482 |
| Future Volume (vph) | 220 | 668 | 286 | 97 | 0 | 482 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1553 | 3280 | 0 | 1056 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1533 | 3280 | 0 | 1056 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 513 | 56 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 239 | 726 | 311 | 105 | 0 | 524 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 239 | 726 | 416 | 0 | 0 | 524 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 27.0 | 27.0 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.64 | | | 0.64 |
| v/c Ratio | 0.25 | 0.92 | 0.20 | | | 0.23 |

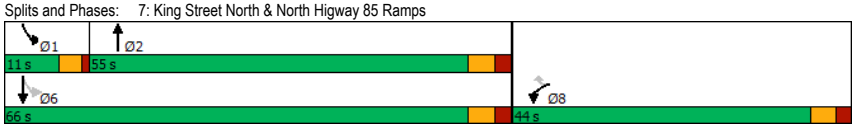




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.9 | 26.7 | 8.0 | | | 9.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.9 | 26.7 | 8.0 | | | 9.4 |
| LOS | C | C | A | | | A |
| Approach Delay | 26.8 | | 8.0 | | | 9.4 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 18.8 | 44.7 | 14.5 | | | 22.2 |
| Queue Length 95th (m) | 28.1 | 107.7 | 28.4 | | | 40.3 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1435 | 935 | 2124 | | | 2248 |
| 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 | 0.17 | 0.78 | 0.20 | | | 0.23 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 97.9 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.92 | | | |
| Intersection Signal Delay: 17.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 89.0% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 497 | 264 | 217 | 919 | 366 |
| Future Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 497 | 264 | 217 | 919 | 366 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.715 | | | | | | 0.398 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1279 | 0 | 1384 | 0 | 3438 | 1521 | 753 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 144 | | | 68 | | | 287 | | | 398 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 540 | 287 | 236 | 999 | 398 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 540 | 287 | 236 | 999 | 398 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 20.8 | 20.8 | 20.8 | 20.8 | | 20.8 | | 62.2 | 62.2 | 73.2 | 73.2 | 71.3 |
| Actuated g/C Ratio | 0.20 | 0.20 | 0.20 | 0.20 | | 0.20 | | 0.61 | 0.61 | 0.72 | 0.72 | 0.70 |
| v/c Ratio | 0.01 | 0.17 | 0.76 | 0.08 | | 0.07 | | 0.26 | 0.28 | 0.38 | 0.40 | 0.36 |

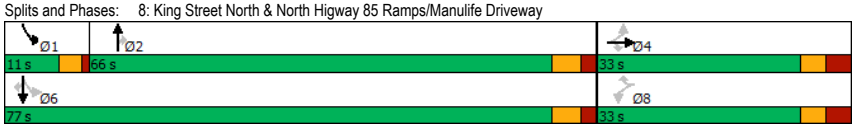




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.7 | 33.5 | 32.8 | 32.4 | | 0.4 | | 10.4 | 2.0 | 7.5 | 6.9 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.7 | 33.5 | 32.8 | 32.4 | | 0.4 | | 10.4 | 2.0 | 7.5 | 6.9 | 1.7 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 32.9 | | | 16.0 | | | 7.5 | | | 5.7 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.2 | 35.6 | 3.7 | | 0.0 | | 25.4 | 0.0 | 13.9 | 37.7 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.7 | 67.8 | 10.3 | | 0.0 | | 41.8 | 11.5 | 29.2 | 63.7 | 10.4 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 509 | 541 | 539 | 364 | | 443 | | 2095 | 1039 | 613 | 2491 | 1097 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.60 | 0.06 | | 0.05 | | 0.26 | 0.28 | 0.38 | 0.40 | 0.36 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.76 | | | |
| Intersection Signal Delay: 10.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Manulife Driveway



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 133 | 446 | 77 | 157 | 1105 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Future Volume (vph) | 133 | 446 | 77 | 157 | 1105 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.325 | | | 0.281 | | | 0.272 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 567 | 3574 | 1421 | 485 | 3238 | 0 | 469 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 110 | | 15 | | | 95 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 133 | 446 | 77 | 157 | 1105 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 133 | 523 | 0 | 157 | 1105 | 151 | 190 | 501 | 0 | 308 | 666 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.2 | | 53.4 | 42.8 | 42.8 | 45.6 | 32.0 | | 56.3 | 38.8 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.44 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.72 | 0.47 | | 0.45 | 0.87 | 0.26 | 0.60 | 0.57 | | 0.74 | 0.63 | |

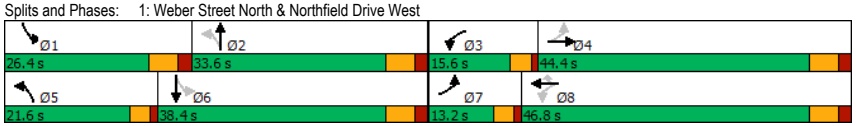




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 46.2 | 32.1 | | 23.9 | 44.9 | 10.3 | 28.3 | 40.4 | | 32.1 | 32.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 46.2 | 32.1 | | 23.9 | 44.9 | 10.3 | 28.3 | 40.4 | | 32.1 | 32.8 | |
| LOS | D | C | | C | D | B | C | D | | C | C | |
| Approach Delay | | 35.0 | | | 38.9 | | | 37.0 | | | 32.6 | |
| Approach LOS | | C | | | D | | | D | | | C | |
| Queue Length 50th (m) | 19.3 | 53.3 | | 23.2 | 137.2 | 6.9 | 27.6 | 56.4 | | 48.8 | 63.6 | |
| Queue Length 95th (m) | #47.9 | 71.0 | | 38.0 | #170.5 | 22.7 | 43.8 | 75.4 | | 72.4 | 88.6 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 187 | 1104 | | 363 | 1274 | 577 | 374 | 874 | | 440 | 1062 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.71 | 0.47 | | 0.43 | 0.87 | 0.26 | 0.51 | 0.57 | | 0.70 | 0.63 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120.1 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.87 | | |
| Intersection Signal Delay: 36.2 | | Intersection LOS: D |
| Intersection Capacity Utilization 97.9% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 819 | 34 | 383 | 1410 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Future Volume (vph) | 3 | 819 | 34 | 383 | 1410 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.947 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1538 | 0 |
| Flt Permitted | 0.154 | | | 0.212 | | | | 0.804 | | 0.712 | | |
| Satd. Flow (perm) | 273 | 3282 | 0 | 368 | 3301 | 0 | 0 | 1296 | 1417 | 1134 | 1538 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 346 | | 12 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 819 | 34 | 383 | 1410 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 853 | 0 | 383 | 1498 | 0 | 0 | 69 | 482 | 60 | 34 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 55.0 | 55.0 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.02 | 0.55 | | 0.89 | 0.69 | | | 0.19 | 0.75 | 0.19 | 0.08 | |

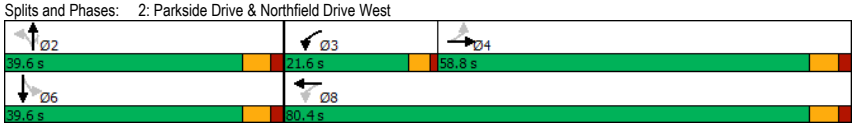




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.0 | | 38.2 | 15.2 | | | 33.7 | 18.7 | 34.0 | 23.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.0 | | 38.2 | 15.2 | | | 33.7 | 18.7 | 34.0 | 23.0 | |
| LOS | B | C | | D | B | | | C | B | C | C | |
| Approach Delay | | 23.9 | | | 19.9 | | | 20.6 | | | 30.0 | |
| Approach LOS | | C | | | B | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 74.5 | | 40.2 | 108.2 | | | 12.7 | 28.9 | 11.1 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 99.6 | | #103.0 | 146.1 | | | 25.2 | 73.5 | 22.8 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 128 | 1544 | | 432 | 2157 | | | 394 | 671 | 344 | 475 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.55 | | 0.89 | 0.69 | | | 0.18 | 0.72 | 0.17 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.89 | | |
| Intersection Signal Delay: 21.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 119.8% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 65 | 776 | 42 | 11 | 739 | 33 | 123 | 9 | 27 | 97 | 28 | 250 |
| Future Volume (vph) | 65 | 776 | 42 | 11 | 739 | 33 | 123 | 9 | 27 | 97 | 28 | 250 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.448 | | | 0.880 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 665 | 0 | 0 | 1216 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 65 | 776 | 42 | 11 | 739 | 33 | 123 | 9 | 27 | 97 | 28 | 250 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 65 | 818 | 0 | 11 | 772 | 0 | 0 | 159 | 0 | 0 | 375 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.3 | 56.4 | | 7.4 | 46.8 | | | 30.5 | | | 30.5 | |
| Actuated g/C Ratio | 0.11 | 0.58 | | 0.08 | 0.48 | | | 0.31 | | | 0.31 | |
| v/c Ratio | 0.37 | 0.44 | | 0.09 | 0.49 | | | 0.74 | | | 0.85 | |

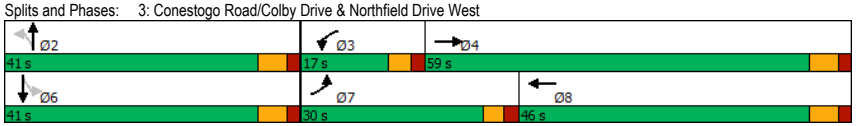




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 49.0 | 13.9 | | 48.1 | 20.7 | | | 50.7 | | | 42.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 49.0 | 13.9 | | 48.1 | 20.7 | | | 50.7 | | | 42.3 | |
| LOS | D | B | | D | C | | | D | | | D | |
| Approach Delay | | 16.5 | | | 21.1 | | | 50.7 | | | 42.3 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 12.2 | 44.8 | | 2.1 | 58.2 | | | 25.4 | | | 51.7 | |
| Queue Length 95th (m) | 28.0 | 84.3 | | 8.5 | 86.6 | | | #64.6 | | | #116.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 447 | 1873 | | 209 | 1584 | | | 261 | | | 523 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.15 | 0.44 | | 0.05 | 0.49 | | | 0.61 | | | 0.72 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 97.2 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 25.0 | | Intersection LOS: C |
| Intersection Capacity Utilization 75.1% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 162 | 505 | 105 | 231 | 451 | 68 | 148 | 373 | 164 | 104 | 435 | 169 |
| Future Volume (vph) | 162 | 505 | 105 | 231 | 451 | 68 | 148 | 373 | 164 | 104 | 435 | 169 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3186 | 0 | 3176 | 3212 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.360 | | | 0.950 | | | 0.367 | | | 0.343 | | |
| Satd. Flow (perm) | 628 | 3186 | 0 | 3126 | 3212 | 0 | 620 | 3127 | 0 | 585 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 169 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 162 | 505 | 105 | 231 | 451 | 68 | 148 | 373 | 164 | 104 | 435 | 169 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 162 | 610 | 0 | 231 | 519 | 0 | 148 | 537 | 0 | 104 | 435 | 169 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 41.7 | 29.9 | | 15.3 | 33.3 | | 46.9 | 35.3 | | 43.1 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.39 | 0.28 | | 0.14 | 0.31 | | 0.44 | 0.33 | | 0.41 | 0.31 | 0.31 |
| v/c Ratio | 0.45 | 0.67 | | 0.51 | 0.51 | | 0.39 | 0.50 | | 0.31 | 0.39 | 0.29 |

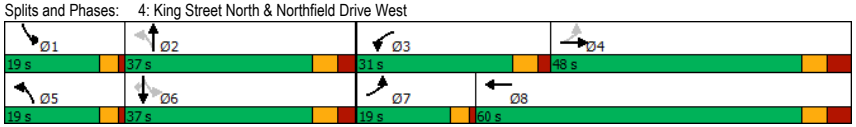




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.4 | 37.2 | | 47.3 | 31.1 | | 22.0 | 29.4 | | 21.3 | 31.7 | 6.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.4 | 37.2 | | 47.3 | 31.1 | | 22.0 | 29.4 | | 21.3 | 31.7 | 6.5 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 33.9 | | | 36.1 | | | 27.8 | | | 24.2 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 20.4 | 59.8 | | 24.0 | 47.1 | | 18.3 | 43.5 | | 12.4 | 38.4 | 0.0 |
| Queue Length 95th (m) | 35.0 | 86.8 | | 40.8 | 67.8 | | 38.9 | 76.4 | | 28.6 | 65.2 | 17.5 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 414 | 1344 | | 815 | 1717 | | 423 | 1070 | | 411 | 1110 | 578 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.39 | 0.45 | | 0.28 | 0.30 | | 0.35 | 0.50 | | 0.25 | 0.39 | 0.29 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 106.3 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.67 | | | |
| Intersection Signal Delay: 30.7 | | Intersection LOS: C | |
| Intersection Capacity Utilization 78.0% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.911 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1294 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1294 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 125 | 0 | 0 | 79 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 15 | 0 | 29 | 0 | 115 | 10 | 11 | 68 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 225 | 215 | 68 | 210 | 210 | 120 | 68 | 0 | 0 | 125 | 0 | 0 |
| Stage 1 | 90 | 90 | - | 120 | 120 | - | - | - | - | - | - | - |
| Stage 2 | 135 | 125 | - | 90 | 90 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 735 | 686 | 1001 | 752 | 691 | 908 | 1546 | - | - | 1419 | - | - |
| Stage 1 | 922 | 824 | - | 889 | 800 | - | - | - | - | - | - | - |
| Stage 2 | 873 | 796 | - | 922 | 824 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 707 | 681 | 1001 | 747 | 685 | 908 | 1546 | - | - | 1419 | - | - |
| Mov Cap-2 Maneuver | 707 | 681 | - | 747 | 685 | - | - | - | - | - | - | - |
| Stage 1 | 922 | 817 | - | 889 | 800 | - | - | - | - | - | - | - |
| Stage 2 | 845 | 796 | - | 915 | 817 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.5 | 0 | 1.1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1546 | - | - | - | 846 | 1419 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.052 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.5 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 61 | 171 | 325 | 10 | 61 | 71 | 620 | 378 | 75 | 745 | 33 |
| Future Volume (vph) | 38 | 61 | 171 | 325 | 10 | 61 | 71 | 620 | 378 | 75 | 745 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.889 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1432 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.711 | | | 0.950 | | | 0.289 | | | 0.950 | | |
| Satd. Flow (perm) | 1260 | 1432 | 0 | 3108 | 1339 | 0 | 512 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 110 | | | 61 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 61 | 171 | 325 | 10 | 61 | 71 | 620 | 378 | 75 | 745 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 232 | 0 | 325 | 71 | 0 | 71 | 620 | 378 | 75 | 778 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 18.8 | 18.8 | | 17.9 | 40.8 | | 48.4 | 43.8 | 61.7 | 11.3 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.39 | | 0.46 | 0.42 | 0.59 | 0.11 | 0.46 | |
| v/c Ratio | 0.17 | 0.67 | | 0.61 | 0.13 | | 0.24 | 0.42 | 0.44 | 0.44 | 0.51 | |

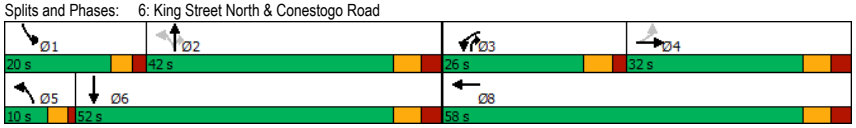




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.5 | 31.5 | | 46.7 | 6.9 | | 16.8 | 26.1 | 14.7 | 54.6 | 23.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.5 | 31.5 | | 46.7 | 6.9 | | 16.8 | 26.1 | 14.7 | 54.6 | 23.4 | |
| LOS | D | C | | D | A | | B | C | B | D | C | |
| Approach Delay | | 32.7 | | | 39.6 | | | 21.5 | | | 26.1 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.2 | 24.9 | | 34.0 | 1.3 | | 7.0 | 50.6 | 39.9 | 15.6 | 62.0 | |
| Queue Length 95th (m) | 17.4 | 53.3 | | 53.6 | 10.0 | | 17.8 | 86.1 | 83.2 | 32.9 | 99.1 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 339 | 466 | | 666 | 725 | | 302 | 1470 | 914 | 247 | 1520 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.11 | 0.50 | | 0.49 | 0.10 | | 0.24 | 0.42 | 0.41 | 0.30 | 0.51 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 105.3 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.67 | | | |
| Intersection Signal Delay: 26.9 | | Intersection LOS: C | |
| Intersection Capacity Utilization 66.8% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 191 | 621 | 535 | 129 | 0 | 1271 |
| Future Volume (vph) | 191 | 621 | 535 | 129 | 0 | 1271 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 332 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 208 | 675 | 582 | 140 | 0 | 1382 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 208 | 675 | 722 | 0 | 0 | 1382 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.20 | 1.01 | 0.38 | | | 0.64 |





| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.4 | 56.9 | 10.7 | | | 15.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.4 | 56.9 | 10.7 | | | 15.3 |
| LOS | C | E | B | | | B |
| Approach Delay | 50.2 | | 10.7 | | | 15.3 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 17.6 | ~95.1 | 37.6 | | | 97.3 |
| Queue Length 95th (m) | 27.2 | #177.4 | 49.5 | | | 120.0 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 670 | 1925 | | | 2150 |
| 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 | 1.01 | 0.38 | | | 0.64 |

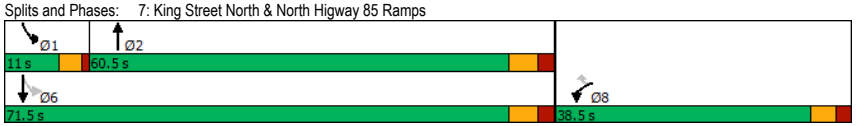
**Intersection Summary**

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 24.5 — Intersection LOS: C
Intersection Capacity Utilization 93.9% — ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 1 | 187 | 158 | 0 | 283 | 0 | 830 | 365 | 21 | 943 | 638 |
| Future Volume (vph) | 22 | 1 | 187 | 158 | 0 | 283 | 0 | 830 | 365 | 21 | 943 | 638 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.287 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 509 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 127 | | | 170 | | | 397 | | | 693 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 24 | 1 | 203 | 172 | 0 | 308 | 0 | 902 | 397 | 23 | 1025 | 693 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 24 | 1 | 203 | 172 | 0 | 308 | 0 | 902 | 397 | 23 | 1025 | 693 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 35.0 | 35.0 | 35.0 | 35.0 | | 35.0 | | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 31.8% | 31.8% | 31.8% | 31.8% | | 31.8% | | 68.2% | 68.2% | 68.2% | 68.2% | 68.2% |
| Maximum Green (s) | 28.3 | 28.3 | 28.3 | 28.3 | | 28.3 | | 69.1 | 69.1 | 69.1 | 69.1 | 69.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.2 | 21.2 | 21.2 | 21.2 | | 21.2 | | 71.2 | 71.2 | 71.2 | 71.2 | 71.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.07 | 0.00 | 0.52 | 0.63 | | 0.70 | | 0.36 | 0.35 | 0.06 | 0.41 | 0.59 |

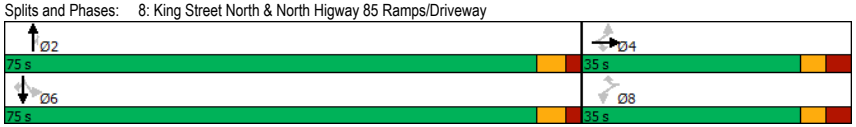




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.9 | 29.0 | 18.5 | 46.8 | | 24.5 | | 6.8 | 1.6 | 6.5 | 7.2 | 2.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.9 | 29.0 | 18.5 | 46.8 | | 24.5 | | 6.8 | 1.6 | 6.5 | 7.2 | 2.8 |
| LOS | C | C | B | D | | C | | A | A | A | A | A |
| Approach Delay | | 19.8 | | | 32.5 | | | 5.2 | | | 5.5 | |
| Approach LOS | | B | | | C | | | A | | | A | |
| Queue Length 50th (m) | 4.0 | 0.2 | 13.1 | 32.2 | | 25.5 | | 32.7 | 0.0 | 1.2 | 39.0 | 0.0 |
| Queue Length 95th (m) | 10.6 | 1.5 | 34.8 | 54.4 | | 55.6 | | 57.7 | 10.3 | 5.0 | 68.1 | 12.6 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 520 | 588 | 511 | 398 | | 571 | | 2509 | 1123 | 361 | 2509 | 1182 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.05 | 0.00 | 0.40 | 0.43 | | 0.54 | | 0.36 | 0.35 | 0.06 | 0.41 | 0.59 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 100.4 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 9.7 | | Intersection LOS: A | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix H

## 2027 Total Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 210 | 866 | 135 | 103 | 417 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Future Volume (vph) | 210 | 866 | 135 | 103 | 417 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.980 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3258 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.380 | | | 0.123 | | | 0.510 | | | 0.442 | | |
| Satd. Flow (perm) | 665 | 3258 | 0 | 216 | 3438 | 1403 | 875 | 3036 | 0 | 725 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 17 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 210 | 866 | 135 | 103 | 417 | 115 | 54 | 206 | 103 | 177 | 377 | 36 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 210 | 1001 | 0 | 103 | 417 | 115 | 54 | 309 | 0 | 177 | 413 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.3 | | 48.6 | 40.9 | 40.9 | 40.3 | 33.8 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.50 | 0.80 | | 0.56 | 0.35 | 0.19 | 0.16 | 0.34 | | 0.41 | 0.34 | |

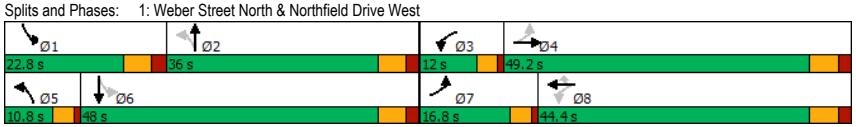




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.1 | 37.9 | | 30.5 | 30.3 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 23.1 | 37.9 | | 30.5 | 30.3 | 0.7 | 20.6 | 27.1 | | 23.2 | 27.2 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 35.3 | | | 25.0 | | | 26.2 | | | 26.0 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Queue Length 50th (m) | 30.4 | 114.2 | | 13.9 | 40.8 | 0.0 | 7.4 | 24.0 | | 26.3 | 38.0 | |
| Queue Length 95th (m) | 47.5 | 142.1 | | 24.7 | 55.2 | 0.0 | 15.2 | 38.3 | | 42.4 | 51.8 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 429 | 1257 | | 188 | 1190 | 611 | 345 | 918 | | 460 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.49 | 0.80 | | 0.55 | 0.35 | 0.19 | 0.16 | 0.34 | | 0.38 | 0.34 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.2 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.80 | | | |
| Intersection Signal Delay: 29.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 93.3% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1172 | 27 | 303 | 563 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Future Volume (vph) | 1 | 1172 | 27 | 303 | 563 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.997 | | | 0.981 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.961 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3265 | 0 | 1621 | 3210 | 0 | 0 | 1586 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.407 | | | 0.120 | | | | 0.845 | | 0.747 | | |
| Satd. Flow (perm) | 721 | 3265 | 0 | 205 | 3210 | 0 | 0 | 1392 | 1376 | 1155 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 36 | | | | 311 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1172 | 27 | 303 | 563 | 82 | 13 | 3 | 311 | 69 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1199 | 0 | 303 | 645 | 0 | 0 | 16 | 311 | 69 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 56.0 | 56.0 | | 36.0 | 92.0 | | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | |
| Total Split (%) | 46.7% | 46.7% | | 30.0% | 76.7% | | 23.3% | 23.3% | 23.3% | 23.3% | 23.3% | |
| Maximum Green (s) | 50.0 | 50.0 | | 32.0 | 86.0 | | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 62.0 | 62.0 | | 88.0 | 88.0 | | | 24.0 | 24.0 | 24.0 | 24.0 | |
| Actuated g/C Ratio | 0.52 | 0.52 | | 0.73 | 0.73 | | | 0.20 | 0.20 | 0.20 | 0.20 | |
| v/c Ratio | 0.00 | 0.71 | | 0.74 | 0.27 | | | 0.06 | 0.59 | 0.30 | 0.08 | |

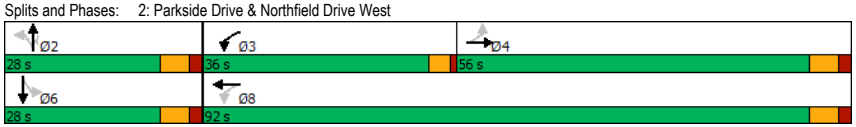




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.0 | 26.5 | | 29.8 | 5.3 | | | 39.7 | 9.7 | 45.0 | 38.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.0 | 26.5 | | 29.8 | 5.3 | | | 39.7 | 9.7 | 45.0 | 38.8 | |
| LOS | B | C | | C | A | | | D | A | D | D | |
| Approach Delay | | 26.5 | | | 13.1 | | | 11.1 | | | 43.3 | |
| Approach LOS | | C | | | B | | | B | | | D | |
| Queue Length 50th (m) | 0.1 | 115.3 | | 39.2 | 22.8 | | | 3.3 | 0.0 | 14.7 | 5.1 | |
| Queue Length 95th (m) | 1.3 | 167.5 | | 67.4 | 30.0 | | | 9.7 | 26.4 | 29.3 | 13.3 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 372 | 1687 | | 527 | 2363 | | | 278 | 524 | 231 | 328 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.71 | | 0.57 | 0.27 | | | 0.06 | 0.59 | 0.30 | 0.08 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.74 | | | |
| Intersection Signal Delay: 20.2 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 111 | 606 | 125 | 121 | 587 | 78 | 100 | 14 | 256 | 57 | 9 | 45 |
| Future Volume (vph) | 111 | 606 | 125 | 121 | 587 | 78 | 100 | 14 | 256 | 57 | 9 | 45 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.974 | | | 0.982 | | | 0.907 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.987 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3161 | 0 | 1519 | 3136 | 0 | 0 | 1213 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.883 | | | 0.637 | |
| Satd. Flow (perm) | 1652 | 3161 | 0 | 1518 | 3136 | 0 | 0 | 1085 | 0 | 0 | 855 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 27 | | | 18 | | | 109 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 111.9 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.1 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 111 | 606 | 125 | 121 | 587 | 78 | 100 | 14 | 256 | 57 | 9 | 45 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 111 | 731 | 0 | 121 | 665 | 0 | 0 | 370 | 0 | 0 | 111 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 21.0 | 41.0 | | 29.0 | 49.0 | | 32.0 | 32.0 | | 32.0 | 32.0 | |
| Total Split (%) | 20.6% | 40.2% | | 28.4% | 48.0% | | 31.4% | 31.4% | | 31.4% | 31.4% | |
| Maximum Green (s) | 16.0 | 35.0 | | 24.0 | 43.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 12.6 | 43.6 | | 14.0 | 45.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | 0.13 | 0.45 | | 0.14 | 0.46 | | | 0.29 | | | 0.29 | |
| v/c Ratio | 0.52 | 0.51 | | 0.56 | 0.46 | | | 0.95 | | | 0.41 | |

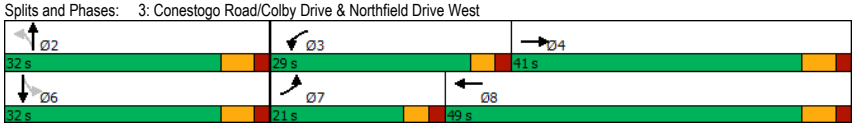




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.5 | 20.8 | | 48.5 | 19.1 | | | 61.6 | | | 26.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 48.5 | 20.8 | | 48.5 | 19.1 | | | 61.6 | | | 26.2 | |
| LOS | D | C | | D | B | | | E | | | C | |
| Approach Delay | | 24.5 | | | 23.7 | | | 61.6 | | | 26.2 | |
| Approach LOS | | C | | | C | | | E | | | C | |
| Queue Length 50th (m) | 20.9 | 51.2 | | 22.7 | 44.8 | | | 53.9 | | | 12.2 | |
| Queue Length 95th (m) | 38.4 | 76.2 | | 40.3 | 65.2 | | | #119.8 | | | 30.7 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 87.9 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 287 | 1426 | | 389 | 1455 | | | 388 | | | 268 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.39 | 0.51 | | 0.31 | 0.46 | | | 0.95 | | | 0.41 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 97.7 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.95 | | | |
| Intersection Signal Delay: 30.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 79.4% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 150 | 425 | 243 | 218 | 340 | 59 | 177 | 327 | 140 | 98 | 263 | 93 |
| Future Volume (vph) | 150 | 425 | 243 | 218 | 340 | 59 | 177 | 327 | 140 | 98 | 263 | 93 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.945 | | | 0.978 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 2976 | 0 | 2974 | 3107 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.482 | | | 0.950 | | | 0.489 | | | 0.418 | | |
| Satd. Flow (perm) | 814 | 2976 | 0 | 2966 | 3107 | 0 | 775 | 2966 | 0 | 725 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 88 | | | 18 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 150 | 425 | 243 | 218 | 340 | 59 | 177 | 327 | 140 | 98 | 263 | 93 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 150 | 668 | 0 | 218 | 399 | 0 | 177 | 467 | 0 | 98 | 263 | 93 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 43.7 | 32.0 | | 15.6 | 35.9 | | 49.5 | 36.7 | | 43.0 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.14 | 0.33 | | 0.45 | 0.33 | | 0.39 | 0.30 | 0.30 |
| v/c Ratio | 0.37 | 0.72 | | 0.52 | 0.39 | | 0.41 | 0.46 | | 0.27 | 0.25 | 0.18 |

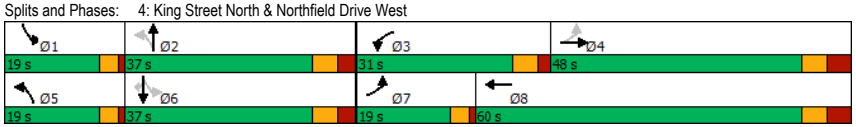




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 35.4 | | 49.7 | 28.5 | | 23.7 | 29.6 | | 21.9 | 32.1 | 1.1 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.0 | 35.4 | | 49.7 | 28.5 | | 23.7 | 29.6 | | 21.9 | 32.1 | 1.1 |
| LOS | B | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 32.5 | | | 36.0 | | | 28.0 | | | 23.6 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 19.7 | 63.1 | | 23.9 | 35.4 | | 23.6 | 38.2 | | 12.3 | 23.7 | 0.0 |
| Queue Length 95th (m) | 32.4 | 89.7 | | 40.1 | 51.0 | | 49.3 | 68.6 | | 28.6 | 42.2 | 1.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 457 | 1255 | | 737 | 1607 | | 451 | 1021 | | 444 | 1032 | 528 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.33 | 0.53 | | 0.30 | 0.25 | | 0.39 | 0.46 | | 0.22 | 0.25 | 0.18 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 110.1 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.72 | | |
| Intersection Signal Delay: 30.6 | | Intersection LOS: C |
| Intersection Capacity Utilization 73.4% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |
| Future Volume (vph) | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.920 | | | 0.993 | | | 0.989 | |
| Flt Protected | | 0.950 | | | 0.980 | | | | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1334 | 0 | 0 | 1469 | 0 | 0 | 1433 | 0 |
| Flt Permitted | | 0.950 | | | 0.980 | | | | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1334 | 0 | 0 | 1469 | 0 | 0 | 1433 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 52.3 | | | 68.1 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.8 | | | 4.9 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 0 | 0 | 22 | 0 | 0 | 199 | 0 | 0 | 155 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 30.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |
| Future Vol, veh/h | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 8 | 0 | 0 | 9 | 0 | 13 | 0 | 189 | 10 | 11 | 131 | 13 |

| Major/Minor | Minor2 | | | Minor1 | | | | Major1 | | | Major2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 361 | 359 | 138 | 354 | 360 | 194 | 144 | 0 | 0 | 199 | 0 | 0 |
| Stage 1 | 160 | 160 | - | 194 | 194 | - | - | - | - | - | - | - |
| Stage 2 | 201 | 199 | - | 160 | 166 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 598 | 571 | 916 | 605 | 570 | 832 | 1451 | - | - | 1333 | - | - |
| Stage 1 | 847 | 769 | - | 812 | 744 | - | - | - | - | - | - | - |
| Stage 2 | 805 | 740 | - | 847 | 765 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 585 | 566 | 916 | 601 | 565 | 832 | 1451 | - | - | 1333 | - | - |
| Mov Cap-2 Maneuver | 585 | 566 | - | 601 | 565 | - | - | - | - | - | - | - |
| Stage 1 | 847 | 762 | - | 812 | 744 | - | - | - | - | - | - | - |
| Stage 2 | 792 | 740 | - | 839 | 758 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.2 | 10.2 | 0 | 0.5 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1451 | - | - | 585 | 719 | 1333 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.014 | 0.031 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.2 | 10.2 | 7.7 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 12 | 204 | 199 | 29 | 29 | 265 | 644 | 224 | 27 | 539 | 51 |
| Future Volume (vph) | 28 | 12 | 204 | 199 | 29 | 29 | 265 | 644 | 224 | 27 | 539 | 51 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.858 | | | 0.925 | | | | 0.850 | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1325 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3143 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.331 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1325 | 0 | 3022 | 1347 | 0 | 575 | 3471 | 1403 | 1240 | 3143 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 204 | | | 29 | | | | | | 10 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 12 | 204 | 199 | 29 | 29 | 265 | 644 | 224 | 27 | 539 | 51 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 216 | 0 | 199 | 58 | 0 | 265 | 644 | 224 | 27 | 590 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 14.2 | 14.2 | | 12.8 | 31.0 | | 56.4 | 52.5 | 65.3 | 8.5 | 44.1 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.13 | 0.32 | | 0.58 | 0.54 | 0.67 | 0.09 | 0.45 | |
| v/c Ratio | 0.17 | 0.59 | | 0.50 | 0.13 | | 0.60 | 0.34 | 0.24 | 0.25 | 0.41 | |

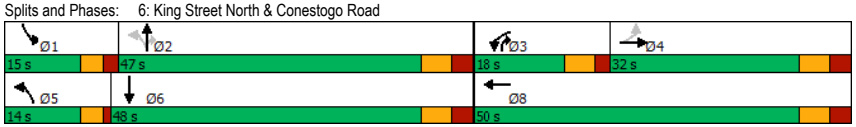




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.0 | 13.6 | | 44.0 | 14.3 | | 16.9 | 15.1 | 7.2 | 47.3 | 19.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.0 | 13.6 | | 44.0 | 14.3 | | 16.9 | 15.1 | 7.2 | 47.3 | 19.0 | |
| LOS | D | B | | D | B | | B | B | A | D | B | |
| Approach Delay | | 16.5 | | | 37.3 | | | 13.9 | | | 20.3 | |
| Approach LOS | | B | | | D | | | B | | | C | |
| Queue Length 50th (m) | 5.0 | 2.1 | | 18.7 | 4.0 | | 22.8 | 30.1 | 8.9 | 5.0 | 38.7 | |
| Queue Length 95th (m) | 13.1 | 23.7 | | 31.9 | 12.9 | | 43.1 | 66.0 | 34.6 | 14.2 | 59.5 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 331 | 527 | | 441 | 654 | | 445 | 1878 | 967 | 141 | 1432 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.41 | | 0.45 | 0.09 | | 0.60 | 0.34 | 0.23 | 0.19 | 0.41 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 97.1 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.60 | | | |
| Intersection Signal Delay: 18.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 68.6% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 220 | 819 | 328 | 97 | 0 | 779 |
| Future Volume (vph) | 220 | 819 | 328 | 97 | 0 | 779 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.966 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3502 | 1615 | 3305 | 0 | 1881 | 3539 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3502 | 1594 | 3305 | 0 | 1881 | 3539 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 483 | 46 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 3 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 15% | 1% | 2% |
| Adj. Flow (vph) | 239 | 890 | 357 | 105 | 0 | 847 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 239 | 890 | 462 | 0 | 0 | 847 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 40.0 | 40.0 | 62.0 | | | 62.0 |
| Actuated g/C Ratio | 0.36 | 0.36 | 0.56 | | | 0.56 |
| v/c Ratio | 0.19 | 1.00 | 0.25 | | | 0.42 |

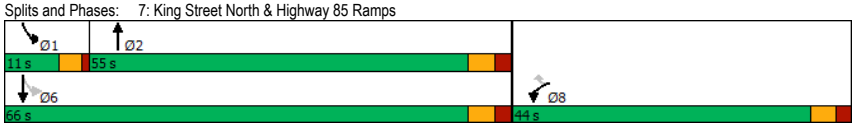




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 24.4 | 48.2 | 11.2 | | | 14.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 24.4 | 48.2 | 11.2 | | | 14.6 |
| LOS | C | D | B | | | B |
| Approach Delay | 43.1 | | 11.2 | | | 14.6 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 18.8 | ~118.5 | 23.3 | | | 54.7 |
| Queue Length 95th (m) | 28.1 | #214.1 | 32.6 | | | 69.3 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1273 | 887 | 1882 | | | 1994 |
| 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 | 0.19 | 1.00 | 0.25 | | | 0.42 |

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 110
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 98.3% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 539 | 264 | 217 | 987 | 594 |
| Future Volume (vph) | 3 | 60 | 298 | 20 | 0 | 21 | 0 | 539 | 264 | 217 | 987 | 594 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.715 | | | | | | 0.375 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1279 | 0 | 1384 | 0 | 3438 | 1521 | 710 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 123 | | | 68 | | | 287 | | | 646 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 586 | 287 | 236 | 1073 | 646 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 65 | 324 | 22 | 0 | 23 | 0 | 586 | 287 | 236 | 1073 | 646 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 21.6 | 21.6 | 21.6 | 21.6 | | 21.6 | | 62.2 | 62.2 | 73.2 | 73.2 | 73.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.60 | 0.60 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.01 | 0.16 | 0.78 | 0.08 | | 0.07 | | 0.28 | 0.28 | 0.41 | 0.43 | 0.55 |

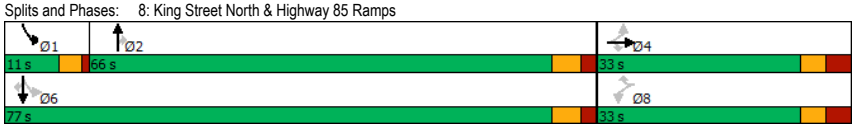




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.2 | 36.3 | 32.1 | | 0.4 | | 10.9 | 2.1 | 8.0 | 7.5 | 2.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.2 | 36.3 | 32.1 | | 0.4 | | 10.9 | 2.1 | 8.0 | 7.5 | 2.5 |
| LOS | C | C | D | C | | A | | B | A | A | A | A |
| Approach Delay | | 35.8 | | | 15.9 | | | 8.0 | | | 5.9 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.2 | 40.5 | 3.7 | | 0.0 | | 29.3 | 0.0 | 14.8 | 44.6 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.7 | 73.1 | 10.3 | | 0.0 | | 45.8 | 11.5 | 29.2 | 70.3 | 11.7 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 504 | 537 | 520 | 361 | | 439 | | 2078 | 1033 | 579 | 2470 | 1182 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.62 | 0.06 | | 0.05 | | 0.28 | 0.28 | 0.41 | 0.43 | 0.55 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.9 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 10.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 212 | 0 | 0 | 211 | 155 | 89 |
| Future Volume (vph) | 212 | 0 | 0 | 211 | 155 | 89 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.951 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 43.7 | | | 68.1 | 111.9 | |
| Travel Time (s) | 3.1 | | | 4.9 | 8.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 230 | 0 | 0 | 229 | 168 | 97 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 230 | 0 | 0 | 229 | 265 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 37.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 4.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 212 | 0 | 0 | 211 | 155 | 89 |
| Future Vol, veh/h | 212 | 0 | 0 | 211 | 155 | 89 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 230 | 0 | 0 | 229 | 168 | 97 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 446 | 217 | 265 | 0 | - | 0 |
| Stage 1 | 217 | - | - | - | - | - |
| Stage 2 | 229 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 570 | 823 | 1299 | - | - | - |
| Stage 1 | 819 | - | - | - | - | - |
| Stage 2 | 809 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 570 | 823 | 1299 | - | - | - |
| Mov Cap-2 Maneuver | 570 | - | - | - | - | - |
| Stage 1 | 819 | - | - | - | - | - |
| Stage 2 | 809 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.5 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1299 | - | 570 | - | - |
| HCM Lane V/C Ratio | - | - | 0.404 | - | - |
| HCM Control Delay (s) | 0 | - | 15.5 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.9 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 83 | 148 | 58 | 117 | 103 | 37 |
| Future Volume (vph) | 83 | 148 | 58 | 117 | 103 | 37 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.913 | | | | 0.964 | |
| Flt Protected | 0.982 | | | 0.984 | | |
| Satd. Flow (prot) | 1670 | 0 | 0 | 1833 | 1796 | 0 |
| Flt Permitted | 0.982 | | | 0.984 | | |
| Satd. Flow (perm) | 1670 | 0 | 0 | 1833 | 1796 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 55.5 | | | 51.0 | 52.3 | |
| Travel Time (s) | 4.0 | | | 3.7 | 3.8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 90 | 161 | 63 | 127 | 112 | 40 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 251 | 0 | 0 | 190 | 152 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 40.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 83 | 148 | 58 | 117 | 103 | 37 |
| Future Vol, veh/h | 83 | 148 | 58 | 117 | 103 | 37 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 90 | 161 | 63 | 127 | 112 | 40 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 385 | 132 | 152 | 0 | - | 0 |
| Stage 1 | 132 | - | - | - | - | - |
| Stage 2 | 253 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 618 | 917 | 1429 | - | - | - |
| Stage 1 | 894 | - | - | - | - | - |
| Stage 2 | 789 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 589 | 917 | 1429 | - | - | - |
| Mov Cap-2 Maneuver | 589 | - | - | - | - | - |
| Stage 1 | 852 | - | - | - | - | - |
| Stage 2 | 789 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12 | 2.5 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1429 | - | 764 | - | - |
| HCM Lane V/C Ratio | 0.044 | - | 0.329 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 12 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 3 | 23 | 171 | 218 | 33 |
| Future Volume (vph) | 4 | 3 | 23 | 171 | 218 | 33 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.942 | | | | 0.982 | |
| Flt Protected | 0.972 | | | 0.994 | | |
| Satd. Flow (prot) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Flt Permitted | 0.972 | | | 0.994 | | |
| Satd. Flow (perm) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 58.0 | | | 36.4 | 51.0 | |
| Travel Time (s) | 4.2 | | | 2.6 | 3.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 3 | 25 | 186 | 237 | 36 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 7 | 0 | 0 | 211 | 273 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 3 | 23 | 171 | 218 | 33 |
| Future Vol, veh/h | 4 | 3 | 23 | 171 | 218 | 33 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 3 | 25 | 186 | 237 | 36 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 491 | 255 | 273 | 0 | - | 0 |
| Stage 1 | 255 | - | - | - | - | - |
| Stage 2 | 236 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 537 | 784 | 1290 | - | - | - |
| Stage 1 | 788 | - | - | - | - | - |
| Stage 2 | 803 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 525 | 784 | 1290 | - | - | - |
| Mov Cap-2 Maneuver | 525 | - | - | - | - | - |
| Stage 1 | 771 | - | - | - | - | - |
| Stage 2 | 803 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1290 | - | 612 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.012 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 11 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2 | 3 | 26 | 192 | 209 | 13 |
| Future Volume (vph) | 2 | 3 | 26 | 192 | 209 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.919 | | | | 0.992 | |
| Flt Protected | 0.980 | | | 0.994 | | |
| Satd. Flow (prot) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Flt Permitted | 0.980 | | | 0.994 | | |
| Satd. Flow (perm) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 59.4 | | | 44.1 | 36.4 | |
| Travel Time (s) | 4.3 | | | 3.2 | 2.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 2 | 3 | 28 | 209 | 227 | 14 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 5 | 0 | 0 | 237 | 241 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 36.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 3 | 26 | 192 | 209 | 13 |
| Future Vol, veh/h | 2 | 3 | 26 | 192 | 209 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 3 | 28 | 209 | 227 | 14 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 499 | 234 | 241 | 0 | - | 0 |
| Stage 1 | 234 | - | - | - | - | - |
| Stage 2 | 265 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 531 | 805 | 1326 | - | - | - |
| Stage 1 | 805 | - | - | - | - | - |
| Stage 2 | 779 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 518 | 805 | 1326 | - | - | - |
| Mov Cap-2 Maneuver | 518 | - | - | - | - | - |
| Stage 1 | 786 | - | - | - | - | - |
| Stage 2 | 779 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.5 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1326 | - | 659 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.008 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 10.5 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1 | 3 | 26 | 217 | 207 | 5 |
| Future Volume (vph) | 1 | 3 | 26 | 217 | 207 | 5 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.899 | | | | 0.997 | |
| Flt Protected | 0.988 | | | 0.995 | | |
| Satd. Flow (prot) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Flt Permitted | 0.988 | | | 0.995 | | |
| Satd. Flow (perm) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 57.5 | | | 146.8 | 44.1 | |
| Travel Time (s) | 4.1 | | | 10.6 | 3.2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 3 | 28 | 236 | 225 | 5 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 4 | 0 | 0 | 264 | 230 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 26 | 217 | 207 | 5 |
| Future Vol, veh/h | 1 | 3 | 26 | 217 | 207 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 28 | 236 | 225 | 5 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 520 | 228 | 230 | 0 | - | 0 |
| Stage 1 | 228 | - | - | - | - | - |
| Stage 2 | 292 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 516 | 811 | 1338 | - | - | - |
| Stage 1 | 810 | - | - | - | - | - |
| Stage 2 | 758 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 504 | 811 | 1338 | - | - | - |
| Mov Cap-2 Maneuver | 504 | - | - | - | - | - |
| Stage 1 | 791 | - | - | - | - | - |
| Stage 2 | 758 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.1 | 0.8 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1338 | - | 704 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.006 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.1 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 133 | 498 | 77 | 157 | 1169 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Future Volume (vph) | 133 | 498 | 77 | 157 | 1169 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.980 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3195 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.091 | | | 0.315 | | | 0.238 | | | 0.277 | | |
| Satd. Flow (perm) | 158 | 3195 | 0 | 550 | 3574 | 1421 | 411 | 3238 | 0 | 477 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 16 | | | | 111 | | 16 | | | 96 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 133 | 498 | 77 | 157 | 1169 | 151 | 190 | 428 | 73 | 308 | 423 | 243 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 133 | 575 | 0 | 157 | 1169 | 151 | 190 | 501 | 0 | 308 | 666 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 12.0 | 49.4 | | 14.0 | 51.4 | 51.4 | 17.0 | 36.6 | | 20.0 | 39.6 | |
| Total Split (%) | 10.0% | 41.2% | | 11.7% | 42.8% | 42.8% | 14.2% | 30.5% | | 16.7% | 33.0% | |
| Maximum Green (s) | 8.0 | 43.4 | | 10.0 | 45.4 | 45.4 | 13.0 | 30.6 | | 14.0 | 33.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 53.8 | 45.8 | | 57.0 | 47.4 | 47.4 | 44.7 | 32.6 | | 52.0 | 36.5 | |
| Actuated g/C Ratio | 0.45 | 0.38 | | 0.48 | 0.40 | 0.40 | 0.37 | 0.27 | | 0.43 | 0.30 | |
| v/c Ratio | 0.78 | 0.47 | | 0.45 | 0.83 | 0.24 | 0.68 | 0.56 | | 0.85 | 0.66 | |

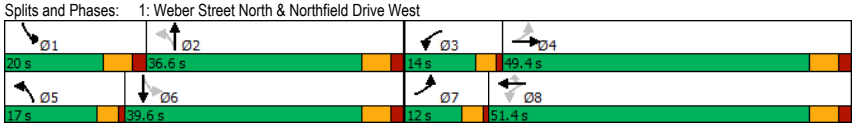




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 53.4 | 28.7 | | 21.3 | 38.8 | 8.6 | 35.1 | 39.2 | | 47.0 | 34.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 53.4 | 28.7 | | 21.3 | 38.8 | 8.6 | 35.1 | 39.2 | | 47.0 | 34.8 | |
| LOS | D | C | | C | D | A | D | D | | D | C | |
| Approach Delay | | 33.4 | | | 33.9 | | | 38.1 | | | 38.6 | |
| Approach LOS | | C | | | C | | | D | | | D | |
| Queue Length 50th (m) | 17.6 | 54.5 | | 21.0 | 135.3 | 6.1 | 29.2 | 54.4 | | 51.6 | 65.8 | |
| Queue Length 95th (m) | #50.5 | 71.7 | | 34.5 | 164.8 | 20.4 | 46.5 | 72.8 | | #85.0 | 87.6 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 170 | 1228 | | 356 | 1411 | 628 | 292 | 891 | | 363 | 1007 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.78 | 0.47 | | 0.44 | 0.83 | 0.24 | 0.65 | 0.56 | | 0.85 | 0.66 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.85 | | | |
| Intersection Signal Delay: 35.7 | | Intersection LOS: D | |
| Intersection Capacity Utilization 97.9% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 871 | 34 | 383 | 1474 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Future Volume (vph) | 3 | 871 | 34 | 383 | 1474 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.992 | | | | 0.850 | | 0.947 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3305 | 0 | 0 | 1592 | 1458 | 1537 | 1538 | 0 |
| Flt Permitted | 0.137 | | | 0.191 | | | | 0.804 | | 0.712 | | |
| Satd. Flow (perm) | 243 | 3282 | 0 | 332 | 3305 | 0 | 0 | 1296 | 1417 | 1134 | 1538 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 10 | | | | 335 | | 12 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 871 | 34 | 383 | 1474 | 88 | 50 | 19 | 482 | 60 | 22 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 905 | 0 | 383 | 1562 | 0 | 0 | 69 | 482 | 60 | 34 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.03 | 0.59 | | 0.92 | 0.72 | | | 0.19 | 0.76 | 0.19 | 0.08 | |

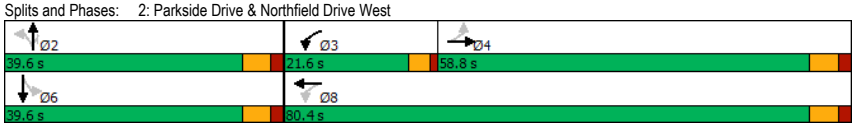




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.9 | | 46.2 | 15.9 | | | 33.7 | 20.0 | 34.0 | 23.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.9 | | 46.2 | 15.9 | | | 33.7 | 20.0 | 34.0 | 23.0 | |
| LOS | B | C | | D | B | | | C | B | C | C | |
| Approach Delay | | 24.8 | | | 21.9 | | | 21.7 | | | 30.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 80.8 | | 46.4 | 117.1 | | | 12.7 | 32.0 | 11.1 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 107.6 | | #112.4 | 157.8 | | | 25.2 | 77.2 | 22.8 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 113 | 1538 | | 415 | 2159 | | | 394 | 663 | 344 | 475 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.59 | | 0.92 | 0.72 | | | 0.18 | 0.73 | 0.17 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.92 | | |
| Intersection Signal Delay: 22.8 | | Intersection LOS: C |
| Intersection Capacity Utilization 121.7% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 65 | 776 | 116 | 230 | 739 | 33 | 208 | 9 | 192 | 97 | 28 | 250 |
| Future Volume (vph) | 65 | 776 | 116 | 230 | 739 | 33 | 208 | 9 | 192 | 97 | 28 | 250 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.980 | | | 0.994 | | | 0.937 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.975 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3151 | 0 | 1547 | 3285 | 0 | 0 | 1388 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.595 | | | 0.803 | |
| Satd. Flow (perm) | 1648 | 3151 | 0 | 1546 | 3285 | 0 | 0 | 847 | 0 | 0 | 1110 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 16 | | | 4 | | | 48 | | | 107 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 124.3 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.9 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 65 | 776 | 116 | 230 | 739 | 33 | 208 | 9 | 192 | 97 | 28 | 250 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 65 | 892 | 0 | 230 | 772 | 0 | 0 | 409 | 0 | 0 | 375 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 13.0 | 46.0 | | 17.0 | 50.0 | | 54.0 | 54.0 | | 54.0 | 54.0 | |
| Total Split (%) | 11.1% | 39.3% | | 14.5% | 42.7% | | 46.2% | 46.2% | | 46.2% | 46.2% | |
| Maximum Green (s) | 8.0 | 40.0 | | 12.0 | 44.0 | | 48.0 | 48.0 | | 48.0 | 48.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 8.6 | 42.0 | | 13.0 | 48.6 | | | 50.0 | | | 50.0 | |
| Actuated g/C Ratio | 0.07 | 0.36 | | 0.11 | 0.42 | | | 0.43 | | | 0.43 | |
| v/c Ratio | 0.54 | 0.78 | | 1.35 | 0.57 | | | 1.05 | | | 0.70 | |





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 68.7 | 38.6 | | 229.3 | 28.7 | | | 90.0 | | | 27.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 68.7 | 38.6 | | 229.3 | 28.7 | | | 90.0 | | | 27.4 | |
| LOS | E | D | | F | C | | | F | | | C | |
| Approach Delay | | 40.6 | | | 74.8 | | | 90.0 | | | 27.4 | |
| Approach LOS | | D | | | E | | | F | | | C | |
| Queue Length 50th (m) | 15.4 | 98.5 | | ~72.4 | 76.2 | | | ~100.7 | | | 52.8 | |
| Queue Length 95th (m) | 30.7 | 124.8 | | #123.1 | 97.2 | | | #165.1 | | | 93.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 100.3 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 127 | 1141 | | 171 | 1366 | | | 389 | | | 535 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.51 | 0.78 | | 1.35 | 0.57 | | | 1.05 | | | 0.70 | |

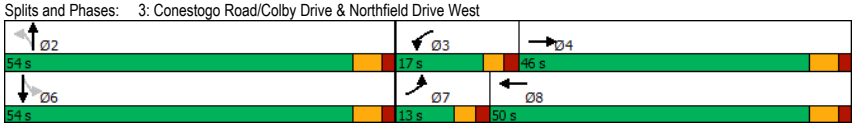
Intersection Summary

Area Type: Other
Cycle Length: 117
Actuated Cycle Length: 117
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 58.6 Intersection LOS: E
Intersection Capacity Utilization 111.4% ICU Level of Service H
Analysis Period (min) 15

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

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

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 183 | 556 | 199 | 231 | 516 | 68 | 280 | 373 | 164 | 104 | 435 | 191 |
| Future Volume (vph) | 183 | 556 | 199 | 231 | 516 | 68 | 280 | 373 | 164 | 104 | 435 | 191 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.99 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.960 | | | 0.983 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3122 | 0 | 3176 | 3225 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.314 | | | 0.950 | | | 0.323 | | | 0.368 | | |
| Satd. Flow (perm) | 548 | 3122 | 0 | 3135 | 3225 | 0 | 546 | 3127 | 0 | 628 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 40 | | | 13 | | | 49 | | | | 191 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 183 | 556 | 199 | 231 | 516 | 68 | 280 | 373 | 164 | 104 | 435 | 191 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 183 | 755 | 0 | 231 | 584 | 0 | 280 | 537 | 0 | 104 | 435 | 191 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 48.5 | 35.8 | | 15.9 | 38.9 | | 51.6 | 38.1 | | 43.4 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.42 | 0.31 | | 0.14 | 0.34 | | 0.44 | 0.33 | | 0.37 | 0.29 | 0.29 |
| v/c Ratio | 0.52 | 0.76 | | 0.53 | 0.54 | | 0.74 | 0.51 | | 0.32 | 0.43 | 0.34 |

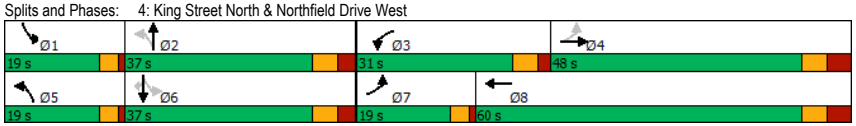


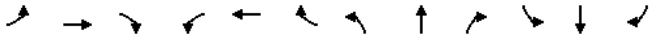


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.1 | 40.0 | | 52.2 | 32.3 | | 37.6 | 32.5 | | 24.2 | 36.8 | 6.9 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.1 | 40.0 | | 52.2 | 32.3 | | 37.6 | 32.5 | | 24.2 | 36.8 | 6.9 |
| LOS | C | D | | D | C | | D | C | | C | D | A |
| Approach Delay | | 36.7 | | | 37.9 | | | 34.2 | | | 27.2 | |
| Approach LOS | | D | | | D | | | C | | | C | |
| Queue Length 50th (m) | 24.7 | 81.2 | | 27.0 | 58.1 | | 44.3 | 49.7 | | 14.5 | 45.1 | 0.0 |
| Queue Length 95th (m) | 38.9 | 109.7 | | 42.5 | 76.8 | | #80.2 | 81.0 | | 30.6 | 68.9 | 18.9 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 386 | 1216 | | 743 | 1572 | | 380 | 1060 | | 392 | 1012 | 557 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.47 | 0.62 | | 0.31 | 0.37 | | 0.74 | 0.51 | | 0.27 | 0.43 | 0.34 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 116.1 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.76 | | |
| Intersection Signal Delay: 34.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 82.4% | | ICU Level of Service E |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |
| Future Volume (vph) | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.911 | | | 0.994 | | | 0.997 | |
| Flt Protected | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1294 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Flt Permitted | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1294 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 46.9 | | | 55.7 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.4 | | | 4.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 9 | 0 | 0 | 44 | 0 | 0 | 225 | 0 | 0 | 170 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 31.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |
| Future Vol, veh/h | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 9 | 0 | 0 | 15 | 0 | 29 | 0 | 215 | 10 | 11 | 155 | 4 |

| Major/Minor | Minor2 | | | Minor1 | | | | Major1 | | | Major2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 414 | 404 | 157 | 399 | 401 | 220 | 159 | 0 | 0 | 225 | 0 | 0 |
| Stage 1 | 179 | 179 | - | 220 | 220 | - | - | - | - | - | - | - |
| Stage 2 | 235 | 225 | - | 179 | 181 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 552 | 539 | 894 | 565 | 541 | 798 | 1433 | - | - | 1303 | - | - |
| Stage 1 | 827 | 755 | - | 787 | 725 | - | - | - | - | - | - | - |
| Stage 2 | 773 | 721 | - | 827 | 754 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 528 | 534 | 894 | 561 | 536 | 798 | 1433 | - | - | 1303 | - | - |
| Mov Cap-2 Maneuver | 528 | 534 | - | 561 | 536 | - | - | - | - | - | - | - |
| Stage 1 | 827 | 748 | - | 787 | 725 | - | - | - | - | - | - | - |
| Stage 2 | 745 | 721 | - | 820 | 747 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.9 | 10.5 | 0 | 0.5 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1433 | - | - | 528 | 698 | 1303 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.017 | 0.063 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.9 | 10.5 | 7.8 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 61 | 345 | 325 | 10 | 61 | 226 | 752 | 378 | 75 | 839 | 33 |
| Future Volume (vph) | 38 | 61 | 345 | 325 | 10 | 61 | 226 | 752 | 378 | 75 | 839 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.873 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1407 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.711 | | | 0.950 | | | 0.176 | | | 0.950 | | |
| Satd. Flow (perm) | 1260 | 1407 | 0 | 3116 | 1339 | 0 | 312 | 3539 | 1443 | 1596 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 231 | | | 61 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 61 | 345 | 325 | 10 | 61 | 226 | 752 | 378 | 75 | 839 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 406 | 0 | 325 | 71 | 0 | 226 | 752 | 378 | 75 | 872 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 38.0 | 38.0 | | 15.0 | 53.0 | | 19.0 | 51.0 | 15.0 | 16.0 | 48.0 | |
| Total Split (%) | 31.7% | 31.7% | | 12.5% | 44.2% | | 15.8% | 42.5% | 12.5% | 13.3% | 40.0% | |
| Maximum Green (s) | 31.0 | 31.0 | | 9.0 | 46.0 | | 15.0 | 44.0 | 9.0 | 11.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 23.6 | 23.6 | | 11.1 | 38.8 | | 60.3 | 49.8 | 60.9 | 10.3 | 44.9 | |
| Actuated g/C Ratio | 0.22 | 0.22 | | 0.10 | 0.36 | | 0.56 | 0.46 | 0.56 | 0.10 | 0.41 | |
| v/c Ratio | 0.14 | 0.83 | | 1.01 | 0.14 | | 0.68 | 0.46 | 0.46 | 0.49 | 0.64 | |





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 34.4 | 32.4 | | 103.1 | 7.9 | | 24.8 | 23.7 | 17.2 | 60.3 | 29.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 34.4 | 32.4 | | 103.1 | 7.9 | | 24.8 | 23.7 | 17.2 | 60.3 | 29.6 | |
| LOS | C | C | | F | A | | C | C | B | E | C | |
| Approach Delay | | 32.5 | | | 86.0 | | | 22.1 | | | 32.0 | |
| Approach LOS | | C | | | F | | | C | | | C | |
| Queue Length 50th (m) | 6.9 | 39.1 | | ~40.6 | 1.4 | | 24.0 | 63.4 | 47.1 | 16.2 | 81.2 | |
| Queue Length 95th (m) | 16.2 | 80.1 | | #78.0 | 10.8 | | 48.2 | 94.4 | 86.5 | 34.2 | 121.2 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 398 | 602 | | 321 | 643 | | 367 | 1626 | 815 | 179 | 1362 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.10 | 0.67 | | 1.01 | 0.11 | | 0.62 | 0.46 | 0.46 | 0.42 | 0.64 | |

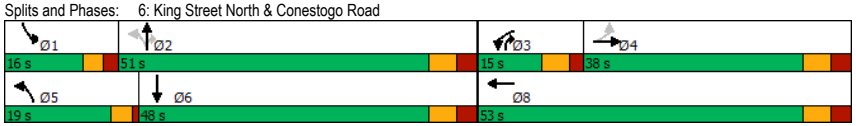
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 108.4
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 34.6 Intersection LOS: C
Intersection Capacity Utilization 91.3% ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 191 | 842 | 601 | 129 | 0 | 1527 |
| Future Volume (vph) | 191 | 842 | 601 | 129 | 0 | 1527 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.974 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1615 | 3456 | 0 | 1900 | 3610 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1591 | 3456 | 0 | 1900 | 3610 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 273 | 34 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 3 | | 38 | 38 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 4% | 0% | 0% |
| Adj. Flow (vph) | 208 | 915 | 653 | 140 | 0 | 1660 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 208 | 915 | 793 | 0 | 0 | 1660 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.19 | 1.33 | 0.37 | | | 0.75 |



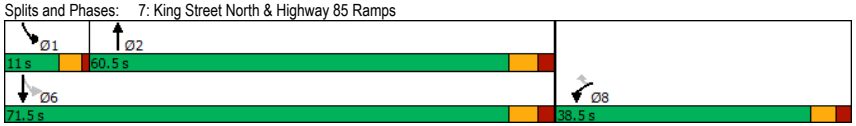


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.2 | 184.1 | 10.7 | | | 17.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.2 | 184.1 | 10.7 | | | 17.9 |
| LOS | C | F | B | | | B |
| Approach Delay | 155.2 | | 10.7 | | | 17.9 |
| Approach LOS | F | | B | | | B |
| Queue Length 50th (m) | 17.6 | ~225.7 | 41.7 | | | 131.3 |
| Queue Length 95th (m) | 27.1 | #304.9 | 53.8 | | | 160.3 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1087 | 686 | 2133 | | | 2215 |
| 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 | 0.19 | 1.33 | 0.37 | | | 0.75 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 135 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.33 | | | |
| Intersection Signal Delay: 59.4 | | Intersection LOS: E | |
| Intersection Capacity Utilization 104.5% | | ICU Level of Service G | |
| Analysis Period (min) 15 | | | |

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

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 22 | 1 | 187 | 158 | 0 | 283 | 0 | 896 | 365 | 21 | 989 | 838 |
| Future Volume (vph) | 22 | 1 | 187 | 158 | 0 | 283 | 0 | 896 | 365 | 21 | 989 | 838 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1553 | 1787 | 0 | 1615 | 0 | 3539 | 1583 | 1805 | 3539 | 1553 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.256 | | |
| Satd. Flow (perm) | 1800 | 1900 | 1485 | 1378 | 0 | 1591 | 0 | 3539 | 1542 | 486 | 3539 | 1502 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 62 | | | 85 | | | 397 | | | 911 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 24 | 1 | 203 | 172 | 0 | 308 | 0 | 974 | 397 | 23 | 1075 | 911 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 24 | 1 | 203 | 172 | 0 | 308 | 0 | 974 | 397 | 23 | 1075 | 911 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 49.5 | 49.5 | 49.5 | 49.5 | | 49.5 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (%) | 45.0% | 45.0% | 45.0% | 45.0% | | 45.0% | | 55.0% | 55.0% | 55.0% | 55.0% | 55.0% |
| Maximum Green (s) | 42.8 | 42.8 | 42.8 | 42.8 | | 42.8 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 20.4 | 20.4 | 20.4 | 20.4 | | 20.4 | | 56.8 | 56.8 | 56.8 | 56.8 | 56.8 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.24 | 0.24 | | 0.24 | | 0.67 | 0.67 | 0.67 | 0.67 | 0.67 |
| v/c Ratio | 0.06 | 0.00 | 0.50 | 0.52 | | 0.69 | | 0.41 | 0.34 | 0.07 | 0.46 | 0.70 |

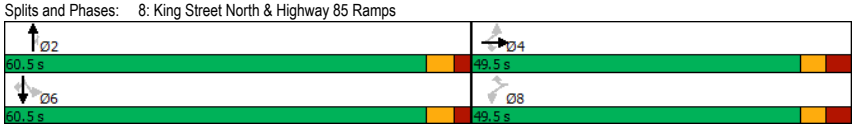




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 24.0 | 23.0 | 23.2 | 33.7 | | 29.4 | | 8.0 | 1.7 | 7.4 | 8.4 | 3.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.0 | 23.0 | 23.2 | 33.7 | | 29.4 | | 8.0 | 1.7 | 7.4 | 8.4 | 3.9 |
| LOS | C | C | C | C | | C | | A | A | A | A | A |
| Approach Delay | | 23.3 | | | 30.9 | | | 6.1 | | | 6.4 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 3.2 | 0.1 | 20.3 | 25.6 | | 34.6 | | 35.0 | 0.0 | 1.2 | 40.3 | 0.0 |
| Queue Length 95th (m) | 9.0 | 1.3 | 40.3 | 44.7 | | 61.7 | | 63.7 | 11.0 | 5.2 | 72.5 | 14.8 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 965 | 1019 | 825 | 739 | | 893 | | 2358 | 1159 | 323 | 2358 | 1304 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.02 | 0.00 | 0.25 | 0.23 | | 0.34 | | 0.41 | 0.34 | 0.07 | 0.46 | 0.70 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 85.2 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 10.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 142 | 0 | 0 | 252 | 171 | 201 |
| Future Volume (vph) | 142 | 0 | 0 | 252 | 171 | 201 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.927 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1409 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1409 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 47.0 | | | 55.7 | 124.3 | |
| Travel Time (s) | 3.4 | | | 4.0 | 8.9 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 154 | 0 | 0 | 274 | 186 | 218 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 154 | 0 | 0 | 274 | 404 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 142 | 0 | 0 | 252 | 171 | 201 |
| Future Vol, veh/h | 142 | 0 | 0 | 252 | 171 | 201 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 154 | 0 | 0 | 274 | 186 | 218 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 569 | 295 | 404 | 0 | - | 0 |
| Stage 1 | 295 | - | - | - | - | - |
| Stage 2 | 274 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 484 | 744 | 1155 | - | - | - |
| Stage 1 | 755 | - | - | - | - | - |
| Stage 2 | 772 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 484 | 744 | 1155 | - | - | - |
| Mov Cap-2 Maneuver | 484 | - | - | - | - | - |
| Stage 1 | 755 | - | - | - | - | - |
| Stage 2 | 772 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.9 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1155 | - | 484 | - | - |
| HCM Lane V/C Ratio | - | - | 0.319 | - | - |
| HCM Control Delay (s) | 0 | - | 15.9 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 56 | 97 | 141 | 169 | 93 | 78 |
| Future Volume (vph) | 56 | 97 | 141 | 169 | 93 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.915 | | | | 0.938 | |
| Flt Protected | 0.982 | | | 0.978 | | |
| Satd. Flow (prot) | 1674 | 0 | 0 | 1822 | 1747 | 0 |
| Flt Permitted | 0.982 | | | 0.978 | | |
| Satd. Flow (perm) | 1674 | 0 | 0 | 1822 | 1747 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 52.7 | | | 47.0 | 46.9 | |
| Travel Time (s) | 3.8 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 61 | 105 | 153 | 184 | 101 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 166 | 0 | 0 | 337 | 186 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 45.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 4.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 56 | 97 | 141 | 169 | 93 | 78 |
| Future Vol, veh/h | 56 | 97 | 141 | 169 | 93 | 78 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 61 | 105 | 153 | 184 | 101 | 85 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 634 | 144 | 186 | 0 | - | 0 |
| Stage 1 | 144 | - | - | - | - | - |
| Stage 2 | 490 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 443 | 903 | 1388 | - | - | - |
| Stage 1 | 883 | - | - | - | - | - |
| Stage 2 | 616 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 389 | 903 | 1388 | - | - | - |
| Mov Cap-2 Maneuver | 389 | - | - | - | - | - |
| Stage 1 | 774 | - | - | - | - | - |
| Stage 2 | 616 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.1 | 3.6 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1388 | - | 609 | - | - |
| HCM Lane V/C Ratio | 0.11 | - | 0.273 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 13.1 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | 1.1 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 28 | 20 | 4 | 280 | 183 | 6 |
| Future Volume (vph) | 28 | 20 | 4 | 280 | 183 | 6 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.943 | | | | 0.995 | |
| Flt Protected | 0.972 | | | 0.999 | | |
| Satd. Flow (prot) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Flt Permitted | 0.972 | | | 0.999 | | |
| Satd. Flow (perm) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 41.2 | | | 47.9 | 47.0 | |
| Travel Time (s) | 3.0 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 30 | 22 | 4 | 304 | 199 | 7 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 52 | 0 | 0 | 308 | 206 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.1% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 28 | 20 | 4 | 280 | 183 | 6 |
| Future Vol, veh/h | 28 | 20 | 4 | 280 | 183 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 30 | 22 | 4 | 304 | 199 | 7 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 515 | 203 | 206 | 0 | - | 0 |
| Stage 1 | 203 | - | - | - | - | - |
| Stage 2 | 312 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 520 | 838 | 1365 | - | - | - |
| Stage 1 | 831 | - | - | - | - | - |
| Stage 2 | 742 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 518 | 838 | 1365 | - | - | - |
| Mov Cap-2 Maneuver | 518 | - | - | - | - | - |
| Stage 1 | 828 | - | - | - | - | - |
| Stage 2 | 742 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.4 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1365 | - | 616 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | 0.085 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 11.4 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 11 | 23 | 5 | 275 | 201 | 2 |
| Future Volume (vph) | 11 | 23 | 5 | 275 | 201 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.909 | | | | 0.999 | |
| Flt Protected | 0.984 | | | 0.999 | | |
| Satd. Flow (prot) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Flt Permitted | 0.984 | | | 0.999 | | |
| Satd. Flow (perm) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 54.7 | | | 43.4 | 47.9 | |
| Travel Time (s) | 3.9 | | | 3.1 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 25 | 5 | 299 | 218 | 2 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 37 | 0 | 0 | 304 | 220 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 28.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 23 | 5 | 275 | 201 | 2 |
| Future Vol, veh/h | 11 | 23 | 5 | 275 | 201 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 25 | 5 | 299 | 218 | 2 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 528 | 219 | 220 | 0 | - | 0 |
| Stage 1 | 219 | - | - | - | - | - |
| Stage 2 | 309 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 511 | 821 | 1349 | - | - | - |
| Stage 1 | 817 | - | - | - | - | - |
| Stage 2 | 745 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 509 | 821 | 1349 | - | - | - |
| Mov Cap-2 Maneuver | 509 | - | - | - | - | - |
| Stage 1 | 814 | - | - | - | - | - |
| Stage 2 | 745 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.6 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1349 | - | 685 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.054 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.6 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 23 | 5 | 275 | 223 | 1 |
| Future Volume (vph) | 4 | 23 | 5 | 275 | 223 | 1 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.884 | | | | 0.999 | |
| Flt Protected | 0.993 | | | 0.999 | | |
| Satd. Flow (prot) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Flt Permitted | 0.993 | | | 0.999 | | |
| Satd. Flow (perm) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 38.7 | | | 145.4 | 43.4 | |
| Travel Time (s) | 2.8 | | | 10.5 | 3.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 25 | 5 | 299 | 242 | 1 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 29 | 0 | 0 | 304 | 243 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 23 | 5 | 275 | 223 | 1 |
| Future Vol, veh/h | 4 | 23 | 5 | 275 | 223 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 25 | 5 | 299 | 242 | 1 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 552 | 243 | 243 | 0 | - | 0 |
| Stage 1 | 243 | - | - | - | - | - |
| Stage 2 | 309 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 495 | 796 | 1323 | - | - | - |
| Stage 1 | 797 | - | - | - | - | - |
| Stage 2 | 745 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 493 | 796 | 1323 | - | - | - |
| Mov Cap-2 Maneuver | 493 | - | - | - | - | - |
| Stage 1 | 793 | - | - | - | - | - |
| Stage 2 | 745 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.1 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1323 | - | 730 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.04 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.1 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

# Appendix I

## 2032 Background Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 214 | 819 | 137 | 105 | 368 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Future Volume (vph) | 214 | 819 | 137 | 105 | 368 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.979 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3254 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.416 | | | 0.144 | | | 0.506 | | | 0.436 | | |
| Satd. Flow (perm) | 728 | 3254 | 0 | 253 | 3438 | 1403 | 869 | 3036 | 0 | 715 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 214 | 819 | 137 | 105 | 368 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 214 | 956 | 0 | 105 | 368 | 117 | 54 | 315 | 0 | 180 | 421 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.2 | | 48.6 | 40.9 | 40.9 | 40.2 | 33.7 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.48 | 0.76 | | 0.54 | 0.31 | 0.19 | 0.16 | 0.34 | | 0.42 | 0.35 | |

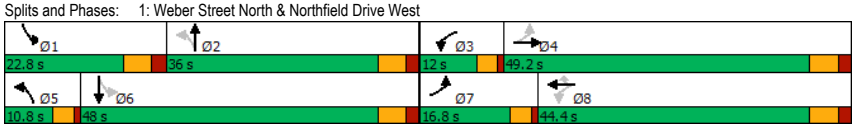




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.6 | 36.3 | | 28.5 | 29.8 | 0.8 | 20.6 | 27.4 | | 23.4 | 27.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.6 | 36.3 | | 28.5 | 29.8 | 0.8 | 20.6 | 27.4 | | 23.4 | 27.3 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 33.8 | | | 23.8 | | | 26.4 | | | 26.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 31.0 | 106.7 | | 14.2 | 35.4 | 0.0 | 7.4 | 24.7 | | 26.8 | 38.8 | |
| Queue Length 95th (m) | 48.3 | 133.6 | | 25.0 | 48.8 | 0.3 | 15.2 | 39.3 | | 43.2 | 53.0 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 452 | 1256 | | 200 | 1189 | 610 | 342 | 915 | | 457 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.47 | 0.76 | | 0.53 | 0.31 | 0.19 | 0.16 | 0.34 | | 0.39 | 0.35 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 118.2 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.76 | | |
| Intersection Signal Delay: 29.0 | | Intersection LOS: C |
| Intersection Capacity Utilization 93.7% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1130 | 27 | 308 | 516 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Future Volume (vph) | 1 | 1130 | 27 | 308 | 516 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.960 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1584 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.426 | | | 0.099 | | | | 0.854 | | 0.746 | | |
| Satd. Flow (perm) | 755 | 3262 | 0 | 169 | 3204 | 0 | 0 | 1406 | 1376 | 1153 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 316 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1130 | 27 | 308 | 516 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1157 | 0 | 308 | 599 | 0 | 0 | 17 | 316 | 70 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.3 | 54.3 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.45 | 0.45 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.78 | | 0.82 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

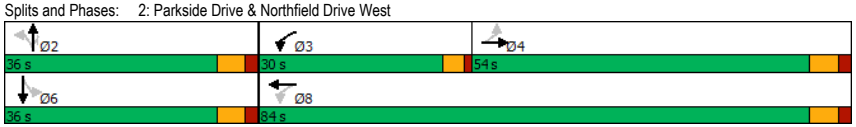




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 33.4 | | 44.0 | 8.1 | | | 33.3 | 7.3 | 36.8 | 32.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 33.4 | | 44.0 | 8.1 | | | 33.3 | 7.3 | 36.8 | 32.5 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 33.4 | | | 20.3 | | | 8.6 | | | 35.7 | |
| Approach LOS | | C | | | C | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 128.4 | | 50.3 | 27.4 | | | 3.1 | 0.0 | 13.6 | 4.6 | |
| Queue Length 95th (m) | 1.3 | 165.2 | | 83.1 | 36.2 | | | 9.3 | 23.5 | 26.9 | 12.2 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 341 | 1478 | | 427 | 2146 | | | 374 | 598 | 307 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.78 | | 0.72 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.82 | | | |
| Intersection Signal Delay: 25.4 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 113 | 616 | 50 | 9 | 597 | 80 | 22 | 15 | 25 | 58 | 9 | 46 |
| Future Volume (vph) | 113 | 616 | 50 | 9 | 597 | 80 | 22 | 15 | 25 | 58 | 9 | 46 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.946 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.983 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1300 | 0 | 0 | 1309 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.874 | | | 0.846 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1155 | 0 | 0 | 1135 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 25 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 113 | 616 | 50 | 9 | 597 | 80 | 22 | 15 | 25 | 58 | 9 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 113 | 666 | 0 | 9 | 677 | 0 | 0 | 62 | 0 | 0 | 113 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.8 | 58.1 | | 7.2 | 47.4 | | | 13.9 | | | 13.9 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.61 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.45 | 0.28 | | 0.06 | 0.35 | | | 0.27 | | | 0.49 | |

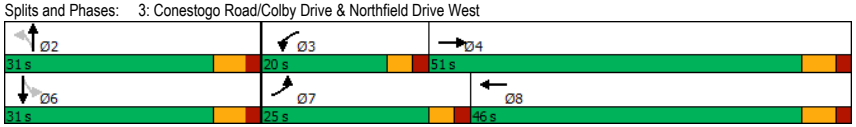




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 38.0 | 5.8 | | 37.7 | 12.1 | | | 22.8 | | | 30.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 38.0 | 5.8 | | 37.7 | 12.1 | | | 22.8 | | | 30.3 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.5 | | | 12.4 | | | 22.8 | | | 30.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 16.5 | 14.5 | | 1.3 | 30.2 | | | 5.1 | | | 11.4 | |
| Queue Length 95th (m) | 35.0 | 45.7 | | 6.4 | 58.3 | | | 16.5 | | | 28.9 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 457 | 2421 | | 320 | 1924 | | | 427 | | | 424 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.25 | 0.28 | | 0.03 | 0.35 | | | 0.15 | | | 0.27 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 13.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 62.7% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 129 | 363 | 105 | 222 | 309 | 60 | 119 | 331 | 142 | 99 | 266 | 77 |
| Future Volume (vph) | 129 | 363 | 105 | 222 | 309 | 60 | 119 | 331 | 142 | 99 | 266 | 77 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.527 | | | 0.950 | | | 0.528 | | | 0.400 | | |
| Satd. Flow (perm) | 890 | 3065 | 0 | 2963 | 3103 | 0 | 837 | 2966 | 0 | 693 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 129 | 363 | 105 | 222 | 309 | 60 | 119 | 331 | 142 | 99 | 266 | 77 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 129 | 468 | 0 | 222 | 369 | 0 | 119 | 473 | 0 | 99 | 266 | 77 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 36.7 | 26.0 | | 15.0 | 30.2 | | 45.3 | 34.7 | | 42.3 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.36 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.34 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.32 | 0.58 | | 0.50 | 0.39 | | 0.27 | 0.45 | | 0.26 | 0.24 | 0.14 |

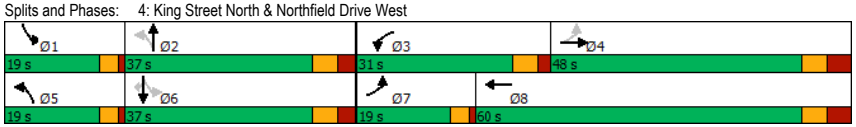


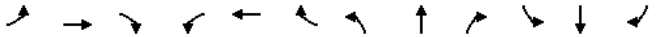


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.8 | 34.4 | | 44.4 | 28.4 | | 18.0 | 25.8 | | 18.1 | 26.9 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.8 | 34.4 | | 44.4 | 28.4 | | 18.0 | 25.8 | | 18.1 | 26.9 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.3 | | | 34.4 | | | 24.2 | | | 20.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 15.4 | 41.1 | | 21.2 | 29.5 | | 12.9 | 33.9 | | 10.5 | 20.0 | 0.0 |
| Queue Length 95th (m) | 29.2 | 64.2 | | 37.0 | 47.3 | | 28.7 | 60.1 | | 24.3 | 37.3 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 469 | 1361 | | 801 | 1742 | | 494 | 1050 | | 465 | 1121 | 560 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.34 | | 0.28 | 0.21 | | 0.24 | 0.45 | | 0.21 | 0.24 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 100.9 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.58 | | | |
| Intersection Signal Delay: 28.0 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.7% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.918 | | | 0.988 | | | | |
| Flt Protected | | | | | 0.981 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1331 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.981 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1331 | 0 | 0 | 1465 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 112 | 0 | 0 | 56 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 9 | 0 | 14 | 0 | 102 | 10 | 11 | 45 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 181 | 179 | 45 | 174 | 174 | 107 | 45 | 0 | 0 | 112 | 0 | 0 |
| Stage 1 | 67 | 67 | - | 107 | 107 | - | - | - | - | - | - | - |
| Stage 2 | 114 | 112 | - | 67 | 67 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 785 | 718 | 1031 | 793 | 723 | 931 | 1576 | - | - | 1435 | - | - |
| Stage 1 | 948 | 843 | - | 903 | 811 | - | - | - | - | - | - | - |
| Stage 2 | 896 | 807 | - | 948 | 843 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 769 | 712 | 1031 | 788 | 717 | 931 | 1576 | - | - | 1435 | - | - |
| Mov Cap-2 Maneuver | 769 | 712 | - | 788 | 717 | - | - | - | - | - | - | - |
| Stage 1 | 948 | 836 | - | 903 | 811 | - | - | - | - | - | - | - |
| Stage 2 | 883 | 807 | - | 940 | 836 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.3 | 0 | 1.5 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1576 | - | - | - | 869 | 1435 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.026 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.3 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 12 | 45 | 201 | 29 | 29 | 133 | 591 | 226 | 27 | 404 | 52 |
| Future Volume (vph) | 28 | 12 | 45 | 201 | 29 | 29 | 133 | 591 | 226 | 27 | 404 | 52 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.882 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1377 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.413 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1377 | 0 | 3013 | 1347 | 0 | 717 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 45 | | | 29 | | | | | | 15 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 12 | 45 | 201 | 29 | 29 | 133 | 591 | 226 | 27 | 404 | 52 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 57 | 0 | 201 | 58 | 0 | 133 | 591 | 226 | 27 | 456 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.5 | 26.6 | | 55.8 | 52.1 | 65.5 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.57 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.17 | 0.24 | | 0.45 | 0.14 | | 0.25 | 0.30 | 0.23 | 0.23 | 0.30 | |

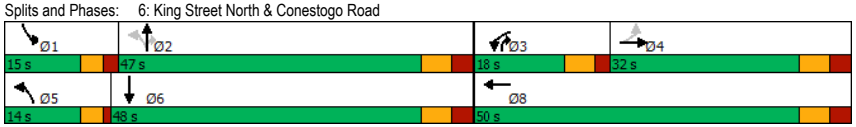




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.9 | 18.1 | | 41.1 | 14.8 | | 9.7 | 13.5 | 6.3 | 45.5 | 15.9 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.3 | | | 35.2 | | | 11.3 | | | 17.6 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 5.0 | 2.1 | | 18.9 | 4.0 | | 10.5 | 27.2 | 8.9 | 5.0 | 28.0 | |
| Queue Length 95th (m) | 13.5 | 13.6 | | 30.5 | 13.2 | | 19.5 | 54.8 | 30.3 | 13.5 | 40.6 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 351 | 453 | | 468 | 693 | | 536 | 1960 | 1013 | 150 | 1516 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.13 | | 0.43 | 0.08 | | 0.25 | 0.30 | 0.22 | 0.18 | 0.30 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 112 | | |
| Actuated Cycle Length: 92.2 | | |
| Natural Cycle: 65 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.45 | | |
| Intersection Signal Delay: 17.1 | | Intersection LOS: B |
| Intersection Capacity Utilization 47.4% | | ICU Level of Service A |
| Analysis Period (min) 15 | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 222 | 675 | 289 | 98 | 0 | 487 |
| Future Volume (vph) | 222 | 675 | 289 | 98 | 0 | 487 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1553 | 3279 | 0 | 1056 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1533 | 3279 | 0 | 1056 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 510 | 57 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 241 | 734 | 314 | 107 | 0 | 529 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 241 | 734 | 421 | 0 | 0 | 529 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 27.7 | 27.7 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.64 | | | 0.64 |
| v/c Ratio | 0.25 | 0.92 | 0.20 | | | 0.24 |

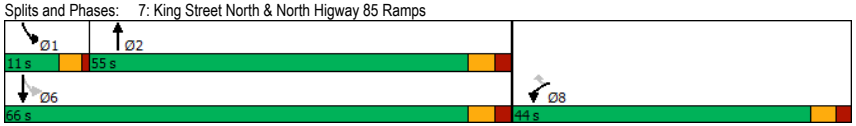




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.7 | 27.7 | 8.2 | | | 9.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.7 | 27.7 | 8.2 | | | 9.6 |
| LOS | C | C | A | | | A |
| Approach Delay | 27.5 | | 8.2 | | | 9.6 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 19.0 | 48.1 | 15.4 | | | 23.5 |
| Queue Length 95th (m) | 28.3 | #117.5 | 28.8 | | | 40.7 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1424 | 930 | 2109 | | | 2232 |
| 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 | 0.17 | 0.79 | 0.20 | | | 0.24 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 98.6 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.92 | | | |
| Intersection Signal Delay: 18.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 89.4% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 61 | 302 | 21 | 0 | 22 | 0 | 503 | 268 | 220 | 930 | 370 |
| Future Volume (vph) | 3 | 61 | 302 | 21 | 0 | 22 | 0 | 503 | 268 | 220 | 930 | 370 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.714 | | | | | | 0.395 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1277 | 0 | 1384 | 0 | 3438 | 1521 | 747 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 140 | | | 68 | | | 291 | | | 402 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 66 | 328 | 23 | 0 | 24 | 0 | 547 | 291 | 239 | 1011 | 402 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 66 | 328 | 23 | 0 | 24 | 0 | 547 | 291 | 239 | 1011 | 402 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 67.0 | 67.0 | 11.0 | 67.0 | 67.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 21.1 | 21.1 | 21.1 | 21.1 | | 21.1 | | 62.2 | 62.2 | 73.3 | 73.3 | 71.4 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.61 | 0.61 | 0.72 | 0.72 | 0.70 |
| v/c Ratio | 0.01 | 0.17 | 0.77 | 0.09 | | 0.07 | | 0.26 | 0.28 | 0.39 | 0.41 | 0.37 |

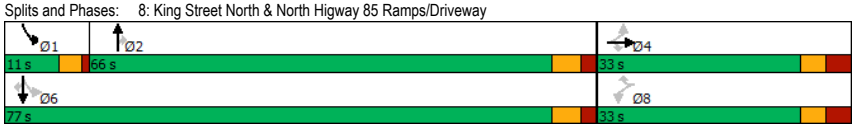




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.4 | 34.0 | 32.3 | | 0.4 | | 10.5 | 2.0 | 7.7 | 7.1 | 1.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.4 | 34.0 | 32.3 | | 0.4 | | 10.5 | 2.0 | 7.7 | 7.1 | 1.7 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 33.9 | | | 16.0 | | | 7.6 | | | 5.9 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.4 | 37.5 | 3.9 | | 0.0 | | 26.3 | 0.0 | 14.5 | 39.4 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.9 | 70.0 | 10.7 | | 0.0 | | 42.4 | 11.7 | 29.6 | 64.7 | 10.5 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 507 | 540 | 535 | 362 | | 441 | | 2088 | 1038 | 607 | 2483 | 1096 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.61 | 0.06 | | 0.05 | | 0.26 | 0.28 | 0.39 | 0.41 | 0.37 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.4 | | | |
| Natural Cycle: 115 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.77 | | | |
| Intersection Signal Delay: 10.3 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.4% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 454 | 79 | 159 | 1123 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Future Volume (vph) | 135 | 454 | 79 | 159 | 1123 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.317 | | | 0.273 | | | 0.265 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 553 | 3574 | 1421 | 472 | 3238 | 0 | 457 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 111 | | 15 | | | 95 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 135 | 454 | 79 | 159 | 1123 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 135 | 533 | 0 | 159 | 1123 | 154 | 193 | 509 | 0 | 313 | 677 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.1 | | 53.5 | 42.8 | 42.8 | 45.6 | 32.0 | | 56.5 | 38.9 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.44 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.74 | 0.48 | | 0.46 | 0.88 | 0.27 | 0.61 | 0.58 | | 0.75 | 0.64 | |

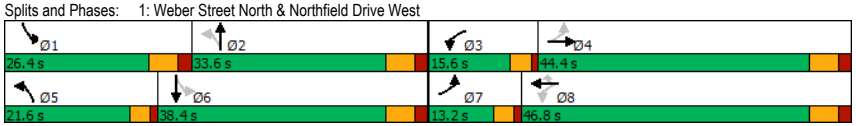




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 47.7 | 32.4 | | 24.3 | 46.3 | 10.5 | 29.0 | 40.7 | | 32.9 | 33.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 47.7 | 32.4 | | 24.3 | 46.3 | 10.5 | 29.0 | 40.7 | | 32.9 | 33.2 | |
| LOS | D | C | | C | D | B | C | D | | C | C | |
| Approach Delay | | 35.5 | | | 40.0 | | | 37.5 | | | 33.1 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (m) | 19.8 | 54.8 | | 23.6 | 141.0 | 7.3 | 28.1 | 57.7 | | 49.8 | 65.2 | |
| Queue Length 95th (m) | #49.5 | 72.5 | | 38.4 | #181.5 | 23.4 | 44.3 | 76.6 | | 73.5 | 90.6 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 186 | 1101 | | 357 | 1271 | 577 | 369 | 872 | | 437 | 1064 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.73 | 0.48 | | 0.45 | 0.88 | 0.27 | 0.52 | 0.58 | | 0.72 | 0.64 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120.3 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.88 | | |
| Intersection Signal Delay: 36.9 | | Intersection LOS: D |
| Intersection Capacity Utilization 98.3% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 833 | 35 | 389 | 1434 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Future Volume (vph) | 3 | 833 | 35 | 389 | 1434 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.944 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1532 | 0 |
| Flt Permitted | 0.148 | | | 0.205 | | | | 0.804 | | 0.712 | | |
| Satd. Flow (perm) | 262 | 3282 | 0 | 356 | 3301 | 0 | 0 | 1296 | 1417 | 1134 | 1532 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 343 | | 13 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 833 | 35 | 389 | 1434 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 868 | 0 | 389 | 1523 | 0 | 0 | 69 | 490 | 61 | 35 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.02 | 0.56 | | 0.91 | 0.71 | | | 0.19 | 0.76 | 0.19 | 0.08 | |

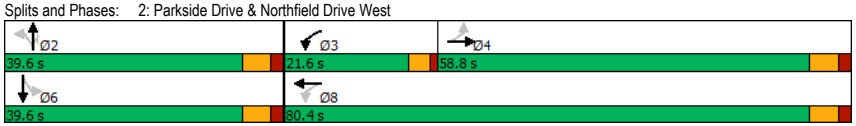




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.3 | | 42.6 | 15.5 | | | 33.7 | 20.0 | 34.0 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.3 | | 42.6 | 15.5 | | | 33.7 | 20.0 | 34.0 | 22.6 | |
| LOS | B | C | | D | B | | | C | B | C | C | |
| Approach Delay | | 24.3 | | | 21.0 | | | 21.7 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 76.3 | | 44.1 | 111.6 | | | 12.7 | 32.2 | 11.2 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 101.8 | | #109.8 | 151.0 | | | 25.2 | 77.7 | 23.0 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 122 | 1538 | | 426 | 2157 | | | 394 | 669 | 344 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.56 | | 0.91 | 0.71 | | | 0.18 | 0.73 | 0.18 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.91 | | |
| Intersection Signal Delay: 22.2 | | Intersection LOS: C |
| Intersection Capacity Utilization 120.5% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 66 | 789 | 43 | 12 | 751 | 34 | 125 | 9 | 27 | 99 | 28 | 255 |
| Future Volume (vph) | 66 | 789 | 43 | 12 | 751 | 34 | 125 | 9 | 27 | 99 | 28 | 255 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.446 | | | 0.879 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 662 | 0 | 0 | 1215 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 66 | 789 | 43 | 12 | 751 | 34 | 125 | 9 | 27 | 99 | 28 | 255 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 66 | 832 | 0 | 12 | 785 | 0 | 0 | 161 | 0 | 0 | 382 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.4 | 56.4 | | 7.4 | 46.8 | | | 31.4 | | | 31.4 | |
| Actuated g/C Ratio | 0.11 | 0.57 | | 0.08 | 0.48 | | | 0.32 | | | 0.32 | |
| v/c Ratio | 0.38 | 0.45 | | 0.10 | 0.50 | | | 0.74 | | | 0.85 | |

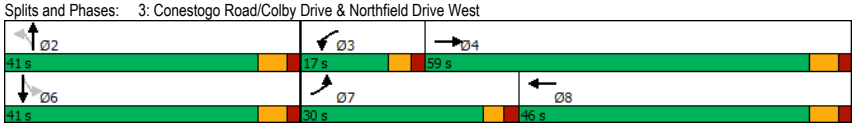




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 49.3 | 14.4 | | 48.2 | 21.3 | | | 50.5 | | | 42.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 49.3 | 14.4 | | 48.2 | 21.3 | | | 50.5 | | | 42.7 | |
| LOS | D | B | | D | C | | | D | | | D | |
| Approach Delay | | 16.9 | | | 21.7 | | | 50.5 | | | 42.7 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 12.7 | 48.0 | | 2.3 | 61.5 | | | 25.9 | | | 53.6 | |
| Queue Length 95th (m) | 28.2 | 86.4 | | 9.0 | 88.7 | | | #66.5 | | | #120.1 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 442 | 1856 | | 207 | 1568 | | | 257 | | | 518 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.15 | 0.45 | | 0.06 | 0.50 | | | 0.63 | | | 0.74 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 98.1 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 25.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 75.5% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 165 | 513 | 107 | 235 | 459 | 69 | 150 | 377 | 166 | 105 | 440 | 171 |
| Future Volume (vph) | 165 | 513 | 107 | 235 | 459 | 69 | 150 | 377 | 166 | 105 | 440 | 171 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3185 | 0 | 3176 | 3212 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.356 | | | 0.950 | | | 0.361 | | | 0.338 | | |
| Satd. Flow (perm) | 621 | 3185 | 0 | 3126 | 3212 | 0 | 610 | 3127 | 0 | 577 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 171 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 165 | 513 | 107 | 235 | 459 | 69 | 150 | 377 | 166 | 105 | 440 | 171 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 165 | 620 | 0 | 235 | 528 | 0 | 150 | 543 | 0 | 105 | 440 | 171 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 42.2 | 30.3 | | 15.5 | 33.8 | | 47.0 | 35.3 | | 43.2 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.39 | 0.28 | | 0.14 | 0.32 | | 0.44 | 0.33 | | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.46 | 0.68 | | 0.51 | 0.52 | | 0.40 | 0.51 | | 0.32 | 0.40 | 0.30 |

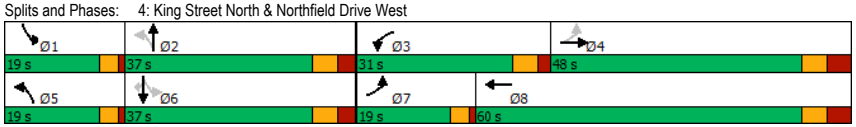


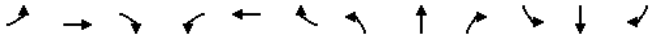


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.6 | 37.5 | | 47.6 | 31.2 | | 22.4 | 30.0 | | 21.7 | 32.2 | 6.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.6 | 37.5 | | 47.6 | 31.2 | | 22.4 | 30.0 | | 21.7 | 32.2 | 6.5 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 34.2 | | | 36.2 | | | 28.3 | | | 24.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 20.8 | 61.5 | | 24.6 | 48.3 | | 18.8 | 44.7 | | 12.7 | 39.4 | 0.0 |
| Queue Length 95th (m) | 35.5 | 88.7 | | 41.7 | 69.1 | | 40.1 | 78.2 | | 29.0 | 66.6 | 17.5 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 412 | 1334 | | 809 | 1705 | | 417 | 1063 | | 406 | 1103 | 576 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.40 | 0.46 | | 0.29 | 0.31 | | 0.36 | 0.51 | | 0.26 | 0.40 | 0.30 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 107 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.68 | | |
| Intersection Signal Delay: 31.0 | | Intersection LOS: C |
| Intersection Capacity Utilization 78.3% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.913 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1299 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1299 | 0 | 0 | 1456 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 127 | 0 | 0 | 80 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 25.9% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 16 | 0 | 29 | 0 | 117 | 10 | 11 | 69 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 228 | 218 | 69 | 213 | 213 | 122 | 69 | 0 | 0 | 127 | 0 | 0 |
| Stage 1 | 91 | 91 | - | 122 | 122 | - | - | - | - | - | - | - |
| Stage 2 | 137 | 127 | - | 91 | 91 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 731 | 684 | 1000 | 748 | 688 | 905 | 1545 | - | - | 1417 | - | - |
| Stage 1 | 921 | 823 | - | 887 | 799 | - | - | - | - | - | - | - |
| Stage 2 | 871 | 795 | - | 921 | 823 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 703 | 679 | 1000 | 744 | 682 | 905 | 1545 | - | - | 1417 | - | - |
| Mov Cap-2 Maneuver | 703 | 679 | - | 744 | 682 | - | - | - | - | - | - | - |
| Stage 1 | 921 | 816 | - | 887 | 799 | - | - | - | - | - | - | - |
| Stage 2 | 843 | 795 | - | 914 | 816 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.5 | 0 | 1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1545 | - | - | - | 840 | 1417 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.054 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.5 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 62 | 172 | 328 | 10 | 62 | 72 | 627 | 382 | 75 | 754 | 33 |
| Future Volume (vph) | 38 | 62 | 172 | 328 | 10 | 62 | 72 | 627 | 382 | 75 | 754 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.890 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1434 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.710 | | | 0.950 | | | 0.283 | | | 0.950 | | |
| Satd. Flow (perm) | 1258 | 1434 | 0 | 3108 | 1339 | 0 | 501 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 109 | | | 62 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 62 | 172 | 328 | 10 | 62 | 72 | 627 | 382 | 75 | 754 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 38 | 234 | 0 | 328 | 72 | 0 | 72 | 627 | 382 | 75 | 787 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 19.0 | 19.0 | | 18.0 | 41.0 | | 48.4 | 43.8 | 61.8 | 11.3 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.39 | | 0.46 | 0.42 | 0.59 | 0.11 | 0.46 | |
| v/c Ratio | 0.17 | 0.67 | | 0.61 | 0.13 | | 0.24 | 0.43 | 0.45 | 0.44 | 0.52 | |

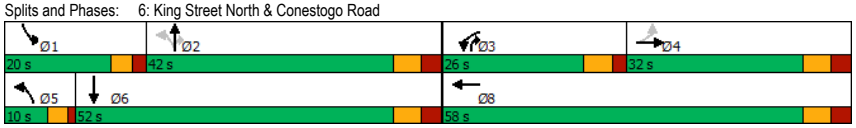




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.5 | 32.0 | | 46.9 | 6.9 | | 17.0 | 26.3 | 14.8 | 54.8 | 23.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.5 | 32.0 | | 46.9 | 6.9 | | 17.0 | 26.3 | 14.8 | 54.8 | 23.6 | |
| LOS | D | C | | D | A | | B | C | B | D | C | |
| Approach Delay | | 33.0 | | | 39.7 | | | 21.6 | | | 26.3 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.2 | 25.6 | | 34.4 | 1.3 | | 7.1 | 51.5 | 40.7 | 15.6 | 63.3 | |
| Queue Length 95th (m) | 17.4 | 54.5 | | 54.2 | 10.0 | | 18.0 | 87.2 | 84.3 | 32.9 | 100.5 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 338 | 465 | | 665 | 724 | | 297 | 1468 | 913 | 247 | 1518 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.11 | 0.50 | | 0.49 | 0.10 | | 0.24 | 0.43 | 0.42 | 0.30 | 0.52 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 105.5 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.67 | | | |
| Intersection Signal Delay: 27.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 67.4% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 193 | 628 | 541 | 131 | 0 | 1286 |
| Future Volume (vph) | 193 | 628 | 541 | 131 | 0 | 1286 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 329 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 210 | 683 | 588 | 142 | 0 | 1398 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 210 | 683 | 730 | 0 | 0 | 1398 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.21 | 1.02 | 0.38 | | | 0.65 |





| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.4 | 61.2 | 10.7 | | | 15.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.4 | 61.2 | 10.7 | | | 15.5 |
| LOS | C | E | B | | | B |
| Approach Delay | 53.5 | | 10.7 | | | 15.5 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 17.8 | ~109.3 | 38.2 | | | 99.3 |
| Queue Length 95th (m) | 27.4 | #182.7 | 50.1 | | | 122.2 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 668 | 1925 | | | 2150 |
| 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 | 1.02 | 0.38 | | | 0.65 |

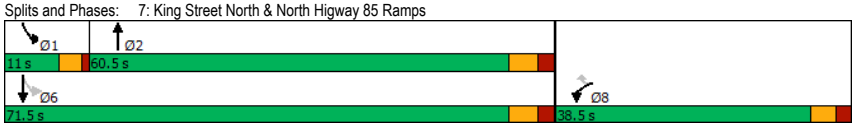
**Intersection Summary**

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 25.6 — Intersection LOS: C
Intersection Capacity Utilization 94.4% — ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 1 | 189 | 160 | 0 | 286 | 0 | 840 | 369 | 22 | 954 | 646 |
| Future Volume (vph) | 23 | 1 | 189 | 160 | 0 | 286 | 0 | 840 | 369 | 22 | 954 | 646 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.283 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 502 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 120 | | | 161 | | | 401 | | | 702 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 25 | 1 | 205 | 174 | 0 | 311 | 0 | 913 | 401 | 24 | 1037 | 702 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 25 | 1 | 205 | 174 | 0 | 311 | 0 | 913 | 401 | 24 | 1037 | 702 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 36.0 | 36.0 | 36.0 | 36.0 | | 36.0 | | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 |
| Total Split (%) | 32.7% | 32.7% | 32.7% | 32.7% | | 32.7% | | 67.3% | 67.3% | 67.3% | 67.3% | 67.3% |
| Maximum Green (s) | 29.3 | 29.3 | 29.3 | 29.3 | | 29.3 | | 68.1 | 68.1 | 68.1 | 68.1 | 68.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.3 | 21.3 | 21.3 | 21.3 | | 21.3 | | 70.3 | 70.3 | 70.3 | 70.3 | 70.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.07 | 0.00 | 0.53 | 0.63 | | 0.71 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.59 |

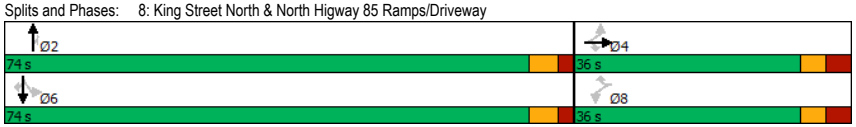




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 29.0 | 19.6 | 46.0 | | 26.0 | | 7.0 | 1.7 | 6.7 | 7.4 | 2.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 29.0 | 19.6 | 46.0 | | 26.0 | | 7.0 | 1.7 | 6.7 | 7.4 | 2.9 |
| LOS | C | C | B | D | | C | | A | A | A | A | A |
| Approach Delay | | 20.8 | | | 33.2 | | | 5.4 | | | 5.6 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 4.1 | 0.2 | 14.5 | 32.2 | | 27.8 | | 33.2 | 0.0 | 1.3 | 39.7 | 0.0 |
| Queue Length 95th (m) | 10.8 | 1.5 | 36.3 | 54.4 | | 57.9 | | 59.6 | 10.5 | 5.3 | 70.4 | 12.9 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 542 | 612 | 522 | 415 | | 581 | | 2496 | 1120 | 354 | 2496 | 1182 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.05 | 0.00 | 0.39 | 0.42 | | 0.54 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.59 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 99.6 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 10.0 | | Intersection LOS: A | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix J

## 2032 Total Traffic Operations Report

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Future Volume (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.978 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3251 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.411 | | | 0.135 | | | 0.503 | | | 0.431 | | |
| Satd. Flow (perm) | 719 | 3251 | 0 | 237 | 3438 | 1403 | 864 | 3036 | 0 | 707 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 72 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 217 | 973 | 0 | 107 | 374 | 119 | 55 | 320 | 0 | 183 | 427 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.2 | | 48.5 | 40.8 | 40.8 | 40.1 | 33.6 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.28 | | 0.45 | 0.38 | |
| v/c Ratio | 0.49 | 0.78 | | 0.56 | 0.32 | 0.20 | 0.16 | 0.35 | | 0.42 | 0.35 | |

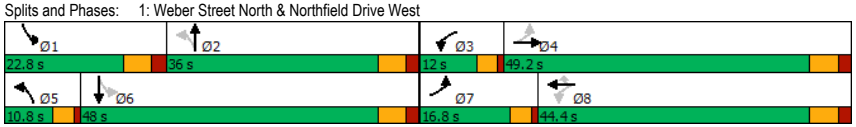




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.8 | 36.9 | | 29.9 | 29.9 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.8 | 36.9 | | 29.9 | 29.9 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 34.4 | | | 24.1 | | | 26.5 | | | 26.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 31.5 | 109.5 | | 14.4 | 36.1 | 0.0 | 7.5 | 25.1 | | 27.3 | 39.4 | |
| Queue Length 95th (m) | 49.0 | 136.8 | | 25.5 | 49.5 | 0.7 | 15.5 | 39.8 | | 43.9 | 53.7 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 449 | 1255 | | 195 | 1187 | 610 | 340 | 914 | | 454 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.48 | 0.78 | | 0.55 | 0.32 | 0.20 | 0.16 | 0.35 | | 0.40 | 0.35 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.2 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 29.3 | | Intersection LOS: C | |
| Intersection Capacity Utilization 94.1% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Future Volume (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.960 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1584 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.421 | | | 0.092 | | | | 0.854 | | 0.746 | | |
| Satd. Flow (perm) | 746 | 3262 | 0 | 157 | 3204 | 0 | 0 | 1406 | 1376 | 1153 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 322 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1177 | 0 | 313 | 609 | 0 | 0 | 17 | 322 | 72 | 27 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.0 | 54.0 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.45 | 0.45 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.80 | | 0.84 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

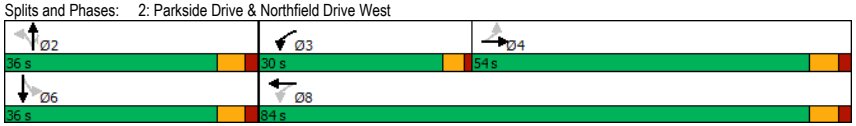




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 34.4 | | 47.8 | 8.1 | | | 33.3 | 7.3 | 37.0 | 32.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 34.4 | | 47.8 | 8.1 | | | 33.3 | 7.3 | 37.0 | 32.5 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 34.4 | | | 21.6 | | | 8.6 | | | 35.8 | |
| Approach LOS | | C | | | C | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 133.0 | | 53.4 | 28.0 | | | 3.1 | 0.0 | 14.0 | 4.8 | |
| Queue Length 95th (m) | 1.3 | 169.4 | | #88.3 | 36.8 | | | 9.3 | 24.2 | 27.4 | 12.6 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 335 | 1469 | | 421 | 2146 | | | 374 | 603 | 307 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.80 | | 0.74 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.84 | | |
| Intersection Signal Delay: 26.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Future Volume (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.944 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.983 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1295 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.875 | | | 0.846 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1153 | 0 | 0 | 1135 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 26 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 115 | 678 | 0 | 10 | 688 | 0 | 0 | 63 | 0 | 0 | 116 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.9 | 58.0 | | 7.3 | 47.2 | | | 14.1 | | | 14.1 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.61 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.45 | 0.28 | | 0.07 | 0.36 | | | 0.27 | | | 0.50 | |

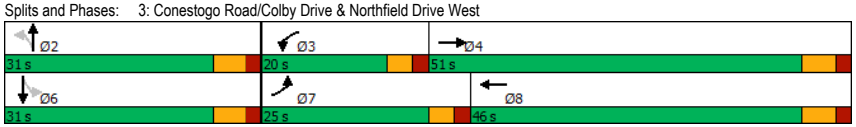




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 38.1 | 5.9 | | 37.9 | 12.4 | | | 22.5 | | | 30.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 38.1 | 5.9 | | 37.9 | 12.4 | | | 22.5 | | | 30.6 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.6 | | | 12.7 | | | 22.5 | | | 30.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 16.9 | 15.1 | | 1.5 | 31.2 | | | 5.1 | | | 11.9 | |
| Queue Length 95th (m) | 35.6 | 47.5 | | 6.8 | 60.2 | | | 16.6 | | | 29.7 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 460 | 2415 | | 322 | 1917 | | | 429 | | | 427 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.25 | 0.28 | | 0.03 | 0.36 | | | 0.15 | | | 0.27 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.50 | | | |
| Intersection Signal Delay: 13.3 | | Intersection LOS: B | |
| Intersection Capacity Utilization 63.2% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Future Volume (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.519 | | | 0.950 | | | 0.526 | | | 0.394 | | |
| Satd. Flow (perm) | 877 | 3065 | 0 | 2964 | 3103 | 0 | 834 | 2966 | 0 | 683 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 131 | 476 | 0 | 226 | 375 | 0 | 120 | 477 | 0 | 100 | 270 | 78 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 37.0 | 26.1 | | 15.1 | 30.5 | | 45.3 | 34.7 | | 42.4 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.37 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.34 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.33 | 0.59 | | 0.51 | 0.40 | | 0.27 | 0.46 | | 0.27 | 0.24 | 0.14 |

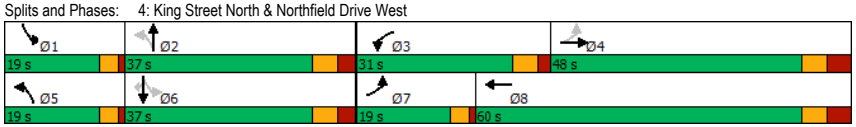




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.8 | 34.7 | | 44.6 | 28.5 | | 18.2 | 26.1 | | 18.3 | 27.1 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.8 | 34.7 | | 44.6 | 28.5 | | 18.2 | 26.1 | | 18.3 | 27.1 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.5 | | | 34.6 | | | 24.5 | | | 20.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 15.7 | 42.1 | | 21.7 | 30.2 | | 13.1 | 34.4 | | 10.7 | 20.4 | 0.0 |
| Queue Length 95th (m) | 29.3 | 65.5 | | 37.8 | 48.2 | | 29.3 | 61.2 | | 24.7 | 38.2 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 465 | 1357 | | 798 | 1736 | | 492 | 1046 | | 461 | 1117 | 559 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.35 | | 0.28 | 0.22 | | 0.24 | 0.46 | | 0.22 | 0.24 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 101.3 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.59 | | | |
| Intersection Signal Delay: 28.3 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.9% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.921 | | | 0.987 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1337 | 0 | 0 | 1464 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1337 | 0 | 0 | 1464 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 115 | 0 | 0 | 58 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 187 | 185 | 46 | 180 | 180 | 110 | 46 | 0 | 0 | 115 | 0 | 0 |
| Stage 1 | 70 | 70 | - | 110 | 110 | - | - | - | - | - | - | - |
| Stage 2 | 117 | 115 | - | 70 | 70 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 778 | 713 | 1029 | 786 | 717 | 927 | 1575 | - | - | 1431 | - | - |
| Stage 1 | 945 | 841 | - | 900 | 808 | - | - | - | - | - | - | - |
| Stage 2 | 892 | 804 | - | 945 | 841 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 761 | 707 | 1029 | 780 | 711 | 927 | 1575 | - | - | 1431 | - | - |
| Mov Cap-2 Maneuver | 761 | 707 | - | 780 | 711 | - | - | - | - | - | - | - |
| Stage 1 | 945 | 833 | - | 900 | 808 | - | - | - | - | - | - | - |
| Stage 2 | 879 | 804 | - | 936 | 833 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.3 | 0 | 1.6 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1575 | - | - | - | 860 | 1431 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.028 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.3 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Future Volume (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.883 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1379 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.410 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1379 | 0 | 3013 | 1347 | 0 | 712 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 46 | | | 29 | | | | | | 14 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 59 | 0 | 204 | 58 | 0 | 135 | 598 | 229 | 27 | 461 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.5 | 26.7 | | 55.8 | 52.0 | 65.5 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.56 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.17 | 0.25 | | 0.46 | 0.14 | | 0.26 | 0.31 | 0.23 | 0.23 | 0.30 | |

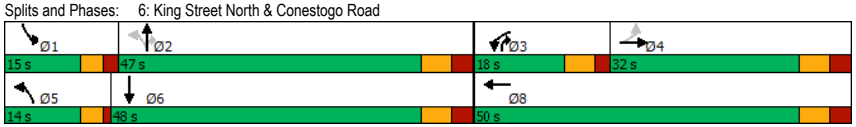




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 40.0 | 18.3 | | 41.2 | 14.8 | | 9.8 | 13.6 | 6.3 | 45.5 | 16.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 40.0 | 18.3 | | 41.2 | 14.8 | | 9.8 | 13.6 | 6.3 | 45.5 | 16.0 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.3 | | | 35.4 | | | 11.3 | | | 17.6 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 5.0 | 2.3 | | 19.2 | 4.0 | | 10.7 | 27.6 | 9.1 | 5.0 | 28.5 | |
| Queue Length 95th (m) | 13.5 | 13.9 | | 30.9 | 13.2 | | 19.8 | 55.4 | 30.8 | 13.5 | 41.2 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 351 | 454 | | 468 | 692 | | 534 | 1959 | 1013 | 150 | 1515 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.13 | | 0.44 | 0.08 | | 0.25 | 0.31 | 0.23 | 0.18 | 0.30 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 92.2 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.46 | | | |
| Intersection Signal Delay: 17.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 47.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 225 | 683 | 292 | 99 | 0 | 493 |
| Future Volume (vph) | 225 | 683 | 292 | 99 | 0 | 493 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1553 | 3279 | 0 | 1056 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1533 | 3279 | 0 | 1056 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 507 | 57 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 245 | 742 | 317 | 108 | 0 | 536 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 245 | 742 | 425 | 0 | 0 | 536 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 28.3 | 28.3 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.29 | 0.29 | 0.63 | | | 0.63 |
| v/c Ratio | 0.25 | 0.93 | 0.20 | | | 0.24 |

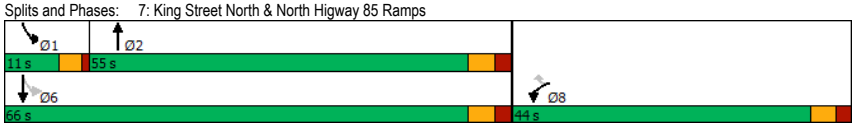




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.6 | 29.1 | 8.4 | | | 9.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.6 | 29.1 | 8.4 | | | 9.9 |
| LOS | C | C | A | | | A |
| Approach Delay | 28.5 | | 8.4 | | | 9.9 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 19.3 | 51.8 | 16.5 | | | 25.1 |
| Queue Length 95th (m) | 28.8 | #137.2 | 29.1 | | | 41.4 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1415 | 926 | 2096 | | | 2218 |
| 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 | 0.17 | 0.80 | 0.20 | | | 0.24 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 110 | | |
| Actuated Cycle Length: 99.2 | | |
| Natural Cycle: 90 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.93 | | |
| Intersection Signal Delay: 19.0 | | Intersection LOS: B |
| Intersection Capacity Utilization 89.9% | | ICU Level of Service E |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 509 | 271 | 223 | 940 | 374 |
| Future Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 509 | 271 | 223 | 940 | 374 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.713 | | | | | | 0.391 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1275 | 0 | 1384 | 0 | 3438 | 1521 | 740 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 137 | | | 68 | | | 295 | | | 407 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 553 | 295 | 242 | 1022 | 407 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 553 | 295 | 242 | 1022 | 407 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 67.0 | 67.0 | 11.0 | 67.0 | 67.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 21.5 | 21.5 | 21.5 | 21.5 | | 21.5 | | 62.2 | 62.2 | 73.2 | 73.2 | 71.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.61 | 0.61 | 0.71 | 0.71 | 0.69 |
| v/c Ratio | 0.01 | 0.17 | 0.78 | 0.09 | | 0.07 | | 0.27 | 0.28 | 0.40 | 0.41 | 0.37 |

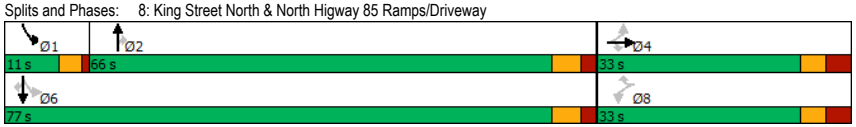




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.3 | 34.9 | 32.2 | | 0.4 | | 10.7 | 2.1 | 7.9 | 7.3 | 1.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.3 | 34.9 | 32.2 | | 0.4 | | 10.7 | 2.1 | 7.9 | 7.3 | 1.8 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 34.6 | | | 16.0 | | | 7.7 | | | 6.0 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.6 | 39.2 | 3.9 | | 0.0 | | 27.1 | 0.0 | 15.0 | 41.0 | 0.0 |
| Queue Length 95th (m) | 2.9 | 23.3 | 72.2 | 10.7 | | 0.0 | | 43.0 | 11.8 | 29.8 | 65.8 | 10.5 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 505 | 538 | 531 | 361 | | 440 | | 2081 | 1037 | 600 | 2474 | 1095 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.63 | 0.06 | | 0.05 | | 0.27 | 0.28 | 0.40 | 0.41 | 0.37 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.7 | | | |
| Natural Cycle: 115 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 10.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.5% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Future Volume (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.311 | | | 0.266 | | | 0.258 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 542 | 3574 | 1421 | 460 | 3238 | 0 | 445 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 111 | | 15 | | | 95 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 137 | 541 | 0 | 162 | 1142 | 157 | 196 | 518 | 0 | 319 | 688 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.1 | | 53.5 | 42.8 | 42.8 | 45.7 | 32.0 | | 56.7 | 39.0 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.44 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.75 | 0.49 | | 0.48 | 0.90 | 0.27 | 0.63 | 0.59 | | 0.77 | 0.65 | |

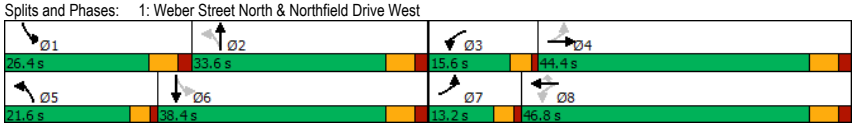




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.9 | 32.7 | | 24.7 | 47.9 | 10.9 | 29.5 | 41.1 | | 34.1 | 33.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 48.9 | 32.7 | | 24.7 | 47.9 | 10.9 | 29.5 | 41.1 | | 34.1 | 33.6 | |
| LOS | D | C | | C | D | B | C | D | | C | C | |
| Approach Delay | | 36.0 | | | 41.3 | | | 37.9 | | | 33.8 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (m) | 20.1 | 55.8 | | 24.1 | 144.4 | 7.8 | 28.6 | 59.0 | | 51.0 | 67.0 | |
| Queue Length 95th (m) | #50.6 | 73.8 | | 39.1 | #186.7 | 24.1 | 45.1 | 78.1 | | 75.0 | 92.6 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 186 | 1098 | | 353 | 1269 | 576 | 366 | 871 | | 434 | 1063 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.74 | 0.49 | | 0.46 | 0.90 | 0.27 | 0.54 | 0.59 | | 0.74 | 0.65 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120.5 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.90 | | |
| Intersection Signal Delay: 37.8 | | Intersection LOS: D |
| Intersection Capacity Utilization 98.9% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Future Volume (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.944 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1532 | 0 |
| Flt Permitted | 0.141 | | | 0.199 | | | | 0.802 | | 0.711 | | |
| Satd. Flow (perm) | 250 | 3282 | 0 | 346 | 3301 | 0 | 0 | 1292 | 1417 | 1133 | 1532 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 340 | | 13 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 882 | 0 | 396 | 1549 | 0 | 0 | 70 | 498 | 62 | 35 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.03 | 0.57 | | 0.94 | 0.72 | | | 0.19 | 0.78 | 0.20 | 0.08 | |

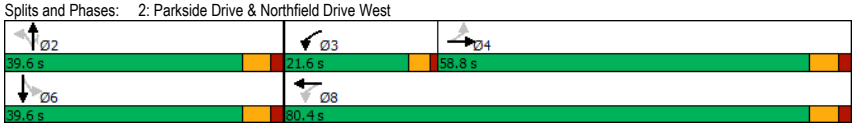




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.5 | | 48.4 | 15.8 | | | 33.8 | 21.3 | 34.1 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.5 | | 48.4 | 15.8 | | | 33.8 | 21.3 | 34.1 | 22.6 | |
| LOS | B | C | | D | B | | | C | C | C | C | |
| Approach Delay | | 24.5 | | | 22.4 | | | 22.8 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 78.0 | | 48.0 | 115.2 | | | 12.9 | 35.6 | 11.4 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 104.1 | | #116.7 | 155.9 | | | 25.4 | 82.5 | 23.4 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 116 | 1538 | | 421 | 2157 | | | 393 | 667 | 344 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.57 | | 0.94 | 0.72 | | | 0.18 | 0.75 | 0.18 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.94 | | |
| Intersection Signal Delay: 23.2 | | Intersection LOS: C |
| Intersection Capacity Utilization 121.3% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Future Volume (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.447 | | | 0.879 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 664 | 0 | 0 | 1215 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 67 | 846 | 0 | 12 | 798 | 0 | 0 | 165 | 0 | 0 | 388 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.4 | 56.4 | | 7.4 | 46.7 | | | 32.1 | | | 32.1 | |
| Actuated g/C Ratio | 0.11 | 0.57 | | 0.07 | 0.47 | | | 0.32 | | | 0.32 | |
| v/c Ratio | 0.39 | 0.46 | | 0.10 | 0.51 | | | 0.75 | | | 0.85 | |

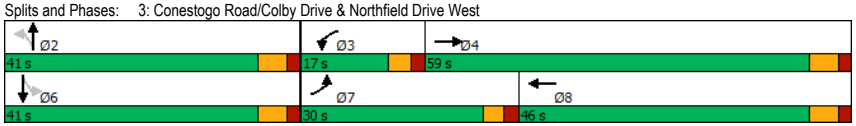




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 49.8 | 14.8 | | 48.4 | 21.8 | | | 50.6 | | | 42.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 49.8 | 14.8 | | 48.4 | 21.8 | | | 50.6 | | | 42.9 | |
| LOS | D | B | | D | C | | | D | | | D | |
| Approach Delay | | 17.3 | | | 22.2 | | | 50.6 | | | 42.9 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 13.1 | 51.0 | | 2.4 | 64.6 | | | 26.8 | | | 55.1 | |
| Queue Length 95th (m) | 28.7 | 88.3 | | 9.0 | 90.5 | | | #68.8 | | | #123.5 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 439 | 1841 | | 205 | 1554 | | | 256 | | | 515 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.15 | 0.46 | | 0.06 | 0.51 | | | 0.64 | | | 0.75 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 98.9 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 25.8 | | Intersection LOS: C |
| Intersection Capacity Utilization 76.1% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Future Volume (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3185 | 0 | 3176 | 3212 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.352 | | | 0.950 | | | 0.356 | | | 0.329 | | |
| Satd. Flow (perm) | 614 | 3185 | 0 | 3127 | 3212 | 0 | 602 | 3127 | 0 | 562 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 167 | 631 | 0 | 239 | 537 | 0 | 152 | 549 | 0 | 107 | 445 | 173 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 42.9 | 30.9 | | 15.7 | 34.6 | | 47.1 | 35.3 | | 43.3 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.15 | 0.32 | | 0.44 | 0.33 | | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.46 | 0.68 | | 0.52 | 0.52 | | 0.41 | 0.52 | | 0.33 | 0.41 | 0.30 |

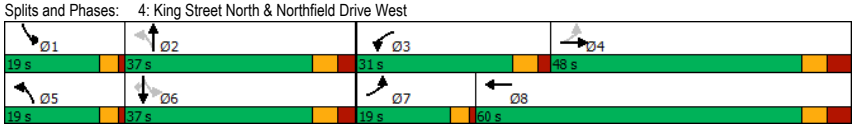




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.6 | 37.7 | | 48.1 | 31.1 | | 23.1 | 30.7 | | 22.3 | 32.9 | 6.6 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.6 | 37.7 | | 48.1 | 31.1 | | 23.1 | 30.7 | | 22.3 | 32.9 | 6.6 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 34.3 | | | 36.4 | | | 29.1 | | | 25.1 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 21.1 | 63.1 | | 25.2 | 49.4 | | 19.3 | 45.9 | | 13.2 | 40.5 | 0.0 |
| Queue Length 95th (m) | 35.8 | 90.7 | | 42.6 | 70.1 | | 41.1 | 80.2 | | 29.8 | 68.2 | 17.7 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 410 | 1323 | | 803 | 1691 | | 411 | 1054 | | 398 | 1093 | 574 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.41 | 0.48 | | 0.30 | 0.32 | | 0.37 | 0.52 | | 0.27 | 0.41 | 0.30 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 108 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.68 | | |
| Intersection Signal Delay: 31.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 78.7% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1455 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1455 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 130 | 0 | 0 | 82 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 27.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 234 | 224 | 70 | 219 | 219 | 125 | 70 | 0 | 0 | 130 | 0 | 0 |
| Stage 1 | 94 | 94 | - | 125 | 125 | - | - | - | - | - | - | - |
| Stage 2 | 140 | 130 | - | 94 | 94 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 725 | 678 | 998 | 741 | 683 | 902 | 1544 | - | - | 1413 | - | - |
| Stage 1 | 918 | 821 | - | 884 | 796 | - | - | - | - | - | - | - |
| Stage 2 | 868 | 792 | - | 918 | 821 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 696 | 672 | 998 | 736 | 677 | 902 | 1544 | - | - | 1413 | - | - |
| Mov Cap-2 Maneuver | 696 | 672 | - | 736 | 677 | - | - | - | - | - | - | - |
| Stage 1 | 918 | 814 | - | 884 | 796 | - | - | - | - | - | - | - |
| Stage 2 | 839 | 792 | - | 910 | 814 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.6 | 0 | 1.1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1544 | - | - | - | 836 | 1413 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.055 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.6 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Future Volume (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.890 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1434 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.709 | | | 0.950 | | | 0.279 | | | 0.950 | | |
| Satd. Flow (perm) | 1256 | 1434 | 0 | 3108 | 1339 | 0 | 494 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 109 | | | 63 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 39 | 238 | 0 | 332 | 73 | 0 | 73 | 634 | 387 | 76 | 796 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 19.2 | 19.2 | | 18.1 | 41.4 | | 48.3 | 43.7 | 61.8 | 11.3 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.39 | | 0.46 | 0.41 | 0.58 | 0.11 | 0.46 | |
| v/c Ratio | 0.17 | 0.68 | | 0.62 | 0.13 | | 0.25 | 0.43 | 0.45 | 0.44 | 0.53 | |

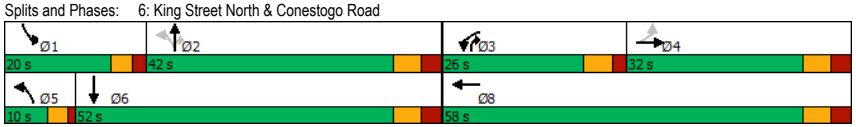




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.5 | 32.6 | | 47.1 | 6.8 | | 17.3 | 26.6 | 15.1 | 55.0 | 23.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.5 | 32.6 | | 47.1 | 6.8 | | 17.3 | 26.6 | 15.1 | 55.0 | 23.9 | |
| LOS | D | C | | D | A | | B | C | B | E | C | |
| Approach Delay | | 33.6 | | | 39.8 | | | 21.9 | | | 26.6 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.4 | 26.6 | | 35.1 | 1.3 | | 7.3 | 52.8 | 41.9 | 15.9 | 65.0 | |
| Queue Length 95th (m) | 17.7 | 55.7 | | 54.7 | 10.2 | | 18.3 | 88.1 | 85.8 | 33.4 | 101.9 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 337 | 464 | | 663 | 723 | | 293 | 1461 | 909 | 246 | 1513 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.12 | 0.51 | | 0.50 | 0.10 | | 0.25 | 0.43 | 0.43 | 0.31 | 0.53 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 105.8 | | |
| Natural Cycle: 65 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.68 | | |
| Intersection Signal Delay: 27.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 68.1% | | ICU Level of Service C |
| Analysis Period (min) 15 | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 196 | 636 | 547 | 132 | 0 | 1301 |
| Future Volume (vph) | 196 | 636 | 547 | 132 | 0 | 1301 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 325 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 213 | 691 | 595 | 143 | 0 | 1414 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 213 | 691 | 738 | 0 | 0 | 1414 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.21 | 1.04 | 0.38 | | | 0.66 |



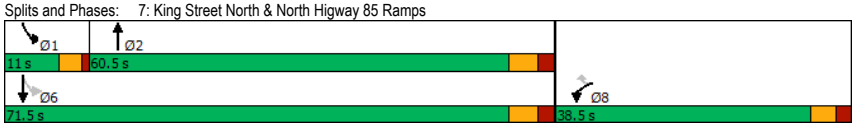


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.4 | 66.3 | 10.8 | | | 15.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.4 | 66.3 | 10.8 | | | 15.6 |
| LOS | C | E | B | | | B |
| Approach Delay | 57.4 | | 10.8 | | | 15.6 |
| Approach LOS | E | | B | | | B |
| Queue Length 50th (m) | 18.1 | ~114.5 | 38.8 | | | 101.3 |
| Queue Length 95th (m) | 27.7 | #187.9 | 51.0 | | | 124.4 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 665 | 1925 | | | 2150 |
| 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 | 1.04 | 0.38 | | | 0.66 |

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 115
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 26.8 Intersection LOS: C
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 850 | 373 | 22 | 966 | 653 |
| Future Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 850 | 373 | 22 | 966 | 653 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.279 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 494 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 120 | | | 162 | | | 405 | | | 710 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 924 | 405 | 24 | 1050 | 710 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 924 | 405 | 24 | 1050 | 710 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 35.0 | 35.0 | 35.0 | 35.0 | | 35.0 | | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 31.8% | 31.8% | 31.8% | 31.8% | | 31.8% | | 68.2% | 68.2% | 68.2% | 68.2% | 68.2% |
| Maximum Green (s) | 28.3 | 28.3 | 28.3 | 28.3 | | 28.3 | | 69.1 | 69.1 | 69.1 | 69.1 | 69.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.6 | 21.6 | 21.6 | 21.6 | | 21.6 | | 71.3 | 71.3 | 71.3 | 71.3 | 71.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.07 | 0.00 | 0.54 | 0.64 | | 0.71 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.60 |

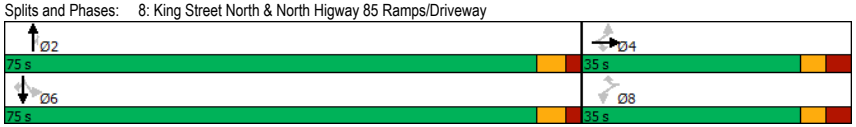




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.7 | 29.0 | 20.1 | 46.8 | | 26.5 | | 7.1 | 1.7 | 6.7 | 7.5 | 2.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.7 | 29.0 | 20.1 | 46.8 | | 26.5 | | 7.1 | 1.7 | 6.7 | 7.5 | 2.9 |
| LOS | C | C | C | D | | C | | A | A | A | A | A |
| Approach Delay | | 21.3 | | | 33.8 | | | 5.4 | | | 5.7 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 4.1 | 0.2 | 15.3 | 33.1 | | 28.7 | | 34.4 | 0.0 | 1.3 | 41.1 | 0.0 |
| Queue Length 95th (m) | 11.0 | 1.5 | 37.8 | 55.7 | | 59.4 | | 60.6 | 10.5 | 5.3 | 72.0 | 12.8 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 518 | 585 | 504 | 397 | | 563 | | 2499 | 1122 | 348 | 2499 | 1185 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.05 | 0.00 | 0.41 | 0.44 | | 0.56 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.60 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 100.9 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 10.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix K

## 2037 Background Traffic Operations Reports

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Future Volume (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.978 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3251 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.411 | | | 0.135 | | | 0.503 | | | 0.431 | | |
| Satd. Flow (perm) | 719 | 3251 | 0 | 237 | 3438 | 1403 | 864 | 3036 | 0 | 707 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 191 | | 72 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 217 | 833 | 140 | 107 | 374 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 217 | 973 | 0 | 107 | 374 | 119 | 55 | 320 | 0 | 183 | 427 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.2 | | 48.5 | 40.8 | 40.8 | 40.1 | 33.6 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.28 | | 0.45 | 0.38 | |
| v/c Ratio | 0.49 | 0.78 | | 0.56 | 0.32 | 0.20 | 0.16 | 0.35 | | 0.42 | 0.35 | |

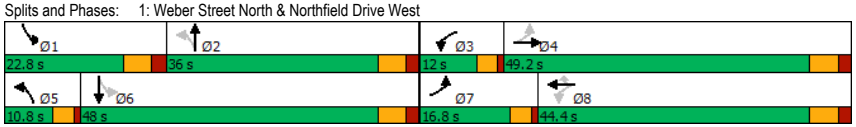




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 22.8 | 36.9 | | 29.9 | 29.9 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.8 | 36.9 | | 29.9 | 29.9 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 34.4 | | | 24.1 | | | 26.5 | | | 26.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 31.5 | 109.5 | | 14.4 | 36.1 | 0.0 | 7.5 | 25.1 | | 27.3 | 39.4 | |
| Queue Length 95th (m) | 49.0 | 136.8 | | 25.5 | 49.5 | 0.7 | 15.5 | 39.8 | | 43.9 | 53.7 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 449 | 1255 | | 195 | 1187 | 610 | 340 | 914 | | 454 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.48 | 0.78 | | 0.55 | 0.32 | 0.20 | 0.16 | 0.35 | | 0.40 | 0.35 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.2 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 29.3 | | Intersection LOS: C | |
| Intersection Capacity Utilization 94.1% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Future Volume (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.996 | | | 0.979 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.960 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3262 | 0 | 1621 | 3204 | 0 | 0 | 1584 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.421 | | | 0.092 | | | | 0.854 | | 0.746 | | |
| Satd. Flow (perm) | 746 | 3262 | 0 | 157 | 3204 | 0 | 0 | 1406 | 1376 | 1153 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 32 | | | | 322 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1149 | 28 | 313 | 525 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1177 | 0 | 313 | 609 | 0 | 0 | 17 | 322 | 72 | 27 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 54.0 | 54.0 | | 30.0 | 84.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (%) | 45.0% | 45.0% | | 25.0% | 70.0% | | 30.0% | 30.0% | 30.0% | 30.0% | 30.0% | |
| Maximum Green (s) | 48.0 | 48.0 | | 26.0 | 78.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.0 | 54.0 | | 80.0 | 80.0 | | | 32.0 | 32.0 | 32.0 | 32.0 | |
| Actuated g/C Ratio | 0.45 | 0.45 | | 0.67 | 0.67 | | | 0.27 | 0.27 | 0.27 | 0.27 | |
| v/c Ratio | 0.00 | 0.80 | | 0.84 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

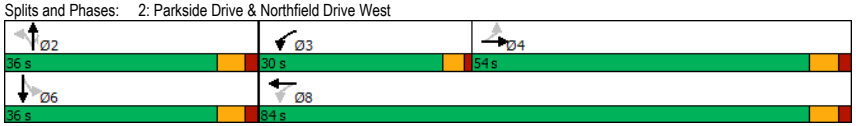




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 34.4 | | 47.8 | 8.1 | | | 33.3 | 7.3 | 37.0 | 32.5 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 20.0 | 34.4 | | 47.8 | 8.1 | | | 33.3 | 7.3 | 37.0 | 32.5 | |
| LOS | B | C | | D | A | | | C | A | D | C | |
| Approach Delay | | 34.4 | | | 21.6 | | | 8.6 | | | 35.8 | |
| Approach LOS | | C | | | C | | | A | | | D | |
| Queue Length 50th (m) | 0.1 | 133.0 | | 53.4 | 28.0 | | | 3.1 | 0.0 | 14.0 | 4.8 | |
| Queue Length 95th (m) | 1.3 | 169.4 | | #88.3 | 36.8 | | | 9.3 | 24.2 | 27.4 | 12.6 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 335 | 1469 | | 421 | 2146 | | | 374 | 603 | 307 | 437 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.80 | | 0.74 | 0.28 | | | 0.05 | 0.53 | 0.23 | 0.06 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.84 | | |
| Intersection Signal Delay: 26.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Future Volume (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.989 | | | 0.982 | | | 0.944 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.983 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3226 | 0 | 1519 | 3136 | 0 | 0 | 1295 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.875 | | | 0.846 | |
| Satd. Flow (perm) | 1652 | 3226 | 0 | 1518 | 3136 | 0 | 0 | 1153 | 0 | 0 | 1135 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 11 | | | 17 | | | 26 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 115 | 627 | 51 | 10 | 607 | 81 | 22 | 15 | 26 | 59 | 10 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 115 | 678 | 0 | 10 | 688 | 0 | 0 | 63 | 0 | 0 | 116 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 25.0 | 51.0 | | 20.0 | 46.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Total Split (%) | 24.5% | 50.0% | | 19.6% | 45.1% | | 30.4% | 30.4% | | 30.4% | 30.4% | |
| Maximum Green (s) | 20.0 | 45.0 | | 15.0 | 40.0 | | 25.0 | 25.0 | | 25.0 | 25.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 11.9 | 58.0 | | 7.3 | 47.2 | | | 14.1 | | | 14.1 | |
| Actuated g/C Ratio | 0.15 | 0.75 | | 0.09 | 0.61 | | | 0.18 | | | 0.18 | |
| v/c Ratio | 0.45 | 0.28 | | 0.07 | 0.36 | | | 0.27 | | | 0.50 | |

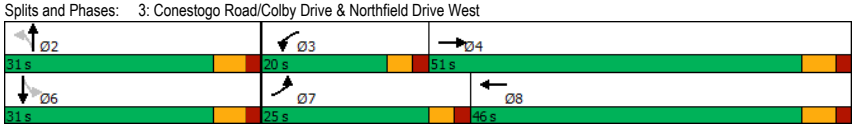




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 38.1 | 5.9 | | 37.9 | 12.4 | | | 22.5 | | | 30.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 38.1 | 5.9 | | 37.9 | 12.4 | | | 22.5 | | | 30.6 | |
| LOS | D | A | | D | B | | | C | | | C | |
| Approach Delay | | 10.6 | | | 12.7 | | | 22.5 | | | 30.6 | |
| Approach LOS | | B | | | B | | | C | | | C | |
| Queue Length 50th (m) | 16.9 | 15.1 | | 1.5 | 31.2 | | | 5.1 | | | 11.9 | |
| Queue Length 95th (m) | 35.6 | 47.5 | | 6.8 | 60.2 | | | 16.6 | | | 29.7 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 460 | 2415 | | 322 | 1917 | | | 429 | | | 427 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.25 | 0.28 | | 0.03 | 0.36 | | | 0.15 | | | 0.27 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 77.5 | | | |
| Natural Cycle: 70 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.50 | | | |
| Intersection Signal Delay: 13.3 | | Intersection LOS: B | |
| Intersection Capacity Utilization 63.2% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Future Volume (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.966 | | | 0.976 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 3065 | 0 | 2974 | 3103 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.519 | | | 0.950 | | | 0.526 | | | 0.394 | | |
| Satd. Flow (perm) | 877 | 3065 | 0 | 2964 | 3103 | 0 | 834 | 2966 | 0 | 683 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 20 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 131 | 369 | 107 | 226 | 314 | 61 | 120 | 334 | 143 | 100 | 270 | 78 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 131 | 476 | 0 | 226 | 375 | 0 | 120 | 477 | 0 | 100 | 270 | 78 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 37.0 | 26.1 | | 15.1 | 30.5 | | 45.3 | 34.7 | | 42.4 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.37 | 0.26 | | 0.15 | 0.30 | | 0.45 | 0.34 | | 0.42 | 0.33 | 0.33 |
| v/c Ratio | 0.33 | 0.59 | | 0.51 | 0.40 | | 0.27 | 0.46 | | 0.27 | 0.24 | 0.14 |

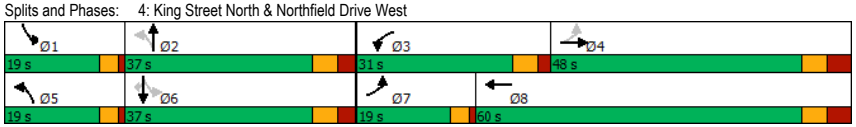




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 19.8 | 34.7 | | 44.6 | 28.5 | | 18.2 | 26.1 | | 18.3 | 27.1 | 0.5 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 19.8 | 34.7 | | 44.6 | 28.5 | | 18.2 | 26.1 | | 18.3 | 27.1 | 0.5 |
| LOS | B | C | | D | C | | B | C | | B | C | A |
| Approach Delay | | 31.5 | | | 34.6 | | | 24.5 | | | 20.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 15.7 | 42.1 | | 21.7 | 30.2 | | 13.1 | 34.4 | | 10.7 | 20.4 | 0.0 |
| Queue Length 95th (m) | 29.3 | 65.5 | | 37.8 | 48.2 | | 29.3 | 61.2 | | 24.7 | 38.2 | 0.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 465 | 1357 | | 798 | 1736 | | 492 | 1046 | | 461 | 1117 | 559 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.28 | 0.35 | | 0.28 | 0.22 | | 0.24 | 0.46 | | 0.22 | 0.24 | 0.14 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 135 | | | |
| Actuated Cycle Length: 101.3 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.59 | | | |
| Intersection Signal Delay: 28.3 | | Intersection LOS: C | |
| Intersection Capacity Utilization 69.9% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.921 | | | 0.987 | | | | |
| Flt Protected | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1337 | 0 | 0 | 1464 | 0 | 0 | 1429 | 0 |
| Flt Permitted | | | | | 0.980 | | | | | | 0.990 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1337 | 0 | 0 | 1464 | 0 | 0 | 1429 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 115 | 0 | 0 | 58 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 20.4% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 10 | 0 | 14 | 0 | 104 | 11 | 12 | 46 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 187 | 185 | 46 | 180 | 180 | 110 | 46 | 0 | 0 | 115 | 0 | 0 |
| Stage 1 | 70 | 70 | - | 110 | 110 | - | - | - | - | - | - | - |
| Stage 2 | 117 | 115 | - | 70 | 70 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 778 | 713 | 1029 | 786 | 717 | 927 | 1575 | - | - | 1431 | - | - |
| Stage 1 | 945 | 841 | - | 900 | 808 | - | - | - | - | - | - | - |
| Stage 2 | 892 | 804 | - | 945 | 841 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 761 | 707 | 1029 | 780 | 711 | 927 | 1575 | - | - | 1431 | - | - |
| Mov Cap-2 Maneuver | 761 | 707 | - | 780 | 711 | - | - | - | - | - | - | - |
| Stage 1 | 945 | 833 | - | 900 | 808 | - | - | - | - | - | - | - |
| Stage 2 | 879 | 804 | - | 936 | 833 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.3 | 0 | 1.6 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1575 | - | - | - | 860 | 1431 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.028 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.3 | 7.5 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Future Volume (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.883 | | | 0.925 | | | | 0.850 | | 0.983 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1379 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3132 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.410 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1379 | 0 | 3013 | 1347 | 0 | 712 | 3471 | 1403 | 1240 | 3132 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 46 | | | 29 | | | | | | 14 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 13 | 46 | 204 | 29 | 29 | 135 | 598 | 229 | 27 | 409 | 52 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 59 | 0 | 204 | 58 | 0 | 135 | 598 | 229 | 27 | 461 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 13.3 | 13.3 | | 13.5 | 26.7 | | 55.8 | 52.0 | 65.5 | 8.5 | 44.4 | |
| Actuated g/C Ratio | 0.14 | 0.14 | | 0.15 | 0.29 | | 0.61 | 0.56 | 0.71 | 0.09 | 0.48 | |
| v/c Ratio | 0.17 | 0.25 | | 0.46 | 0.14 | | 0.26 | 0.31 | 0.23 | 0.23 | 0.30 | |

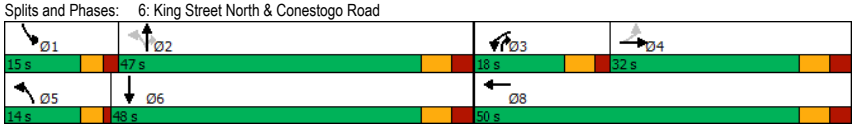




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 40.0 | 18.3 | | 41.2 | 14.8 | | 9.8 | 13.6 | 6.3 | 45.5 | 16.0 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 40.0 | 18.3 | | 41.2 | 14.8 | | 9.8 | 13.6 | 6.3 | 45.5 | 16.0 | |
| LOS | D | B | | D | B | | A | B | A | D | B | |
| Approach Delay | | 25.3 | | | 35.4 | | | 11.3 | | | 17.6 | |
| Approach LOS | | C | | | D | | | B | | | B | |
| Queue Length 50th (m) | 5.0 | 2.3 | | 19.2 | 4.0 | | 10.7 | 27.6 | 9.1 | 5.0 | 28.5 | |
| Queue Length 95th (m) | 13.5 | 13.9 | | 30.9 | 13.2 | | 19.8 | 55.4 | 30.8 | 13.5 | 41.2 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 351 | 454 | | 468 | 692 | | 534 | 1959 | 1013 | 150 | 1515 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.13 | | 0.44 | 0.08 | | 0.25 | 0.31 | 0.23 | 0.18 | 0.30 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 92.2 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.46 | | | |
| Intersection Signal Delay: 17.2 | | Intersection LOS: B | |
| Intersection Capacity Utilization 47.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 225 | 683 | 292 | 99 | 0 | 493 |
| Future Volume (vph) | 225 | 683 | 292 | 99 | 0 | 493 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.962 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1553 | 3279 | 0 | 1056 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1533 | 3279 | 0 | 1056 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 507 | 57 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 245 | 742 | 317 | 108 | 0 | 536 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 245 | 742 | 425 | 0 | 0 | 536 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 28.3 | 28.3 | 62.8 | | | 62.8 |
| Actuated g/C Ratio | 0.29 | 0.29 | 0.63 | | | 0.63 |
| v/c Ratio | 0.25 | 0.93 | 0.20 | | | 0.24 |

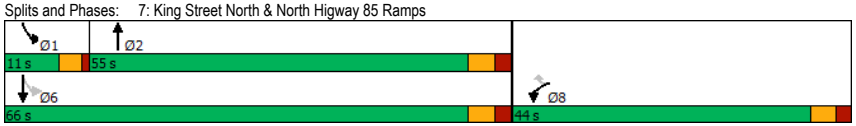




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 26.6 | 29.1 | 8.4 | | | 9.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 26.6 | 29.1 | 8.4 | | | 9.9 |
| LOS | C | C | A | | | A |
| Approach Delay | 28.5 | | 8.4 | | | 9.9 |
| Approach LOS | C | | A | | | A |
| Queue Length 50th (m) | 19.3 | 51.8 | 16.5 | | | 25.1 |
| Queue Length 95th (m) | 28.8 | #137.2 | 29.1 | | | 41.4 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1415 | 926 | 2096 | | | 2218 |
| 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 | 0.17 | 0.80 | 0.20 | | | 0.24 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 110 | | |
| Actuated Cycle Length: 99.2 | | |
| Natural Cycle: 90 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.93 | | |
| Intersection Signal Delay: 19.0 | | Intersection LOS: B |
| Intersection Capacity Utilization 89.9% | | ICU Level of Service E |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 509 | 271 | 223 | 940 | 374 |
| Future Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 509 | 271 | 223 | 940 | 374 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.713 | | | | | | 0.391 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1275 | 0 | 1384 | 0 | 3438 | 1521 | 740 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 137 | | | 68 | | | 295 | | | 407 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 553 | 295 | 242 | 1022 | 407 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 553 | 295 | 242 | 1022 | 407 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 67.0 | 67.0 | 11.0 | 67.0 | 67.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | 0.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 5.9 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 21.5 | 21.5 | 21.5 | 21.5 | | 21.5 | | 62.2 | 62.2 | 73.2 | 73.2 | 71.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.61 | 0.61 | 0.71 | 0.71 | 0.69 |
| v/c Ratio | 0.01 | 0.17 | 0.78 | 0.09 | | 0.07 | | 0.27 | 0.28 | 0.40 | 0.41 | 0.37 |

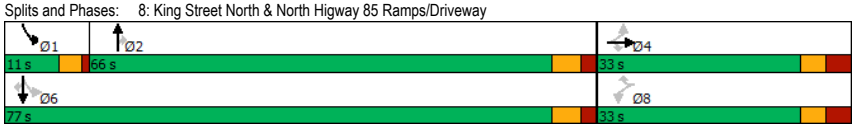




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.3 | 34.9 | 32.2 | | 0.4 | | 10.7 | 2.1 | 7.9 | 7.3 | 1.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.3 | 34.9 | 32.2 | | 0.4 | | 10.7 | 2.1 | 7.9 | 7.3 | 1.8 |
| LOS | C | C | C | C | | A | | B | A | A | A | A |
| Approach Delay | | 34.6 | | | 16.0 | | | 7.7 | | | 6.0 | |
| Approach LOS | | C | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.6 | 39.2 | 3.9 | | 0.0 | | 27.1 | 0.0 | 15.0 | 41.0 | 0.0 |
| Queue Length 95th (m) | 2.9 | 23.3 | 72.2 | 10.7 | | 0.0 | | 43.0 | 11.8 | 29.8 | 65.8 | 10.5 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 505 | 538 | 531 | 361 | | 440 | | 2081 | 1037 | 600 | 2474 | 1095 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.63 | 0.06 | | 0.05 | | 0.27 | 0.28 | 0.40 | 0.41 | 0.37 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 102.7 | | | |
| Natural Cycle: 115 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 10.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.5% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Future Volume (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.978 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3187 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.102 | | | 0.311 | | | 0.266 | | | 0.258 | | |
| Satd. Flow (perm) | 177 | 3187 | 0 | 542 | 3574 | 1421 | 460 | 3238 | 0 | 445 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 18 | | | | 111 | | 15 | | | 95 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 137 | 461 | 80 | 162 | 1142 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 137 | 541 | 0 | 162 | 1142 | 157 | 196 | 518 | 0 | 319 | 688 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 13.2 | 44.4 | | 15.6 | 46.8 | 46.8 | 21.6 | 33.6 | | 26.4 | 38.4 | |
| Total Split (%) | 11.0% | 37.0% | | 13.0% | 39.0% | 39.0% | 18.0% | 28.0% | | 22.0% | 32.0% | |
| Maximum Green (s) | 9.2 | 38.4 | | 11.6 | 40.8 | 40.8 | 17.6 | 27.6 | | 20.4 | 32.4 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 50.1 | 41.1 | | 53.5 | 42.8 | 42.8 | 45.7 | 32.0 | | 56.7 | 39.0 | |
| Actuated g/C Ratio | 0.42 | 0.34 | | 0.44 | 0.36 | 0.36 | 0.38 | 0.27 | | 0.47 | 0.32 | |
| v/c Ratio | 0.75 | 0.49 | | 0.48 | 0.90 | 0.27 | 0.63 | 0.59 | | 0.77 | 0.65 | |

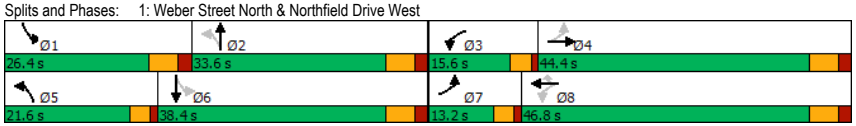




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.9 | 32.7 | | 24.7 | 47.9 | 10.9 | 29.5 | 41.1 | | 34.1 | 33.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 48.9 | 32.7 | | 24.7 | 47.9 | 10.9 | 29.5 | 41.1 | | 34.1 | 33.6 | |
| LOS | D | C | | C | D | B | C | D | | C | C | |
| Approach Delay | | 36.0 | | | 41.3 | | | 37.9 | | | 33.8 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (m) | 20.1 | 55.8 | | 24.1 | 144.4 | 7.8 | 28.6 | 59.0 | | 51.0 | 67.0 | |
| Queue Length 95th (m) | #50.6 | 73.8 | | 39.1 | #186.7 | 24.1 | 45.1 | 78.1 | | 75.0 | 92.6 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 186 | 1098 | | 353 | 1269 | 576 | 366 | 871 | | 434 | 1063 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.74 | 0.49 | | 0.46 | 0.90 | 0.27 | 0.54 | 0.59 | | 0.74 | 0.65 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120.5 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.90 | | |
| Intersection Signal Delay: 37.8 | | Intersection LOS: D |
| Intersection Capacity Utilization 98.9% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Future Volume (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.991 | | | | 0.850 | | 0.944 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3301 | 0 | 0 | 1592 | 1458 | 1537 | 1532 | 0 |
| Flt Permitted | 0.141 | | | 0.199 | | | | 0.802 | | 0.711 | | |
| Satd. Flow (perm) | 250 | 3282 | 0 | 346 | 3301 | 0 | 0 | 1292 | 1417 | 1133 | 1532 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 5 | | | 10 | | | | 340 | | 13 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 847 | 35 | 396 | 1458 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 882 | 0 | 396 | 1549 | 0 | 0 | 70 | 498 | 62 | 35 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.03 | 0.57 | | 0.94 | 0.72 | | | 0.19 | 0.78 | 0.20 | 0.08 | |

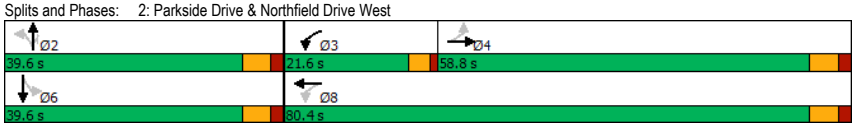




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.3 | 24.5 | | 48.4 | 15.8 | | | 33.8 | 21.3 | 34.1 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.3 | 24.5 | | 48.4 | 15.8 | | | 33.8 | 21.3 | 34.1 | 22.6 | |
| LOS | B | C | | D | B | | | C | C | C | C | |
| Approach Delay | | 24.5 | | | 22.4 | | | 22.8 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 78.0 | | 48.0 | 115.2 | | | 12.9 | 35.6 | 11.4 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 104.1 | | #116.7 | 155.9 | | | 25.4 | 82.5 | 23.4 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 116 | 1538 | | 421 | 2157 | | | 393 | 667 | 344 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.57 | | 0.94 | 0.72 | | | 0.18 | 0.75 | 0.18 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.94 | | |
| Intersection Signal Delay: 23.2 | | Intersection LOS: C |
| Intersection Capacity Utilization 121.3% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Future Volume (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | | | 0.99 | |
| Frt | | 0.992 | | | 0.994 | | | 0.977 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.963 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3225 | 0 | 1547 | 3285 | 0 | 0 | 1431 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.447 | | | 0.879 | |
| Satd. Flow (perm) | 1648 | 3225 | 0 | 1546 | 3285 | 0 | 0 | 664 | 0 | 0 | 1215 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 4 | | | 9 | | | 90 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 180.0 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 13.0 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 67 | 802 | 44 | 12 | 764 | 34 | 127 | 10 | 28 | 100 | 29 | 259 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 67 | 846 | 0 | 12 | 798 | 0 | 0 | 165 | 0 | 0 | 388 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 30.0 | 59.0 | | 17.0 | 46.0 | | 41.0 | 41.0 | | 41.0 | 41.0 | |
| Total Split (%) | 25.6% | 50.4% | | 14.5% | 39.3% | | 35.0% | 35.0% | | 35.0% | 35.0% | |
| Maximum Green (s) | 25.0 | 53.0 | | 12.0 | 40.0 | | 35.0 | 35.0 | | 35.0 | 35.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 10.4 | 56.4 | | 7.4 | 46.7 | | | 32.1 | | | 32.1 | |
| Actuated g/C Ratio | 0.11 | 0.57 | | 0.07 | 0.47 | | | 0.32 | | | 0.32 | |
| v/c Ratio | 0.39 | 0.46 | | 0.10 | 0.51 | | | 0.75 | | | 0.85 | |

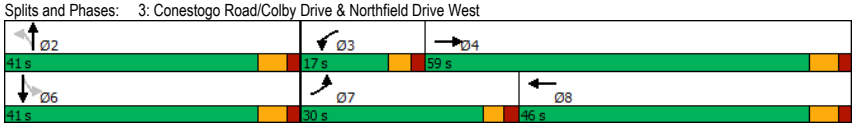




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 49.8 | 14.8 | | 48.4 | 21.8 | | | 50.6 | | | 42.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 49.8 | 14.8 | | 48.4 | 21.8 | | | 50.6 | | | 42.9 | |
| LOS | D | B | | D | C | | | D | | | D | |
| Approach Delay | | 17.3 | | | 22.2 | | | 50.6 | | | 42.9 | |
| Approach LOS | | B | | | C | | | D | | | D | |
| Queue Length 50th (m) | 13.1 | 51.0 | | 2.4 | 64.6 | | | 26.8 | | | 55.1 | |
| Queue Length 95th (m) | 28.7 | 88.3 | | 9.0 | 90.5 | | | #68.8 | | | #123.5 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 156.0 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 439 | 1841 | | 205 | 1554 | | | 256 | | | 515 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.15 | 0.46 | | 0.06 | 0.51 | | | 0.64 | | | 0.75 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 98.9 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.85 | | |
| Intersection Signal Delay: 25.8 | | Intersection LOS: C |
| Intersection Capacity Utilization 76.1% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Future Volume (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.98 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.974 | | | 0.980 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3185 | 0 | 3176 | 3212 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.352 | | | 0.950 | | | 0.356 | | | 0.329 | | |
| Satd. Flow (perm) | 614 | 3185 | 0 | 3127 | 3212 | 0 | 602 | 3127 | 0 | 562 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 19 | | | 15 | | | 49 | | | | 173 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 167 | 522 | 109 | 239 | 467 | 70 | 152 | 381 | 168 | 107 | 445 | 173 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 167 | 631 | 0 | 239 | 537 | 0 | 152 | 549 | 0 | 107 | 445 | 173 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 42.9 | 30.9 | | 15.7 | 34.6 | | 47.1 | 35.3 | | 43.3 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.15 | 0.32 | | 0.44 | 0.33 | | 0.40 | 0.31 | 0.31 |
| v/c Ratio | 0.46 | 0.68 | | 0.52 | 0.52 | | 0.41 | 0.52 | | 0.33 | 0.41 | 0.30 |

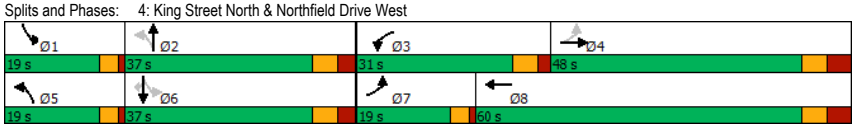




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 21.6 | 37.7 | | 48.1 | 31.1 | | 23.1 | 30.7 | | 22.3 | 32.9 | 6.6 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 21.6 | 37.7 | | 48.1 | 31.1 | | 23.1 | 30.7 | | 22.3 | 32.9 | 6.6 |
| LOS | C | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 34.3 | | | 36.4 | | | 29.1 | | | 25.1 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 21.1 | 63.1 | | 25.2 | 49.4 | | 19.3 | 45.9 | | 13.2 | 40.5 | 0.0 |
| Queue Length 95th (m) | 35.8 | 90.7 | | 42.6 | 70.1 | | 41.1 | 80.2 | | 29.8 | 68.2 | 17.7 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 410 | 1323 | | 803 | 1691 | | 411 | 1054 | | 398 | 1093 | 574 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.41 | 0.48 | | 0.30 | 0.32 | | 0.37 | 0.52 | | 0.27 | 0.41 | 0.30 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 108 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.68 | | |
| Intersection Signal Delay: 31.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 78.7% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Future Volume (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.989 | | | | |
| Flt Protected | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (prot) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1455 | 0 | 0 | 1458 | 0 |
| Flt Permitted | | | | | 0.983 | | | | | | 0.993 | |
| Satd. Flow (perm) | 0 | 1550 | 0 | 0 | 1297 | 0 | 0 | 1455 | 0 | 0 | 1458 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 330.4 | | | 180.0 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 23.8 | | | 13.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 130 | 0 | 0 | 82 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 27.0% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Future Vol, veh/h | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 0 | 0 | 0 | 16 | 0 | 30 | 0 | 119 | 11 | 12 | 70 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 234 | 224 | 70 | 219 | 219 | 125 | 70 | 0 | 0 | 130 | 0 | 0 |
| Stage 1 | 94 | 94 | - | 125 | 125 | - | - | - | - | - | - | - |
| Stage 2 | 140 | 130 | - | 94 | 94 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 725 | 678 | 998 | 741 | 683 | 902 | 1544 | - | - | 1413 | - | - |
| Stage 1 | 918 | 821 | - | 884 | 796 | - | - | - | - | - | - | - |
| Stage 2 | 868 | 792 | - | 918 | 821 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 696 | 672 | 998 | 736 | 677 | 902 | 1544 | - | - | 1413 | - | - |
| Mov Cap-2 Maneuver | 696 | 672 | - | 736 | 677 | - | - | - | - | - | - | - |
| Stage 1 | 918 | 814 | - | 884 | 796 | - | - | - | - | - | - | - |
| Stage 2 | 839 | 792 | - | 910 | 814 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 9.6 | 0 | 1.1 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1544 | - | - | - | 836 | 1413 | - | - |
| HCM Lane V/C Ratio | - | - | - | - | 0.055 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 0 | 9.6 | 7.6 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Future Volume (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.890 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1434 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.709 | | | 0.950 | | | 0.279 | | | 0.950 | | |
| Satd. Flow (perm) | 1256 | 1434 | 0 | 3108 | 1339 | 0 | 494 | 3539 | 1443 | 1594 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 109 | | | 63 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 39 | 63 | 175 | 332 | 10 | 63 | 73 | 634 | 387 | 76 | 763 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 39 | 238 | 0 | 332 | 73 | 0 | 73 | 634 | 387 | 76 | 796 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 26.0 | 58.0 | | 10.0 | 42.0 | 26.0 | 20.0 | 52.0 | |
| Total Split (%) | 26.7% | 26.7% | | 21.7% | 48.3% | | 8.3% | 35.0% | 21.7% | 16.7% | 43.3% | |
| Maximum Green (s) | 25.0 | 25.0 | | 20.0 | 51.0 | | 6.0 | 35.0 | 20.0 | 15.0 | 45.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 19.2 | 19.2 | | 18.1 | 41.4 | | 48.3 | 43.7 | 61.8 | 11.3 | 48.7 | |
| Actuated g/C Ratio | 0.18 | 0.18 | | 0.17 | 0.39 | | 0.46 | 0.41 | 0.58 | 0.11 | 0.46 | |
| v/c Ratio | 0.17 | 0.68 | | 0.62 | 0.13 | | 0.25 | 0.43 | 0.45 | 0.44 | 0.53 | |

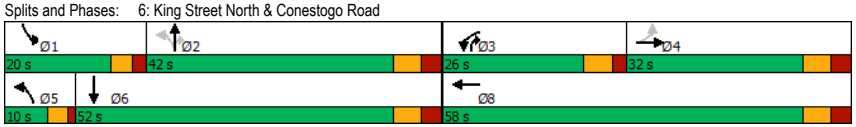




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.5 | 32.6 | | 47.1 | 6.8 | | 17.3 | 26.6 | 15.1 | 55.0 | 23.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.5 | 32.6 | | 47.1 | 6.8 | | 17.3 | 26.6 | 15.1 | 55.0 | 23.9 | |
| LOS | D | C | | D | A | | B | C | B | E | C | |
| Approach Delay | | 33.6 | | | 39.8 | | | 21.9 | | | 26.6 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 7.4 | 26.6 | | 35.1 | 1.3 | | 7.3 | 52.8 | 41.9 | 15.9 | 65.0 | |
| Queue Length 95th (m) | 17.7 | 55.7 | | 54.7 | 10.2 | | 18.3 | 88.1 | 85.8 | 33.4 | 101.9 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 337 | 464 | | 663 | 723 | | 293 | 1461 | 909 | 246 | 1513 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.12 | 0.51 | | 0.50 | 0.10 | | 0.25 | 0.43 | 0.43 | 0.31 | 0.53 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 105.8 | | |
| Natural Cycle: 65 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.68 | | |
| Intersection Signal Delay: 27.4 | | Intersection LOS: C |
| Intersection Capacity Utilization 68.1% | | ICU Level of Service C |
| Analysis Period (min) 15 | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 196 | 636 | 547 | 132 | 0 | 1301 |
| Future Volume (vph) | 196 | 636 | 547 | 132 | 0 | 1301 |
| Ideal Flow (vphpl) | 1775 | 1750 | 1775 | 1775 | 1775 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.971 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3239 | 1430 | 3113 | 0 | 986 | 3505 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3239 | 1412 | 3113 | 0 | 986 | 3505 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 325 | 39 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 11 | 11 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 4% | 3% | 11% | 80% | 3% |
| Adj. Flow (vph) | 213 | 691 | 595 | 143 | 0 | 1414 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 213 | 691 | 738 | 0 | 0 | 1414 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.21 | 1.04 | 0.38 | | | 0.66 |



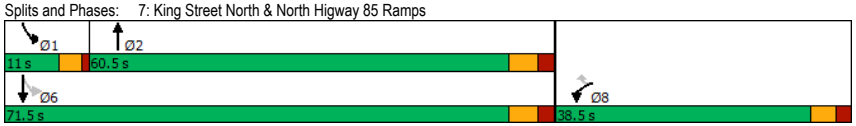


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.4 | 66.3 | 10.8 | | | 15.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.4 | 66.3 | 10.8 | | | 15.6 |
| LOS | C | E | B | | | B |
| Approach Delay | 57.4 | | 10.8 | | | 15.6 |
| Approach LOS | E | | B | | | B |
| Queue Length 50th (m) | 18.1 | ~114.5 | 38.8 | | | 101.3 |
| Queue Length 95th (m) | 27.7 | #187.9 | 51.0 | | | 124.4 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1015 | 665 | 1925 | | | 2150 |
| 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 | 1.04 | 0.38 | | | 0.66 |

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 115
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 26.8 Intersection LOS: C
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: King Street North & North Higway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 850 | 373 | 22 | 966 | 653 |
| Future Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 850 | 373 | 22 | 966 | 653 |
| Ideal Flow (vphpl) | 1775 | 1900 | 1750 | 1775 | 0 | 1750 | 0 | 1900 | 1750 | 1775 | 1900 | 1750 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1900 | 1430 | 1670 | 0 | 1488 | 0 | 3539 | 1458 | 1686 | 3539 | 1430 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.279 | | |
| Satd. Flow (perm) | 1681 | 1900 | 1368 | 1288 | 0 | 1465 | 0 | 3539 | 1421 | 494 | 3539 | 1383 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 120 | | | 162 | | | 405 | | | 710 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 924 | 405 | 24 | 1050 | 710 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 924 | 405 | 24 | 1050 | 710 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 35.0 | 35.0 | 35.0 | 35.0 | | 35.0 | | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |
| Total Split (%) | 31.8% | 31.8% | 31.8% | 31.8% | | 31.8% | | 68.2% | 68.2% | 68.2% | 68.2% | 68.2% |
| Maximum Green (s) | 28.3 | 28.3 | 28.3 | 28.3 | | 28.3 | | 69.1 | 69.1 | 69.1 | 69.1 | 69.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.6 | 21.6 | 21.6 | 21.6 | | 21.6 | | 71.3 | 71.3 | 71.3 | 71.3 | 71.3 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.07 | 0.00 | 0.54 | 0.64 | | 0.71 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.60 |

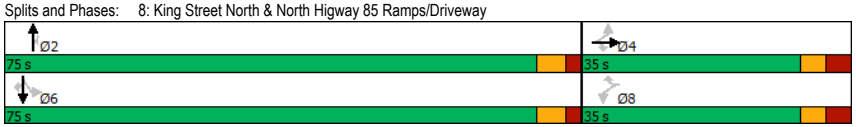




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.7 | 29.0 | 20.1 | 46.8 | | 26.5 | | 7.1 | 1.7 | 6.7 | 7.5 | 2.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.7 | 29.0 | 20.1 | 46.8 | | 26.5 | | 7.1 | 1.7 | 6.7 | 7.5 | 2.9 |
| LOS | C | C | C | D | | C | | A | A | A | A | A |
| Approach Delay | | 21.3 | | | 33.8 | | | 5.4 | | | 5.7 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 4.1 | 0.2 | 15.3 | 33.1 | | 28.7 | | 34.4 | 0.0 | 1.3 | 41.1 | 0.0 |
| Queue Length 95th (m) | 11.0 | 1.5 | 37.8 | 55.7 | | 59.4 | | 60.6 | 10.5 | 5.3 | 72.0 | 12.8 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 518 | 585 | 504 | 397 | | 563 | | 2499 | 1122 | 348 | 2499 | 1185 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.05 | 0.00 | 0.41 | 0.44 | | 0.56 | | 0.37 | 0.36 | 0.07 | 0.42 | 0.60 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 100.9 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 10.1 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & North Higway 85 Ramps/Driveway



# Appendix L

## 2037 Total Traffic Operations Report

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 217 | 893 | 140 | 107 | 429 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Future Volume (vph) | 217 | 893 | 140 | 107 | 429 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.980 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3258 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.371 | | | 0.110 | | | 0.503 | | | 0.431 | | |
| Satd. Flow (perm) | 650 | 3258 | 0 | 193 | 3438 | 1403 | 864 | 3036 | 0 | 707 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 17 | | | | 191 | | 72 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 217 | 893 | 140 | 107 | 429 | 119 | 55 | 213 | 107 | 183 | 390 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 217 | 1033 | 0 | 107 | 429 | 119 | 55 | 320 | 0 | 183 | 427 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.2 | | 48.6 | 40.8 | 40.8 | 40.1 | 33.6 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.28 | | 0.45 | 0.38 | |
| v/c Ratio | 0.52 | 0.82 | | 0.61 | 0.36 | 0.20 | 0.16 | 0.35 | | 0.42 | 0.35 | |

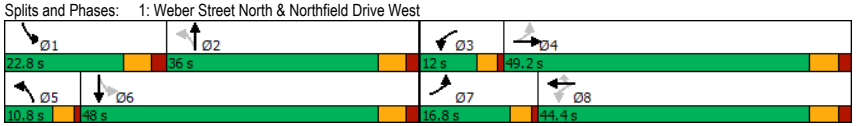




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.6 | 39.3 | | 35.0 | 30.5 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 23.6 | 39.3 | | 35.0 | 30.5 | 0.9 | 20.6 | 27.5 | | 23.5 | 27.4 | |
| LOS | C | D | | D | C | A | C | C | | C | C | |
| Approach Delay | | 36.6 | | | 25.9 | | | 26.5 | | | 26.3 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Queue Length 50th (m) | 31.5 | 119.5 | | 14.4 | 42.2 | 0.0 | 7.5 | 25.1 | | 27.3 | 39.4 | |
| Queue Length 95th (m) | 49.0 | 148.7 | | #29.9 | 56.8 | 0.7 | 15.5 | 39.8 | | 43.9 | 53.7 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 423 | 1256 | | 179 | 1188 | 610 | 340 | 913 | | 454 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.51 | 0.82 | | 0.60 | 0.36 | 0.20 | 0.16 | 0.35 | | 0.40 | 0.35 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 118.2 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.82 | | |
| Intersection Signal Delay: 30.7 | | Intersection LOS: C |
| Intersection Capacity Utilization 94.1% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1209 | 28 | 313 | 580 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Future Volume (vph) | 1 | 1209 | 28 | 313 | 580 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.997 | | | 0.981 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.960 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3265 | 0 | 1621 | 3210 | 0 | 0 | 1584 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.399 | | | 0.107 | | | | 0.840 | | 0.746 | | |
| Satd. Flow (perm) | 707 | 3265 | 0 | 183 | 3210 | 0 | 0 | 1383 | 1376 | 1153 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 36 | | | | 322 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1209 | 28 | 313 | 580 | 84 | 14 | 3 | 322 | 72 | 26 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1237 | 0 | 313 | 664 | 0 | 0 | 17 | 322 | 72 | 27 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 56.0 | 56.0 | | 36.0 | 92.0 | | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | |
| Total Split (%) | 46.7% | 46.7% | | 30.0% | 76.7% | | 23.3% | 23.3% | 23.3% | 23.3% | 23.3% | |
| Maximum Green (s) | 50.0 | 50.0 | | 32.0 | 86.0 | | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 61.2 | 61.2 | | 88.0 | 88.0 | | | 24.0 | 24.0 | 24.0 | 24.0 | |
| Actuated g/C Ratio | 0.51 | 0.51 | | 0.73 | 0.73 | | | 0.20 | 0.20 | 0.20 | 0.20 | |
| v/c Ratio | 0.00 | 0.74 | | 0.77 | 0.28 | | | 0.06 | 0.61 | 0.31 | 0.08 | |

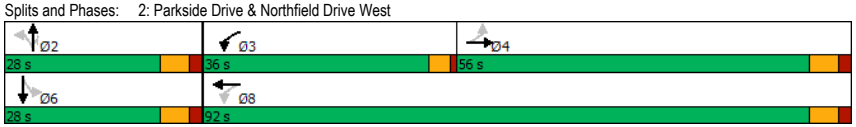




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.0 | 28.0 | | 34.6 | 5.4 | | | 39.8 | 9.8 | 45.4 | 38.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.0 | 28.0 | | 34.6 | 5.4 | | | 39.8 | 9.8 | 45.4 | 38.9 | |
| LOS | B | C | | C | A | | | D | A | D | D | |
| Approach Delay | | 28.0 | | | 14.7 | | | 11.3 | | | 43.6 | |
| Approach LOS | | C | | | B | | | B | | | D | |
| Queue Length 50th (m) | 0.1 | 123.3 | | 45.7 | 23.7 | | | 3.4 | 0.0 | 15.4 | 5.3 | |
| Queue Length 95th (m) | 1.3 | 177.3 | | 74.2 | 30.9 | | | 10.2 | 27.1 | 30.1 | 13.8 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 360 | 1665 | | 517 | 2363 | | | 276 | 532 | 230 | 328 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.74 | | 0.61 | 0.28 | | | 0.06 | 0.61 | 0.31 | 0.08 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.77 | | | |
| Intersection Signal Delay: 21.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 115 | 627 | 127 | 122 | 607 | 81 | 100 | 15 | 257 | 59 | 10 | 47 |
| Future Volume (vph) | 115 | 627 | 127 | 122 | 607 | 81 | 100 | 15 | 257 | 59 | 10 | 47 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.975 | | | 0.982 | | | 0.907 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.987 | | | 0.975 | |
| Satd. Flow (prot) | 1653 | 3165 | 0 | 1519 | 3136 | 0 | 0 | 1213 | 0 | 0 | 1308 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.881 | | | 0.631 | |
| Satd. Flow (perm) | 1652 | 3165 | 0 | 1518 | 3136 | 0 | 0 | 1082 | 0 | 0 | 847 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 18 | | | 109 | | | 33 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 111.9 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.1 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 115 | 627 | 127 | 122 | 607 | 81 | 100 | 15 | 257 | 59 | 10 | 47 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 115 | 754 | 0 | 122 | 688 | 0 | 0 | 372 | 0 | 0 | 116 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 21.0 | 41.0 | | 29.0 | 49.0 | | 32.0 | 32.0 | | 32.0 | 32.0 | |
| Total Split (%) | 20.6% | 40.2% | | 28.4% | 48.0% | | 31.4% | 31.4% | | 31.4% | 31.4% | |
| Maximum Green (s) | 16.0 | 35.0 | | 24.0 | 43.0 | | 26.0 | 26.0 | | 26.0 | 26.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 12.9 | 43.7 | | 14.1 | 45.0 | | | 28.0 | | | 28.0 | |
| Actuated g/C Ratio | 0.13 | 0.45 | | 0.14 | 0.46 | | | 0.29 | | | 0.29 | |
| v/c Ratio | 0.53 | 0.53 | | 0.56 | 0.47 | | | 0.96 | | | 0.44 | |

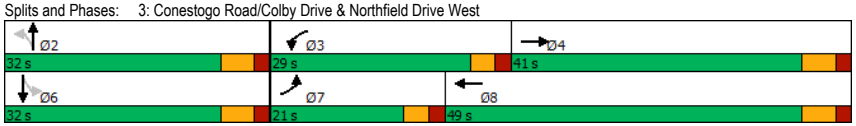




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.8 | 21.1 | | 48.6 | 19.5 | | | 63.6 | | | 27.1 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 48.8 | 21.1 | | 48.6 | 19.5 | | | 63.6 | | | 27.1 | |
| LOS | D | C | | D | B | | | E | | | C | |
| Approach Delay | | 24.8 | | | 23.9 | | | 63.6 | | | 27.1 | |
| Approach LOS | | C | | | C | | | E | | | C | |
| Queue Length 50th (m) | 21.7 | 53.6 | | 23.0 | 47.1 | | | 54.9 | | | 13.2 | |
| Queue Length 95th (m) | 39.5 | 79.3 | | 40.5 | 67.9 | | | #120.9 | | | 32.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 87.9 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 287 | 1428 | | 388 | 1452 | | | 387 | | | 266 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.40 | 0.53 | | 0.31 | 0.47 | | | 0.96 | | | 0.44 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 102 | | | |
| Actuated Cycle Length: 97.9 | | | |
| Natural Cycle: 90 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.96 | | | |
| Intersection Signal Delay: 31.2 | | Intersection LOS: C | |
| Intersection Capacity Utilization 79.7% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 154 | 437 | 247 | 226 | 350 | 61 | 180 | 334 | 143 | 100 | 270 | 94 |
| Future Volume (vph) | 154 | 437 | 247 | 226 | 350 | 61 | 180 | 334 | 143 | 100 | 270 | 94 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.946 | | | 0.978 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 2980 | 0 | 2974 | 3107 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.476 | | | 0.950 | | | 0.480 | | | 0.406 | | |
| Satd. Flow (perm) | 804 | 2980 | 0 | 2966 | 3107 | 0 | 761 | 2966 | 0 | 704 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 86 | | | 18 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 154 | 437 | 247 | 226 | 350 | 61 | 180 | 334 | 143 | 100 | 270 | 94 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 154 | 684 | 0 | 226 | 411 | 0 | 180 | 477 | 0 | 100 | 270 | 94 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 44.6 | 32.8 | | 16.0 | 36.9 | | 49.6 | 36.8 | | 43.2 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.14 | 0.33 | | 0.44 | 0.33 | | 0.39 | 0.30 | 0.30 |
| v/c Ratio | 0.38 | 0.73 | | 0.53 | 0.39 | | 0.42 | 0.47 | | 0.28 | 0.26 | 0.18 |

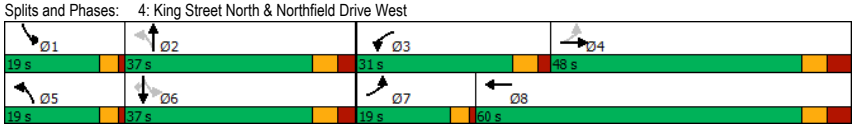




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 36.0 | | 50.4 | 28.5 | | 24.6 | 30.6 | | 22.7 | 32.9 | 1.2 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.0 | 36.0 | | 50.4 | 28.5 | | 24.6 | 30.6 | | 22.7 | 32.9 | 1.2 |
| LOS | B | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 33.1 | | | 36.3 | | | 29.0 | | | 24.3 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 20.4 | 66.1 | | 25.2 | 36.9 | | 24.6 | 40.1 | | 12.8 | 25.0 | 0.0 |
| Queue Length 95th (m) | 33.2 | 93.1 | | 41.9 | 52.3 | | 51.3 | 71.9 | | 29.6 | 44.0 | 1.2 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 455 | 1242 | | 729 | 1589 | | 442 | 1010 | | 433 | 1021 | 524 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.34 | 0.55 | | 0.31 | 0.26 | | 0.41 | 0.47 | | 0.23 | 0.26 | 0.18 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 111.5 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.73 | | |
| Intersection Signal Delay: 31.2 | | Intersection LOS: C |
| Intersection Capacity Utilization 74.2% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |
| Future Volume (vph) | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.921 | | | 0.993 | | | 0.989 | |
| Flt Protected | | 0.950 | | | 0.980 | | | | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1337 | 0 | 0 | 1470 | 0 | 0 | 1433 | 0 |
| Flt Permitted | | 0.950 | | | 0.980 | | | | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1337 | 0 | 0 | 1470 | 0 | 0 | 1433 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 52.3 | | | 68.1 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.8 | | | 4.9 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 0 | 0 | 24 | 0 | 0 | 204 | 0 | 0 | 158 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 31.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |
| Future Vol, veh/h | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 8 | 0 | 0 | 10 | 0 | 14 | 0 | 193 | 11 | 12 | 133 | 13 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 370 | 368 | 140 | 363 | 369 | 199 | 146 | 0 | 0 | 204 | 0 | 0 |
| Stage 1 | 164 | 164 | - | 199 | 199 | - | - | - | - | - | - | - |
| Stage 2 | 206 | 204 | - | 164 | 170 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 590 | 564 | 913 | 597 | 563 | 827 | 1448 | - | - | 1327 | - | - |
| Stage 1 | 843 | 766 | - | 807 | 740 | - | - | - | - | - | - | - |
| Stage 2 | 801 | 737 | - | 843 | 762 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 576 | 558 | 913 | 592 | 557 | 827 | 1448 | - | - | 1327 | - | - |
| Mov Cap-2 Maneuver | 576 | 558 | - | 592 | 557 | - | - | - | - | - | - | - |
| Stage 1 | 843 | 758 | - | 807 | 740 | - | - | - | - | - | - | - |
| Stage 2 | 787 | 737 | - | 835 | 754 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.3 | 10.2 | 0 | 0.6 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1448 | - | - | 576 | 710 | 1327 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.014 | 0.034 | 0.009 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.3 | 10.2 | 7.7 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 13 | 205 | 204 | 29 | 29 | 268 | 658 | 229 | 27 | 549 | 52 |
| Future Volume (vph) | 28 | 13 | 205 | 204 | 29 | 29 | 268 | 658 | 229 | 27 | 549 | 52 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.859 | | | 0.925 | | | | 0.850 | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1519 | 1327 | 0 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3143 | 0 |
| Flt Permitted | 0.719 | | | 0.950 | | | 0.325 | | | 0.950 | | |
| Satd. Flow (perm) | 1148 | 1327 | 0 | 3022 | 1347 | 0 | 564 | 3471 | 1403 | 1241 | 3143 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 205 | | | 29 | | | | | | 10 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 13 | 205 | 204 | 29 | 29 | 268 | 658 | 229 | 27 | 549 | 52 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 28 | 218 | 0 | 204 | 58 | 0 | 268 | 658 | 229 | 27 | 601 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 14.2 | 14.2 | | 12.9 | 31.1 | | 56.4 | 52.5 | 65.4 | 8.5 | 44.1 | |
| Actuated g/C Ratio | 0.15 | 0.15 | | 0.13 | 0.32 | | 0.58 | 0.54 | 0.67 | 0.09 | 0.45 | |
| v/c Ratio | 0.17 | 0.59 | | 0.50 | 0.13 | | 0.61 | 0.35 | 0.24 | 0.25 | 0.42 | |

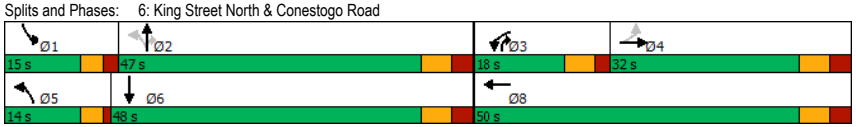




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 39.0 | 13.8 | | 44.2 | 14.3 | | 17.6 | 15.2 | 7.2 | 47.4 | 19.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 39.0 | 13.8 | | 44.2 | 14.3 | | 17.6 | 15.2 | 7.2 | 47.4 | 19.2 | |
| LOS | D | B | | D | B | | B | B | A | D | B | |
| Approach Delay | | 16.7 | | | 37.6 | | | 14.2 | | | 20.4 | |
| Approach LOS | | B | | | D | | | B | | | C | |
| Queue Length 50th (m) | 5.0 | 2.3 | | 19.2 | 4.0 | | 23.3 | 31.0 | 9.1 | 5.0 | 39.8 | |
| Queue Length 95th (m) | 13.1 | 24.0 | | 32.7 | 12.9 | | 43.6 | 67.7 | 35.5 | 14.0 | 60.8 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 331 | 528 | | 441 | 653 | | 439 | 1876 | 966 | 141 | 1430 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.08 | 0.41 | | 0.46 | 0.09 | | 0.61 | 0.35 | 0.24 | 0.19 | 0.42 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 97.2 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.61 | | | |
| Intersection Signal Delay: 18.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 69.4% | | ICU Level of Service C | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 225 | 834 | 334 | 99 | 0 | 790 |
| Future Volume (vph) | 225 | 834 | 334 | 99 | 0 | 790 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.966 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3502 | 1615 | 3304 | 0 | 1881 | 3539 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3502 | 1594 | 3304 | 0 | 1881 | 3539 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 477 | 47 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 3 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 15% | 1% | 2% |
| Adj. Flow (vph) | 245 | 907 | 363 | 108 | 0 | 859 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 245 | 907 | 471 | 0 | 0 | 859 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 40.0 | 40.0 | 62.0 | | | 62.0 |
| Actuated g/C Ratio | 0.36 | 0.36 | 0.56 | | | 0.56 |
| v/c Ratio | 0.19 | 1.03 | 0.25 | | | 0.43 |



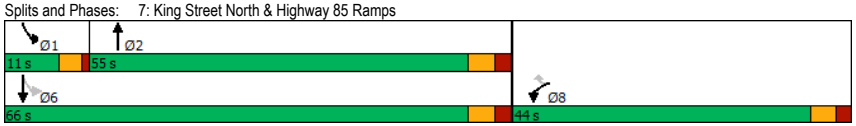


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 24.5 | 55.1 | 11.3 | | | 14.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 24.5 | 55.1 | 11.3 | | | 14.7 |
| LOS | C | E | B | | | B |
| Approach Delay | 48.6 | | 11.3 | | | 14.7 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 19.3 | ~145.4 | 23.8 | | | 55.7 |
| Queue Length 95th (m) | 28.7 | #224.1 | 33.3 | | | 70.5 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1273 | 883 | 1882 | | | 1994 |
| 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 | 0.19 | 1.03 | 0.25 | | | 0.43 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.03 | | | |
| Intersection Signal Delay: 29.8 | | Intersection LOS: C | |
| Intersection Capacity Utilization 99.3% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

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

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 551 | 271 | 223 | 1008 | 602 |
| Future Volume (vph) | 3 | 62 | 305 | 21 | 0 | 22 | 0 | 551 | 271 | 223 | 1008 | 602 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.713 | | | | | | 0.367 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1275 | 0 | 1384 | 0 | 3438 | 1521 | 695 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 117 | | | 68 | | | 295 | | | 654 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 599 | 295 | 242 | 1096 | 654 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 67 | 332 | 23 | 0 | 24 | 0 | 599 | 295 | 242 | 1096 | 654 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 22.5 | 22.5 | 22.5 | 22.5 | | 22.5 | | 62.2 | 62.2 | 73.2 | 73.2 | 73.2 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.22 | 0.22 | | 0.22 | | 0.60 | 0.60 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.01 | 0.16 | 0.79 | 0.08 | | 0.07 | | 0.29 | 0.29 | 0.43 | 0.45 | 0.55 |

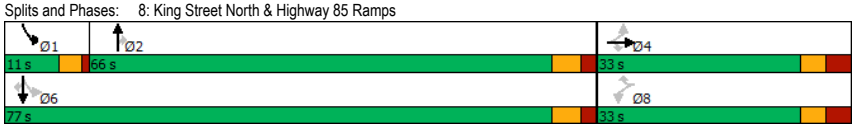




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.0 | 38.1 | 32.0 | | 0.4 | | 11.3 | 2.1 | 8.5 | 7.9 | 2.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.0 | 38.1 | 32.0 | | 0.4 | | 11.3 | 2.1 | 8.5 | 7.9 | 2.5 |
| LOS | C | C | D | C | | A | | B | A | A | A | A |
| Approach Delay | | 37.2 | | | 15.8 | | | 8.2 | | | 6.2 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.6 | 43.8 | 3.9 | | 0.0 | | 31.0 | 0.0 | 15.9 | 48.0 | 0.0 |
| Queue Length 95th (m) | 2.9 | 23.3 | 77.4 | 10.7 | | 0.0 | | 46.8 | 11.8 | 29.8 | 72.4 | 11.8 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 500 | 532 | 513 | 357 | | 436 | | 2061 | 1030 | 565 | 2450 | 1179 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.13 | 0.65 | 0.06 | | 0.06 | | 0.29 | 0.29 | 0.43 | 0.45 | 0.55 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 103.7 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.79 | | | |
| Intersection Signal Delay: 10.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.5% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 212 | 0 | 0 | 214 | 157 | 89 |
| Future Volume (vph) | 212 | 0 | 0 | 214 | 157 | 89 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.951 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 43.7 | | | 68.1 | 111.9 | |
| Travel Time (s) | 3.1 | | | 4.9 | 8.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 230 | 0 | 0 | 233 | 171 | 97 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 230 | 0 | 0 | 233 | 268 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 37.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 212 | 0 | 0 | 214 | 157 | 89 |
| Future Vol, veh/h | 212 | 0 | 0 | 214 | 157 | 89 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 230 | 0 | 0 | 233 | 171 | 97 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 453 | 220 | 268 | 0 | - | 0 |
| Stage 1 | 220 | - | - | - | - | - |
| Stage 2 | 233 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 565 | 820 | 1296 | - | - | - |
| Stage 1 | 817 | - | - | - | - | - |
| Stage 2 | 806 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 565 | 820 | 1296 | - | - | - |
| Mov Cap-2 Maneuver | 565 | - | - | - | - | - |
| Stage 1 | 817 | - | - | - | - | - |
| Stage 2 | 806 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.7 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1296 | - | 565 | - | - |
| HCM Lane V/C Ratio | - | - | 0.408 | - | - |
| HCM Control Delay (s) | 0 | - | 15.7 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 83 | 148 | 58 | 120 | 105 | 37 |
| Future Volume (vph) | 83 | 148 | 58 | 120 | 105 | 37 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.913 | | | | 0.965 | |
| Flt Protected | 0.982 | | | 0.984 | | |
| Satd. Flow (prot) | 1670 | 0 | 0 | 1833 | 1798 | 0 |
| Flt Permitted | 0.982 | | | 0.984 | | |
| Satd. Flow (perm) | 1670 | 0 | 0 | 1833 | 1798 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 55.5 | | | 51.0 | 52.3 | |
| Travel Time (s) | 4.0 | | | 3.7 | 3.8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 90 | 161 | 63 | 130 | 114 | 40 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 251 | 0 | 0 | 193 | 154 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 41.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 5.8 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 83 | 148 | 58 | 120 | 105 | 37 |
| Future Vol, veh/h | 83 | 148 | 58 | 120 | 105 | 37 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 90 | 161 | 63 | 130 | 114 | 40 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 390 | 134 | 154 | 0 | - | 0 |
| Stage 1 | 134 | - | - | - | - | - |
| Stage 2 | 256 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 614 | 915 | 1426 | - | - | - |
| Stage 1 | 892 | - | - | - | - | - |
| Stage 2 | 787 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 585 | 915 | 1426 | - | - | - |
| Mov Cap-2 Maneuver | 585 | - | - | - | - | - |
| Stage 1 | 849 | - | - | - | - | - |
| Stage 2 | 787 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12 | 2.5 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1426 | - | 761 | - | - |
| HCM Lane V/C Ratio | 0.044 | - | 0.33 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 12 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 3 | 23 | 174 | 220 | 33 |
| Future Volume (vph) | 4 | 3 | 23 | 174 | 220 | 33 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.942 | | | | 0.982 | |
| Flt Protected | 0.972 | | | 0.994 | | |
| Satd. Flow (prot) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Flt Permitted | 0.972 | | | 0.994 | | |
| Satd. Flow (perm) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 58.0 | | | 36.4 | 51.0 | |
| Travel Time (s) | 4.2 | | | 2.6 | 3.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 3 | 25 | 189 | 239 | 36 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 7 | 0 | 0 | 214 | 275 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 3 | 23 | 174 | 220 | 33 |
| Future Vol, veh/h | 4 | 3 | 23 | 174 | 220 | 33 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 3 | 25 | 189 | 239 | 36 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 496 | 257 | 275 | 0 | - | 0 |
| Stage 1 | 257 | - | - | - | - | - |
| Stage 2 | 239 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 533 | 782 | 1288 | - | - | - |
| Stage 1 | 786 | - | - | - | - | - |
| Stage 2 | 801 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 521 | 782 | 1288 | - | - | - |
| Mov Cap-2 Maneuver | 521 | - | - | - | - | - |
| Stage 1 | 769 | - | - | - | - | - |
| Stage 2 | 801 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1288 | - | 608 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.013 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 11 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2 | 3 | 26 | 195 | 211 | 13 |
| Future Volume (vph) | 2 | 3 | 26 | 195 | 211 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.919 | | | | 0.992 | |
| Flt Protected | 0.980 | | | 0.994 | | |
| Satd. Flow (prot) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Flt Permitted | 0.980 | | | 0.994 | | |
| Satd. Flow (perm) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 59.4 | | | 44.1 | 36.4 | |
| Travel Time (s) | 4.3 | | | 3.2 | 2.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 2 | 3 | 28 | 212 | 229 | 14 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 5 | 0 | 0 | 240 | 243 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 36.9% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 3 | 26 | 195 | 211 | 13 |
| Future Vol, veh/h | 2 | 3 | 26 | 195 | 211 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 3 | 28 | 212 | 229 | 14 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 504 | 236 | 243 | 0 | - | 0 |
| Stage 1 | 236 | - | - | - | - | - |
| Stage 2 | 268 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 528 | 803 | 1323 | - | - | - |
| Stage 1 | 803 | - | - | - | - | - |
| Stage 2 | 777 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 515 | 803 | 1323 | - | - | - |
| Mov Cap-2 Maneuver | 515 | - | - | - | - | - |
| Stage 1 | 784 | - | - | - | - | - |
| Stage 2 | 777 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.5 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1323 | - | 656 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.008 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 10.5 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1 | 3 | 26 | 220 | 209 | 5 |
| Future Volume (vph) | 1 | 3 | 26 | 220 | 209 | 5 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.899 | | | | 0.997 | |
| Flt Protected | 0.988 | | | 0.995 | | |
| Satd. Flow (prot) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Flt Permitted | 0.988 | | | 0.995 | | |
| Satd. Flow (perm) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 57.5 | | | 146.8 | 44.1 | |
| Travel Time (s) | 4.1 | | | 10.6 | 3.2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 3 | 28 | 239 | 227 | 5 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 4 | 0 | 0 | 267 | 232 | 0 |
| Sign Control | Stop | | | Free | Free | |

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





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 26 | 220 | 209 | 5 |
| Future Vol, veh/h | 1 | 3 | 26 | 220 | 209 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 28 | 239 | 227 | 5 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 525 | 230 | 232 | 0 | - | 0 |
| Stage 1 | 230 | - | - | - | - | - |
| Stage 2 | 295 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 513 | 809 | 1336 | - | - | - |
| Stage 1 | 808 | - | - | - | - | - |
| Stage 2 | 755 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 501 | 809 | 1336 | - | - | - |
| Mov Cap-2 Maneuver | 501 | - | - | - | - | - |
| Stage 1 | 789 | - | - | - | - | - |
| Stage 2 | 755 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 0.8 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1336 | - | 701 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.006 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 10.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 137 | 513 | 80 | 162 | 1206 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Future Volume (vph) | 137 | 513 | 80 | 162 | 1206 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.980 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3195 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.091 | | | 0.304 | | | 0.220 | | | 0.266 | | |
| Satd. Flow (perm) | 158 | 3195 | 0 | 530 | 3574 | 1421 | 381 | 3238 | 0 | 458 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 17 | | | | 112 | | 16 | | | 96 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 137 | 513 | 80 | 162 | 1206 | 157 | 196 | 442 | 76 | 319 | 437 | 251 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 137 | 593 | 0 | 162 | 1206 | 157 | 196 | 518 | 0 | 319 | 688 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 12.0 | 49.4 | | 14.0 | 51.4 | 51.4 | 17.0 | 36.6 | | 20.0 | 39.6 | |
| Total Split (%) | 10.0% | 41.2% | | 11.7% | 42.8% | 42.8% | 14.2% | 30.5% | | 16.7% | 33.0% | |
| Maximum Green (s) | 8.0 | 43.4 | | 10.0 | 45.4 | 45.4 | 13.0 | 30.6 | | 14.0 | 33.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 53.8 | 45.8 | | 57.0 | 47.4 | 47.4 | 44.9 | 32.6 | | 51.9 | 36.3 | |
| Actuated g/C Ratio | 0.45 | 0.38 | | 0.48 | 0.40 | 0.40 | 0.37 | 0.27 | | 0.43 | 0.30 | |
| v/c Ratio | 0.81 | 0.48 | | 0.47 | 0.85 | 0.25 | 0.71 | 0.58 | | 0.89 | 0.69 | |

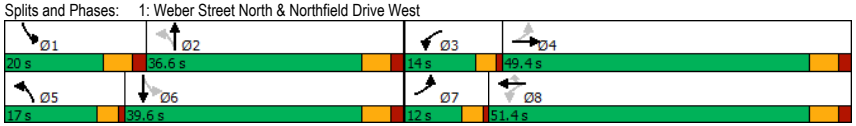




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 56.7 | 29.0 | | 21.9 | 40.4 | 9.1 | 37.6 | 39.7 | | 53.4 | 35.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 56.7 | 29.0 | | 21.9 | 40.4 | 9.1 | 37.6 | 39.7 | | 53.4 | 35.8 | |
| LOS | E | C | | C | D | A | D | D | | D | D | |
| Approach Delay | | 34.2 | | | 35.2 | | | 39.1 | | | 41.4 | |
| Approach LOS | | C | | | D | | | D | | | D | |
| Queue Length 50th (m) | 18.1 | 56.6 | | 21.8 | 141.8 | 6.9 | 30.3 | 56.7 | | 54.0 | 68.9 | |
| Queue Length 95th (m) | #53.1 | 74.1 | | 35.6 | 172.4 | 21.6 | #49.5 | 75.5 | | #94.5 | 91.3 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 170 | 1229 | | 348 | 1411 | 629 | 284 | 891 | | 357 | 1001 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.81 | 0.48 | | 0.47 | 0.85 | 0.25 | 0.69 | 0.58 | | 0.89 | 0.69 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.89 | | | |
| Intersection Signal Delay: 37.3 | | Intersection LOS: D | |
| Intersection Capacity Utilization 98.9% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 899 | 35 | 396 | 1522 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Future Volume (vph) | 3 | 899 | 35 | 396 | 1522 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.992 | | | | 0.850 | | 0.944 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3305 | 0 | 0 | 1592 | 1458 | 1537 | 1532 | 0 |
| Flt Permitted | 0.124 | | | 0.180 | | | | 0.802 | | 0.711 | | |
| Satd. Flow (perm) | 220 | 3282 | 0 | 313 | 3305 | 0 | 0 | 1292 | 1417 | 1133 | 1532 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 10 | | | | 330 | | 13 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 899 | 35 | 396 | 1522 | 91 | 51 | 19 | 498 | 62 | 22 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 934 | 0 | 396 | 1613 | 0 | 0 | 70 | 498 | 62 | 35 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.03 | 0.61 | | 0.98 | 0.75 | | | 0.19 | 0.79 | 0.20 | 0.08 | |

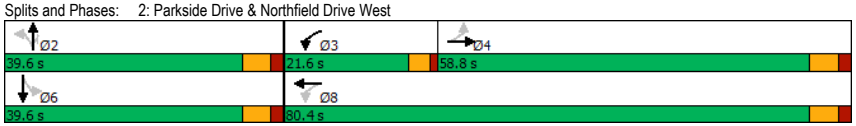




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.7 | 25.3 | | 59.4 | 16.6 | | | 33.8 | 22.7 | 34.1 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.7 | 25.3 | | 59.4 | 16.6 | | | 33.8 | 22.7 | 34.1 | 22.6 | |
| LOS | B | C | | E | B | | | C | C | C | C | |
| Approach Delay | | 25.3 | | | 25.1 | | | 24.1 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 84.4 | | 53.6 | 124.5 | | | 12.9 | 38.4 | 11.4 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 112.3 | | #125.3 | 168.0 | | | 25.4 | 85.9 | 23.4 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 102 | 1538 | | 405 | 2159 | | | 393 | 660 | 344 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.61 | | 0.98 | 0.75 | | | 0.18 | 0.75 | 0.18 | 0.07 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 117.1 | | |
| Natural Cycle: 100 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.98 | | |
| Intersection Signal Delay: 25.1 | | Intersection LOS: C |
| Intersection Capacity Utilization 123.2% | | ICU Level of Service H |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 67 | 802 | 118 | 231 | 764 | 34 | 212 | 10 | 193 | 100 | 29 | 259 |
| Future Volume (vph) | 67 | 802 | 118 | 231 | 764 | 34 | 212 | 10 | 193 | 100 | 29 | 259 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 0 | 0 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.99 | | | 0.99 | |
| Frt | | 0.981 | | | 0.994 | | | 0.937 | | | 0.910 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.975 | | | 0.987 | |
| Satd. Flow (prot) | 1653 | 3155 | 0 | 1547 | 3285 | 0 | 0 | 1388 | 0 | 0 | 1366 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | | 0.587 | | | 0.801 | |
| Satd. Flow (perm) | 1648 | 3155 | 0 | 1546 | 3285 | 0 | 0 | 835 | 0 | 0 | 1108 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 15 | | | 4 | | | 47 | | | 108 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 124.3 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.9 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 67 | 802 | 118 | 231 | 764 | 34 | 212 | 10 | 193 | 100 | 29 | 259 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 67 | 920 | 0 | 231 | 798 | 0 | 0 | 415 | 0 | 0 | 388 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 8.0 | 8.0 | | 8.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 14.0 | 14.0 | | 14.0 | 14.0 | |
| Total Split (s) | 13.0 | 46.0 | | 17.0 | 50.0 | | 54.0 | 54.0 | | 54.0 | 54.0 | |
| Total Split (%) | 11.1% | 39.3% | | 14.5% | 42.7% | | 46.2% | 46.2% | | 46.2% | 46.2% | |
| Maximum Green (s) | 8.0 | 40.0 | | 12.0 | 44.0 | | 48.0 | 48.0 | | 48.0 | 48.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | 10.0 | 10.0 | | 10.0 | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | 0 | 0 | | 0 | 0 | |
| Act Effct Green (s) | 8.6 | 42.0 | | 13.0 | 48.6 | | | 50.0 | | | 50.0 | |
| Actuated g/C Ratio | 0.07 | 0.36 | | 0.11 | 0.42 | | | 0.43 | | | 0.43 | |
| v/c Ratio | 0.55 | 0.81 | | 1.35 | 0.58 | | | 1.08 | | | 0.73 | |





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 69.6 | 39.8 | | 231.5 | 29.2 | | | 100.2 | | | 28.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | |
| Total Delay | 69.6 | 39.8 | | 231.5 | 29.2 | | | 100.2 | | | 28.8 | |
| LOS | E | D | | F | C | | | F | | | C | |
| Approach Delay | | 41.8 | | | 74.6 | | | 100.2 | | | 28.8 | |
| Approach LOS | | D | | | E | | | F | | | C | |
| Queue Length 50th (m) | 15.8 | 103.0 | | ~72.9 | 79.6 | | | ~105.4 | | | 56.2 | |
| Queue Length 95th (m) | #31.7 | 130.0 | | #124.1 | 101.1 | | | #169.8 | | | 98.8 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 100.3 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 127 | 1142 | | 171 | 1366 | | | 383 | | | 535 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | 0.53 | 0.81 | | 1.35 | 0.58 | | | 1.08 | | | 0.73 | |

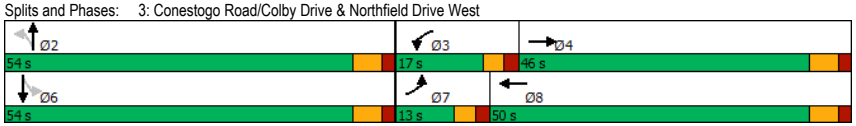
Intersection Summary

Area Type: Other
Cycle Length: 117
Actuated Cycle Length: 117
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 60.6 Intersection LOS: E
Intersection Capacity Utilization 112.5% ICU Level of Service H
Analysis Period (min) 15

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

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

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 188 | 573 | 203 | 239 | 532 | 70 | 284 | 381 | 168 | 107 | 445 | 195 |
| Future Volume (vph) | 188 | 573 | 203 | 239 | 532 | 70 | 284 | 381 | 168 | 107 | 445 | 195 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.99 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.961 | | | 0.983 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3125 | 0 | 3176 | 3225 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.307 | | | 0.950 | | | 0.312 | | | 0.351 | | |
| Satd. Flow (perm) | 536 | 3125 | 0 | 3136 | 3225 | 0 | 527 | 3127 | 0 | 599 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | 13 | | | 49 | | | | 195 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 188 | 573 | 203 | 239 | 532 | 70 | 284 | 381 | 168 | 107 | 445 | 195 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 188 | 776 | 0 | 239 | 602 | 0 | 284 | 549 | 0 | 107 | 445 | 195 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 49.7 | 36.8 | | 16.3 | 40.2 | | 51.4 | 37.9 | | 43.6 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.42 | 0.31 | | 0.14 | 0.34 | | 0.44 | 0.32 | | 0.37 | 0.28 | 0.28 |
| v/c Ratio | 0.54 | 0.77 | | 0.54 | 0.54 | | 0.77 | 0.53 | | 0.34 | 0.45 | 0.35 |

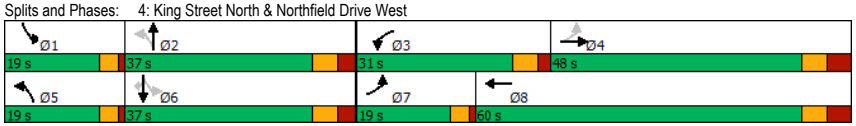




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.4 | 40.5 | | 52.8 | 32.2 | | 40.8 | 33.7 | | 25.1 | 37.7 | 7.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.4 | 40.5 | | 52.8 | 32.2 | | 40.8 | 33.7 | | 25.1 | 37.7 | 7.0 |
| LOS | C | D | | D | C | | D | C | | C | D | A |
| Approach Delay | | 37.2 | | | 38.1 | | | 36.1 | | | 27.9 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (m) | 25.4 | 84.9 | | 28.3 | 60.4 | | 46.2 | 52.4 | | 15.3 | 47.2 | 0.0 |
| Queue Length 95th (m) | 39.7 | 114.3 | | 43.9 | 79.6 | | #86.5 | 83.8 | | 31.3 | 70.7 | 19.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 382 | 1201 | | 734 | 1553 | | 369 | 1042 | | 379 | 1000 | 556 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.49 | 0.65 | | 0.33 | 0.39 | | 0.77 | 0.53 | | 0.28 | 0.45 | 0.35 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 117.5 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.77 | | |
| Intersection Signal Delay: 35.1 | | Intersection LOS: D |
| Intersection Capacity Utilization 83.2% | | ICU Level of Service E |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |
| Future Volume (vph) | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.912 | | | 0.994 | | | 0.997 | |
| Flt Protected | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1297 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Flt Permitted | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1297 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 46.9 | | | 55.7 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.4 | | | 4.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 9 | 0 | 0 | 46 | 0 | 0 | 230 | 0 | 0 | 173 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |
| Future Vol, veh/h | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 9 | 0 | 0 | 16 | 0 | 30 | 0 | 219 | 11 | 12 | 157 | 4 |

| Major/Minor | Minor2 | | | Minor1 | | | | Major1 | | | Major2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 423 | 413 | 159 | 408 | 410 | 225 | 161 | 0 | 0 | 230 | 0 | 0 |
| Stage 1 | 183 | 183 | - | 225 | 225 | - | - | - | - | - | - | - |
| Stage 2 | 240 | 230 | - | 183 | 185 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 545 | 532 | 892 | 557 | 534 | 792 | 1430 | - | - | 1298 | - | - |
| Stage 1 | 823 | 752 | - | 782 | 721 | - | - | - | - | - | - | - |
| Stage 2 | 768 | 718 | - | 823 | 751 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 520 | 527 | 892 | 553 | 529 | 792 | 1430 | - | - | 1298 | - | - |
| Mov Cap-2 Maneuver | 520 | 527 | - | 553 | 529 | - | - | - | - | - | - | - |
| Stage 1 | 823 | 744 | - | 782 | 721 | - | - | - | - | - | - | - |
| Stage 2 | 739 | 718 | - | 815 | 743 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 12 | 10.6 | 0 | 0.5 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1430 | - | - | 520 | 689 | 1298 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.017 | 0.067 | 0.009 | - | - |
| HCM Control Delay (s) | 0 | - | - | 12 | 10.6 | 7.8 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 39 | 63 | 349 | 332 | 10 | 63 | 228 | 766 | 387 | 76 | 857 | 33 |
| Future Volume (vph) | 39 | 63 | 349 | 332 | 10 | 63 | 228 | 766 | 387 | 76 | 857 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 0.98 | | 0.99 | 0.99 | | | | 0.97 | 0.99 | 1.00 | |
| Frt | | 0.873 | | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 1407 | 0 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | 0.709 | | | 0.950 | | | 0.166 | | | 0.950 | | |
| Satd. Flow (perm) | 1256 | 1407 | 0 | 3116 | 1339 | 0 | 295 | 3539 | 1443 | 1596 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | 229 | | | 63 | | | | | | 4 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 39 | 63 | 349 | 332 | 10 | 63 | 228 | 766 | 387 | 76 | 857 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 39 | 412 | 0 | 332 | 73 | 0 | 228 | 766 | 387 | 76 | 890 | 0 |
| Turn Type | Perm | NA | | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 38.0 | 38.0 | | 15.0 | 53.0 | | 19.0 | 51.0 | 15.0 | 16.0 | 48.0 | |
| Total Split (%) | 31.7% | 31.7% | | 12.5% | 44.2% | | 15.8% | 42.5% | 12.5% | 13.3% | 40.0% | |
| Maximum Green (s) | 31.0 | 31.0 | | 9.0 | 46.0 | | 15.0 | 44.0 | 9.0 | 11.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | -3.0 | -3.0 | | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 24.2 | 24.2 | | 11.1 | 39.3 | | 60.5 | 49.9 | 61.0 | 10.4 | 44.8 | |
| Actuated g/C Ratio | 0.22 | 0.22 | | 0.10 | 0.36 | | 0.55 | 0.46 | 0.56 | 0.10 | 0.41 | |
| v/c Ratio | 0.14 | 0.84 | | 1.04 | 0.14 | | 0.70 | 0.47 | 0.48 | 0.50 | 0.66 | |



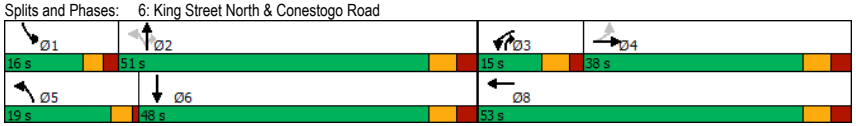


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 34.4 | 33.6 | | 109.8 | 7.7 | | 26.7 | 24.2 | 17.7 | 60.7 | 30.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 34.4 | 33.6 | | 109.8 | 7.7 | | 26.7 | 24.2 | 17.7 | 60.7 | 30.4 | |
| LOS | C | C | | F | A | | C | C | B | E | C | |
| Approach Delay | | 33.7 | | | 91.4 | | | 22.8 | | | 32.8 | |
| Approach LOS | | C | | | F | | | C | | | C | |
| Queue Length 50th (m) | 7.1 | 41.6 | | ~43.0 | 1.4 | | 24.8 | 66.2 | 49.8 | 16.6 | 85.5 | |
| Queue Length 95th (m) | 16.4 | 83.3 | | #80.2 | 11.0 | | #52.0 | 96.5 | 89.1 | 34.8 | 124.6 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | 25.0 | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | 394 | 599 | | 320 | 641 | | 358 | 1618 | 811 | 178 | 1351 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.10 | 0.69 | | 1.04 | 0.11 | | 0.64 | 0.47 | 0.48 | 0.43 | 0.66 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 109.1 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.04 | | | |
| Intersection Signal Delay: 36.0 | | Intersection LOS: D | |
| Intersection Capacity Utilization 92.5% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

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

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 196 | 857 | 613 | 132 | 0 | 1557 |
| Future Volume (vph) | 196 | 857 | 613 | 132 | 0 | 1557 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.973 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1615 | 3452 | 0 | 1900 | 3610 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1591 | 3452 | 0 | 1900 | 3610 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 268 | 34 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 3 | | 38 | 38 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 4% | 0% | 0% |
| Adj. Flow (vph) | 213 | 932 | 666 | 143 | 0 | 1692 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 213 | 932 | 809 | 0 | 0 | 1692 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.20 | 1.37 | 0.38 | | | 0.76 |



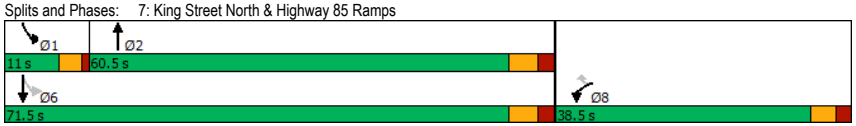


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.2 | 198.3 | 10.8 | | | 18.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.2 | 198.3 | 10.8 | | | 18.4 |
| LOS | C | F | B | | | B |
| Approach Delay | 166.7 | | 10.8 | | | 18.4 |
| Approach LOS | F | | B | | | B |
| Queue Length 50th (m) | 18.0 | ~235.6 | 42.9 | | | 135.8 |
| Queue Length 95th (m) | 27.5 | #314.8 | 55.2 | | | 166.0 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1087 | 682 | 2131 | | | 2215 |
| 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 | 1.37 | 0.38 | | | 0.76 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 135 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.37 | | | |
| Intersection Signal Delay: 63.3 | | Intersection LOS: E | |
| Intersection Capacity Utilization 105.5% | | ICU Level of Service G | |
| Analysis Period (min) 15 | | | |

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

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 916 | 373 | 22 | 1012 | 853 |
| Future Volume (vph) | 23 | 1 | 191 | 162 | 0 | 289 | 0 | 916 | 373 | 22 | 1012 | 853 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1553 | 1787 | 0 | 1615 | 0 | 3539 | 1583 | 1805 | 3539 | 1553 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.248 | | |
| Satd. Flow (perm) | 1800 | 1900 | 1485 | 1378 | 0 | 1591 | 0 | 3539 | 1542 | 471 | 3539 | 1502 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 58 | | | 80 | | | 405 | | | 927 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 996 | 405 | 24 | 1100 | 927 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 25 | 1 | 208 | 176 | 0 | 314 | 0 | 996 | 405 | 24 | 1100 | 927 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 49.5 | 49.5 | 49.5 | 49.5 | | 49.5 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (%) | 45.0% | 45.0% | 45.0% | 45.0% | | 45.0% | | 55.0% | 55.0% | 55.0% | 55.0% | 55.0% |
| Maximum Green (s) | 42.8 | 42.8 | 42.8 | 42.8 | | 42.8 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 21.0 | 21.0 | 21.0 | 21.0 | | 21.0 | | 56.7 | 56.7 | 56.7 | 56.7 | 56.7 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.24 | 0.24 | | 0.24 | | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| v/c Ratio | 0.06 | 0.00 | 0.51 | 0.52 | | 0.70 | | 0.43 | 0.35 | 0.08 | 0.47 | 0.71 |

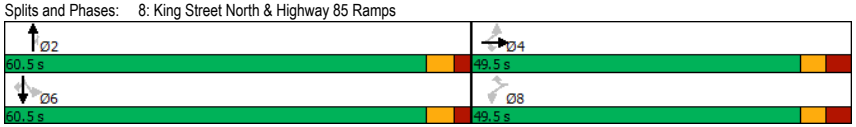




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.8 | 23.0 | 23.9 | 33.5 | | 30.2 | | 8.3 | 1.8 | 7.7 | 8.8 | 4.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.8 | 23.0 | 23.9 | 33.5 | | 30.2 | | 8.3 | 1.8 | 7.7 | 8.8 | 4.1 |
| LOS | C | C | C | C | | C | | A | A | A | A | A |
| Approach Delay | | 23.9 | | | 31.3 | | | 6.4 | | | 6.7 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 3.3 | 0.1 | 21.8 | 26.2 | | 36.6 | | 37.2 | 0.0 | 1.3 | 42.7 | 0.0 |
| Queue Length 95th (m) | 9.2 | 1.3 | 42.3 | 45.5 | | 64.4 | | 67.2 | 11.3 | 5.6 | 77.0 | 15.2 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 958 | 1011 | 817 | 733 | | 884 | | 2340 | 1156 | 311 | 2340 | 1307 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.03 | 0.00 | 0.25 | 0.24 | | 0.36 | | 0.43 | 0.35 | 0.08 | 0.47 | 0.71 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 85.8 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 10.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 142 | 0 | 0 | 257 | 174 | 201 |
| Future Volume (vph) | 142 | 0 | 0 | 257 | 174 | 201 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.928 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1410 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1410 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 47.0 | | | 55.7 | 124.3 | |
| Travel Time (s) | 3.4 | | | 4.0 | 8.9 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 154 | 0 | 0 | 279 | 189 | 218 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 154 | 0 | 0 | 279 | 407 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 142 | 0 | 0 | 257 | 174 | 201 |
| Future Vol, veh/h | 142 | 0 | 0 | 257 | 174 | 201 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 154 | 0 | 0 | 279 | 189 | 218 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 577 | 298 | 407 | 0 | - | 0 |
| Stage 1 | 298 | - | - | - | - | - |
| Stage 2 | 279 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 478 | 741 | 1152 | - | - | - |
| Stage 1 | 753 | - | - | - | - | - |
| Stage 2 | 768 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 478 | 741 | 1152 | - | - | - |
| Mov Cap-2 Maneuver | 478 | - | - | - | - | - |
| Stage 1 | 753 | - | - | - | - | - |
| Stage 2 | 768 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 16.1 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1152 | - | 478 | - | - |
| HCM Lane V/C Ratio | - | - | 0.323 | - | - |
| HCM Control Delay (s) | 0 | - | 16.1 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 56 | 97 | 141 | 173 | 96 | 78 |
| Future Volume (vph) | 56 | 97 | 141 | 173 | 96 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.915 | | | | 0.939 | |
| Flt Protected | 0.982 | | | 0.978 | | |
| Satd. Flow (prot) | 1674 | 0 | 0 | 1822 | 1749 | 0 |
| Flt Permitted | 0.982 | | | 0.978 | | |
| Satd. Flow (perm) | 1674 | 0 | 0 | 1822 | 1749 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 52.7 | | | 47.0 | 46.9 | |
| Travel Time (s) | 3.8 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 61 | 105 | 153 | 188 | 104 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 166 | 0 | 0 | 341 | 189 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 45.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 4.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 56 | 97 | 141 | 173 | 96 | 78 |
| Future Vol, veh/h | 56 | 97 | 141 | 173 | 96 | 78 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 61 | 105 | 153 | 188 | 104 | 85 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 641 | 147 | 189 | 0 | - | 0 |
| Stage 1 | 147 | - | - | - | - | - |
| Stage 2 | 494 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 439 | 900 | 1385 | - | - | - |
| Stage 1 | 880 | - | - | - | - | - |
| Stage 2 | 613 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 385 | 900 | 1385 | - | - | - |
| Mov Cap-2 Maneuver | 385 | - | - | - | - | - |
| Stage 1 | 772 | - | - | - | - | - |
| Stage 2 | 613 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.2 | 3.6 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1385 | - | 604 | - | - |
| HCM Lane V/C Ratio | 0.111 | - | 0.275 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 13.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | 1.1 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 28 | 20 | 4 | 284 | 186 | 6 |
| Future Volume (vph) | 28 | 20 | 4 | 284 | 186 | 6 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.943 | | | | 0.995 | |
| Flt Protected | 0.972 | | | 0.999 | | |
| Satd. Flow (prot) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Flt Permitted | 0.972 | | | 0.999 | | |
| Satd. Flow (perm) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 41.2 | | | 47.9 | 47.0 | |
| Travel Time (s) | 3.0 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 30 | 22 | 4 | 309 | 202 | 7 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 52 | 0 | 0 | 313 | 209 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.3% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 28 | 20 | 4 | 284 | 186 | 6 |
| Future Vol, veh/h | 28 | 20 | 4 | 284 | 186 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 30 | 22 | 4 | 309 | 202 | 7 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 523 | 206 | 209 | 0 | - | 0 |
| Stage 1 | 206 | - | - | - | - | - |
| Stage 2 | 317 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 514 | 835 | 1362 | - | - | - |
| Stage 1 | 829 | - | - | - | - | - |
| Stage 2 | 738 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 512 | 835 | 1362 | - | - | - |
| Mov Cap-2 Maneuver | 512 | - | - | - | - | - |
| Stage 1 | 826 | - | - | - | - | - |
| Stage 2 | 738 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.5 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1362 | - | 610 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | 0.086 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 11.5 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 11 | 23 | 5 | 279 | 204 | 2 |
| Future Volume (vph) | 11 | 23 | 5 | 279 | 204 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.909 | | | | 0.999 | |
| Flt Protected | 0.984 | | | 0.999 | | |
| Satd. Flow (prot) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Flt Permitted | 0.984 | | | 0.999 | | |
| Satd. Flow (perm) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 54.7 | | | 43.4 | 47.9 | |
| Travel Time (s) | 3.9 | | | 3.1 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 25 | 5 | 303 | 222 | 2 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 37 | 0 | 0 | 308 | 224 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 28.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 23 | 5 | 279 | 204 | 2 |
| Future Vol, veh/h | 11 | 23 | 5 | 279 | 204 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 25 | 5 | 303 | 222 | 2 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 536 | 223 | 224 | 0 | - | 0 |
| Stage 1 | 223 | - | - | - | - | - |
| Stage 2 | 313 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 505 | 817 | 1345 | - | - | - |
| Stage 1 | 814 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 503 | 817 | 1345 | - | - | - |
| Mov Cap-2 Maneuver | 503 | - | - | - | - | - |
| Stage 1 | 811 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.6 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1345 | - | 680 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.054 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.6 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 23 | 5 | 279 | 226 | 1 |
| Future Volume (vph) | 4 | 23 | 5 | 279 | 226 | 1 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.884 | | | | 0.999 | |
| Flt Protected | 0.993 | | | 0.999 | | |
| Satd. Flow (prot) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Flt Permitted | 0.993 | | | 0.999 | | |
| Satd. Flow (perm) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 38.7 | | | 145.4 | 43.4 | |
| Travel Time (s) | 2.8 | | | 10.5 | 3.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 25 | 5 | 303 | 246 | 1 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 29 | 0 | 0 | 308 | 247 | 0 |
| Sign Control | Stop | | | Free | Free | |

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





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 23 | 5 | 279 | 226 | 1 |
| Future Vol, veh/h | 4 | 23 | 5 | 279 | 226 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 25 | 5 | 303 | 246 | 1 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 560 | 247 | 247 | 0 | - | 0 |
| Stage 1 | 247 | - | - | - | - | - |
| Stage 2 | 313 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 489 | 792 | 1319 | - | - | - |
| Stage 1 | 794 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 487 | 792 | 1319 | - | - | - |
| Mov Cap-2 Maneuver | 487 | - | - | - | - | - |
| Stage 1 | 790 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1319 | - | 725 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.04 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

# Appendix M

## 2032 Total Traffic Operations Report with Improvements

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 214 | 879 | 137 | 105 | 423 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Future Volume (vph) | 214 | 879 | 137 | 105 | 423 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | | 0.98 | 0.99 | 0.99 | | 1.00 | 1.00 | |
| Frt | | 0.980 | | | | 0.850 | | 0.950 | | | 0.987 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3258 | 0 | 1670 | 3438 | 1430 | 1653 | 3036 | 0 | 1561 | 3172 | 0 |
| Flt Permitted | 0.375 | | | 0.117 | | | 0.506 | | | 0.436 | | |
| Satd. Flow (perm) | 657 | 3258 | 0 | 205 | 3438 | 1403 | 869 | 3036 | 0 | 715 | 3172 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 17 | | | | 191 | | 70 | | | 9 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 8 | | 11 | 11 | | 8 | 20 | | 3 | 3 | | 20 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 1% | 2% | 1% | 5% | 4% | 2% | 6% | 3% | 8% | 4% | 11% |
| Adj. Flow (vph) | 214 | 879 | 137 | 105 | 423 | 117 | 54 | 210 | 105 | 180 | 384 | 37 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 214 | 1016 | 0 | 105 | 423 | 117 | 54 | 315 | 0 | 180 | 421 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 16.8 | 49.2 | | 12.0 | 44.4 | 44.4 | 10.8 | 36.0 | | 22.8 | 48.0 | |
| Total Split (%) | 14.0% | 41.0% | | 10.0% | 37.0% | 37.0% | 9.0% | 30.0% | | 19.0% | 40.0% | |
| Maximum Green (s) | 12.8 | 43.2 | | 8.0 | 38.4 | 38.4 | 6.8 | 30.0 | | 16.8 | 42.0 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 56.7 | 45.2 | | 48.6 | 40.9 | 40.9 | 40.2 | 33.7 | | 53.2 | 44.7 | |
| Actuated g/C Ratio | 0.48 | 0.38 | | 0.41 | 0.35 | 0.35 | 0.34 | 0.29 | | 0.45 | 0.38 | |
| v/c Ratio | 0.51 | 0.81 | | 0.59 | 0.36 | 0.19 | 0.16 | 0.34 | | 0.42 | 0.35 | |

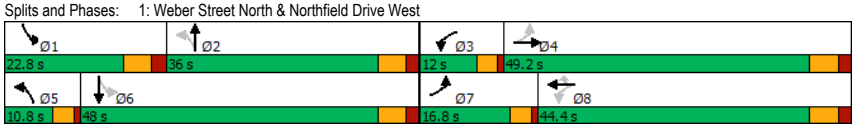




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.4 | 38.5 | | 32.6 | 30.4 | 0.8 | 20.6 | 27.4 | | 23.4 | 27.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 23.4 | 38.5 | | 32.6 | 30.4 | 0.8 | 20.6 | 27.4 | | 23.4 | 27.3 | |
| LOS | C | D | | C | C | A | C | C | | C | C | |
| Approach Delay | | 35.9 | | | 25.4 | | | 26.4 | | | 26.2 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Queue Length 50th (m) | 31.0 | 116.6 | | 14.2 | 41.5 | 0.0 | 7.4 | 24.7 | | 26.8 | 38.8 | |
| Queue Length 95th (m) | 48.3 | 145.2 | | 26.0 | 56.0 | 0.3 | 15.2 | 39.3 | | 43.2 | 53.0 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 426 | 1257 | | 184 | 1189 | 610 | 342 | 915 | | 457 | 1205 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.50 | 0.81 | | 0.57 | 0.36 | 0.19 | 0.16 | 0.34 | | 0.39 | 0.35 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 118.2 | | | |
| Natural Cycle: 105 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.81 | | | |
| Intersection Signal Delay: 30.2 | | Intersection LOS: C | |
| Intersection Capacity Utilization 93.7% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 1190 | 27 | 308 | 571 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Future Volume (vph) | 1 | 1190 | 27 | 308 | 571 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.96 | 0.97 | 1.00 | |
| Frt | | 0.997 | | | 0.981 | | | | 0.850 | | 0.994 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.960 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3265 | 0 | 1621 | 3210 | 0 | 0 | 1584 | 1430 | 1507 | 1639 | 0 |
| Flt Permitted | 0.403 | | | 0.113 | | | | 0.840 | | 0.746 | | |
| Satd. Flow (perm) | 714 | 3265 | 0 | 193 | 3210 | 0 | 0 | 1383 | 1376 | 1153 | 1639 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 36 | | | | 316 | | 1 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 3 | | 2 | 2 | | 3 | 2 | | 22 | 22 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 3% | 1% | 0% | 0% | 4% | 4% | 0% | 0% |
| Adj. Flow (vph) | 1 | 1190 | 27 | 308 | 571 | 83 | 14 | 3 | 316 | 70 | 25 | 1 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 1 | 1217 | 0 | 308 | 654 | 0 | 0 | 17 | 316 | 70 | 26 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 56.0 | 56.0 | | 36.0 | 92.0 | | 28.0 | 28.0 | 28.0 | 28.0 | 28.0 | |
| Total Split (%) | 46.7% | 46.7% | | 30.0% | 76.7% | | 23.3% | 23.3% | 23.3% | 23.3% | 23.3% | |
| Maximum Green (s) | 50.0 | 50.0 | | 32.0 | 86.0 | | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 61.5 | 61.5 | | 88.0 | 88.0 | | | 24.0 | 24.0 | 24.0 | 24.0 | |
| Actuated g/C Ratio | 0.51 | 0.51 | | 0.73 | 0.73 | | | 0.20 | 0.20 | 0.20 | 0.20 | |
| v/c Ratio | 0.00 | 0.73 | | 0.75 | 0.28 | | | 0.06 | 0.60 | 0.30 | 0.08 | |

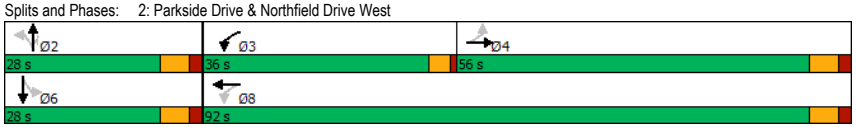




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.0 | 27.3 | | 32.1 | 5.4 | | | 39.8 | 9.7 | 45.2 | 38.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.0 | 27.3 | | 32.1 | 5.4 | | | 39.8 | 9.7 | 45.2 | 38.8 | |
| LOS | B | C | | C | A | | | D | A | D | D | |
| Approach Delay | | 27.3 | | | 13.9 | | | 11.2 | | | 43.5 | |
| Approach LOS | | C | | | B | | | B | | | D | |
| Queue Length 50th (m) | 0.1 | 119.2 | | 42.6 | 23.3 | | | 3.4 | 0.0 | 14.9 | 5.1 | |
| Queue Length 95th (m) | 1.3 | 172.6 | | 70.5 | 30.4 | | | 10.2 | 26.4 | 29.6 | 13.3 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 366 | 1674 | | 522 | 2363 | | | 276 | 528 | 230 | 328 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.00 | 0.73 | | 0.59 | 0.28 | | | 0.06 | 0.60 | 0.30 | 0.08 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 120 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.75 | | | |
| Intersection Signal Delay: 20.9 | | Intersection LOS: C | |
| Intersection Capacity Utilization 115.0% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 113 | 616 | 126 | 121 | 597 | 80 | 100 | 15 | 256 | 58 | 9 | 46 |
| Future Volume (vph) | 113 | 616 | 126 | 121 | 597 | 80 | 100 | 15 | 256 | 58 | 9 | 46 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Frt | | 0.975 | | | 0.982 | | | 0.858 | | | 0.875 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3165 | 0 | 1519 | 3136 | 0 | 1402 | 1128 | 0 | 1327 | 1266 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.702 | | | 0.360 | | |
| Satd. Flow (perm) | 1652 | 3165 | 0 | 1518 | 3136 | 0 | 1035 | 1128 | 0 | 502 | 1266 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 17 | | | 256 | | | 46 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 111.9 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.1 | | | 16.3 | |
| Confl. Peds. (#/hr) | 1 | | 2 | 2 | | 1 | 1 | | 1 | 1 | | 1 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 6% | 11% | 5% | 8% | 5% | 7% | 17% | 11% | 11% | 5% |
| Adj. Flow (vph) | 113 | 616 | 126 | 121 | 597 | 80 | 100 | 15 | 256 | 58 | 9 | 46 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 113 | 742 | 0 | 121 | 677 | 0 | 100 | 271 | 0 | 58 | 55 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 5.0 | 8.0 | | 5.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 9.5 | 14.0 | | 9.5 | 14.0 | |
| Total Split (s) | 17.0 | 46.0 | | 17.0 | 46.0 | | 11.4 | 28.0 | | 11.0 | 27.6 | |
| Total Split (%) | 16.7% | 45.1% | | 16.7% | 45.1% | | 11.2% | 27.5% | | 10.8% | 27.1% | |
| Maximum Green (s) | 12.0 | 40.0 | | 12.0 | 40.0 | | 7.4 | 22.0 | | 7.0 | 21.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 1.0 | 2.0 | | 1.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | 0.0 | -2.0 | | 0.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | | 10.0 | | | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 11.2 | 42.5 | | 11.7 | 45.9 | | 19.1 | 13.4 | | 18.5 | 13.1 | |
| Actuated g/C Ratio | 0.13 | 0.48 | | 0.13 | 0.52 | | 0.22 | 0.15 | | 0.21 | 0.15 | |
| v/c Ratio | 0.54 | 0.48 | | 0.60 | 0.41 | | 0.39 | 0.70 | | 0.35 | 0.24 | |

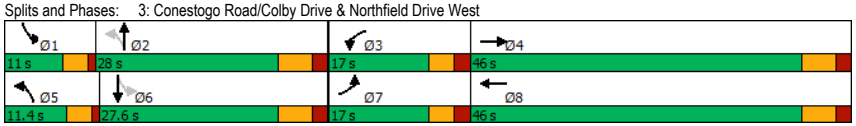




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 48.1 | 17.7 | | 51.5 | 16.5 | | 31.2 | 16.1 | | 31.1 | 15.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 48.1 | 17.7 | | 51.5 | 16.5 | | 31.2 | 16.1 | | 31.1 | 15.4 | |
| LOS | D | B | | D | B | | C | B | | C | B | |
| Approach Delay | | 21.7 | | | 21.8 | | | 20.2 | | | 23.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 18.9 | 43.7 | | 20.3 | 38.8 | | 14.6 | 2.4 | | 8.2 | 1.5 | |
| Queue Length 95th (m) | 40.4 | 76.4 | | #46.9 | 69.6 | | 27.7 | 27.6 | | 17.9 | 11.8 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 87.9 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 246 | 1540 | | 226 | 1639 | | 254 | 495 | | 171 | 376 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.46 | 0.48 | | 0.54 | 0.41 | | 0.39 | 0.55 | | 0.34 | 0.15 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 102 | | |
| Actuated Cycle Length: 88.2 | | |
| Natural Cycle: 80 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.70 | | |
| Intersection Signal Delay: 21.6 | | Intersection LOS: C |
| Intersection Capacity Utilization 78.6% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 152 | 431 | 245 | 222 | 345 | 60 | 179 | 331 | 142 | 99 | 266 | 93 |
| Future Volume (vph) | 152 | 431 | 245 | 222 | 345 | 60 | 179 | 331 | 142 | 99 | 266 | 93 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | 0.99 | | 1.00 | 1.00 | | | 0.99 | | 1.00 | | |
| Frt | | 0.946 | | | 0.978 | | | 0.955 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1606 | 2980 | 0 | 2974 | 3107 | 0 | 1506 | 2966 | 0 | 1653 | 3406 | 1390 |
| Flt Permitted | 0.478 | | | 0.950 | | | 0.486 | | | 0.409 | | |
| Satd. Flow (perm) | 808 | 2980 | 0 | 2966 | 3107 | 0 | 770 | 2966 | 0 | 709 | 3406 | 1390 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 87 | | | 18 | | | 47 | | | | 154 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | | | 7 | 7 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 5% | 5% | 9% | 10% | 7% | 0% | 12% | 4% | 17% | 2% | 6% | 7% |
| Adj. Flow (vph) | 152 | 431 | 245 | 222 | 345 | 60 | 179 | 331 | 142 | 99 | 266 | 93 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 152 | 676 | 0 | 222 | 405 | 0 | 179 | 473 | 0 | 99 | 266 | 93 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 44.1 | 32.3 | | 15.8 | 36.4 | | 49.6 | 36.8 | | 43.1 | 33.4 | 33.4 |
| Actuated g/C Ratio | 0.40 | 0.29 | | 0.14 | 0.33 | | 0.45 | 0.33 | | 0.39 | 0.30 | 0.30 |
| v/c Ratio | 0.37 | 0.73 | | 0.52 | 0.39 | | 0.42 | 0.47 | | 0.28 | 0.26 | 0.18 |

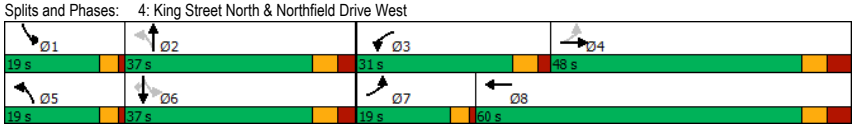




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 20.0 | 35.7 | | 50.0 | 28.5 | | 24.1 | 30.1 | | 22.3 | 32.5 | 1.1 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 20.0 | 35.7 | | 50.0 | 28.5 | | 24.1 | 30.1 | | 22.3 | 32.5 | 1.1 |
| LOS | B | D | | D | C | | C | C | | C | C | A |
| Approach Delay | | 32.8 | | | 36.1 | | | 28.5 | | | 24.0 | |
| Approach LOS | | C | | | D | | | C | | | C | |
| Queue Length 50th (m) | 20.1 | 64.7 | | 24.5 | 36.2 | | 24.2 | 39.3 | | 12.5 | 24.3 | 0.0 |
| Queue Length 95th (m) | 32.7 | 91.6 | | 41.0 | 51.6 | | 50.5 | 70.6 | | 29.0 | 42.8 | 1.0 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 455 | 1249 | | 733 | 1598 | | 447 | 1015 | | 437 | 1026 | 526 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.33 | 0.54 | | 0.30 | 0.25 | | 0.40 | 0.47 | | 0.23 | 0.26 | 0.18 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 110.8 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.73 | | |
| Intersection Signal Delay: 30.9 | | Intersection LOS: C |
| Intersection Capacity Utilization 73.8% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |

Splits and Phases: 4: King Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |
| Future Volume (vph) | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.918 | | | 0.993 | | | 0.989 | |
| Flt Protected | | 0.950 | | | 0.981 | | | | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1331 | 0 | 0 | 1469 | 0 | 0 | 1433 | 0 |
| Flt Permitted | | 0.950 | | | 0.981 | | | | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1331 | 0 | 0 | 1469 | 0 | 0 | 1433 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 52.3 | | | 68.1 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.8 | | | 4.9 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 5% | 0% | 9% | 7% | 0% |
| Adj. Flow (vph) | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 8 | 0 | 0 | 23 | 0 | 0 | 201 | 0 | 0 | 156 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 30.7% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |
| Future Vol, veh/h | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 5 | 0 | 9 | 7 | 0 |
| Mvmt Flow | 8 | 0 | 0 | 9 | 0 | 14 | 0 | 191 | 10 | 11 | 132 | 13 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 364 | 362 | 139 | 357 | 363 | 196 | 145 | 0 | 0 | 201 | 0 | 0 |
| Stage 1 | 161 | 161 | - | 196 | 196 | - | - | - | - | - | - | - |
| Stage 2 | 203 | 201 | - | 161 | 167 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.28 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.372 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 596 | 569 | 915 | 602 | 568 | 830 | 1450 | - | - | 1330 | - | - |
| Stage 1 | 846 | 769 | - | 810 | 742 | - | - | - | - | - | - | - |
| Stage 2 | 804 | 739 | - | 846 | 764 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 582 | 564 | 915 | 598 | 563 | 830 | 1450 | - | - | 1330 | - | - |
| Mov Cap-2 Maneuver | 582 | 564 | - | 598 | 563 | - | - | - | - | - | - | - |
| Stage 1 | 846 | 762 | - | 810 | 742 | - | - | - | - | - | - | - |
| Stage 2 | 790 | 739 | - | 838 | 757 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.3 | 10.2 | 0 | 0.5 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1450 | - | - | 582 | 721 | 1330 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.014 | 0.032 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.3 | 10.2 | 7.7 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 28 | 12 | 204 | 201 | 29 | 29 | 266 | 651 | 226 | 27 | 544 | 52 |
| Future Volume (vph) | 28 | 12 | 204 | 201 | 29 | 29 | 266 | 651 | 226 | 27 | 544 | 52 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | 1.00 | 0.98 | 0.99 | 0.99 | | 1.00 | | 0.97 | 0.99 | 1.00 | |
| Frt | | | 0.850 | | 0.925 | | | | 0.850 | | 0.987 | |
| Flt Protected | | 0.966 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1480 | 1336 | 3057 | 1347 | 0 | 1653 | 3471 | 1444 | 1249 | 3143 | 0 |
| Flt Permitted | | 0.777 | | 0.950 | | | 0.328 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1189 | 1307 | 3012 | 1347 | 0 | 570 | 3471 | 1403 | 1241 | 3143 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | | 204 | | 29 | | | | | | 11 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 11% | 0% | 5% | 7% | 0% | 25% | 2% | 4% | 3% | 35% | 6% | 2% |
| Adj. Flow (vph) | 28 | 12 | 204 | 201 | 29 | 29 | 266 | 651 | 226 | 27 | 544 | 52 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 40 | 204 | 201 | 58 | 0 | 266 | 651 | 226 | 27 | 596 | 0 |
| Turn Type | Perm | NA | Perm | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | 4 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | 17.0 | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 32.0 | 32.0 | 32.0 | 18.0 | 50.0 | | 14.0 | 47.0 | 18.0 | 15.0 | 48.0 | |
| Total Split (%) | 28.6% | 28.6% | 28.6% | 16.1% | 44.6% | | 12.5% | 42.0% | 16.1% | 13.4% | 42.9% | |
| Maximum Green (s) | 25.0 | 25.0 | 25.0 | 12.0 | 43.0 | | 10.0 | 40.0 | 12.0 | 10.0 | 41.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | 3.0 | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | | -3.0 | 0.0 | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | | 4.0 | 7.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | 7.0 | 7.0 | 7.0 | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | 11.0 | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | | 13.9 | 10.9 | 12.8 | 30.7 | | 56.4 | 52.5 | 65.3 | 8.5 | 44.0 | |
| Actuated g/C Ratio | | 0.14 | 0.11 | 0.13 | 0.32 | | 0.58 | 0.54 | 0.67 | 0.09 | 0.45 | |
| v/c Ratio | | 0.23 | 0.62 | 0.50 | 0.13 | | 0.60 | 0.35 | 0.24 | 0.25 | 0.42 | |

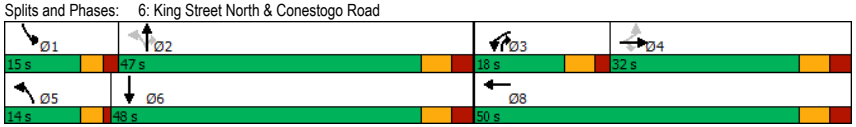




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | | 40.8 | 14.9 | 43.8 | 14.4 | | 16.8 | 14.9 | 7.0 | 47.0 | 18.8 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 40.8 | 14.9 | 43.8 | 14.4 | | 16.8 | 14.9 | 7.0 | 47.0 | 18.8 | |
| LOS | | D | B | D | B | | B | B | A | D | B | |
| Approach Delay | | 19.1 | | | 37.2 | | | 13.8 | | | 20.1 | |
| Approach LOS | | B | | | D | | | B | | | C | |
| Queue Length 50th (m) | | 7.2 | 0.0 | 18.9 | 4.0 | | 23.0 | 30.5 | 8.9 | 5.0 | 39.2 | |
| Queue Length 95th (m) | | 17.3 | 21.5 | 31.8 | 13.0 | | 41.9 | 65.4 | 33.9 | 14.0 | 58.9 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | | 344 | 489 | 442 | 655 | | 444 | 1881 | 969 | 142 | 1435 | |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | | 0.12 | 0.42 | 0.45 | 0.09 | | 0.60 | 0.35 | 0.23 | 0.19 | 0.42 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 96.8 | | | |
| Natural Cycle: 65 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.62 | | | |
| Intersection Signal Delay: 18.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 56.5% | | ICU Level of Service B | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 222 | 826 | 331 | 98 | 0 | 784 |
| Future Volume (vph) | 222 | 826 | 331 | 98 | 0 | 784 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.966 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3502 | 1615 | 3304 | 0 | 1881 | 3539 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3502 | 1594 | 3304 | 0 | 1881 | 3539 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 480 | 47 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 1 | | 3 | 3 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 2% | 15% | 1% | 2% |
| Adj. Flow (vph) | 241 | 898 | 360 | 107 | 0 | 852 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 241 | 898 | 467 | 0 | 0 | 852 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 49.0 | | 5.0 | 49.0 |
| Minimum Split (s) | 15.4 | 15.4 | 55.0 | | 9.0 | 55.0 |
| Total Split (s) | 44.0 | 44.0 | 55.0 | | 11.0 | 66.0 |
| Total Split (%) | 40.0% | 40.0% | 50.0% | | 10.0% | 60.0% |
| Maximum Green (s) | 38.6 | 38.6 | 49.0 | | 7.0 | 60.0 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 37.0 | | | 37.0 |
| Flash Dont Walk (s) | 28.6 | 28.6 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 40.0 | 40.0 | 62.0 | | | 62.0 |
| Actuated g/C Ratio | 0.36 | 0.36 | 0.56 | | | 0.56 |
| v/c Ratio | 0.19 | 1.01 | 0.25 | | | 0.43 |



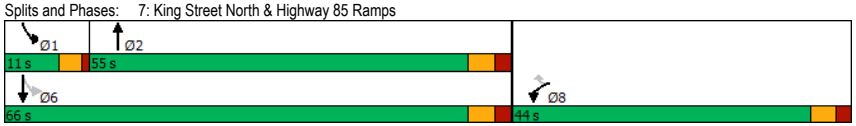


| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 24.4 | 51.3 | 11.2 | | | 14.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 24.4 | 51.3 | 11.2 | | | 14.6 |
| LOS | C | D | B | | | B |
| Approach Delay | 45.6 | | 11.2 | | | 14.6 |
| Approach LOS | D | | B | | | B |
| Queue Length 50th (m) | 18.9 | ~129.0 | 23.6 | | | 55.1 |
| Queue Length 95th (m) | 28.3 | #218.9 | 33.0 | | | 69.7 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1273 | 885 | 1882 | | | 1994 |
| 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 | 0.19 | 1.01 | 0.25 | | | 0.43 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 1.01 | | | |
| Intersection Signal Delay: 28.4 | | Intersection LOS: C | |
| Intersection Capacity Utilization 98.8% | | ICU Level of Service F | |
| Analysis Period (min) 15 | | | |

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

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 61 | 302 | 21 | 0 | 22 | 0 | 545 | 268 | 220 | 998 | 598 |
| Future Volume (vph) | 3 | 61 | 302 | 21 | 0 | 22 | 0 | 545 | 268 | 220 | 998 | 598 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | | 0.98 | 0.99 | | 0.98 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1568 | 1719 | 0 | 1417 | 0 | 3438 | 1568 | 1805 | 3471 | 1442 |
| Flt Permitted | 0.950 | | | 0.714 | | | | | | 0.371 | | |
| Satd. Flow (perm) | 1785 | 1900 | 1530 | 1277 | 0 | 1384 | 0 | 3438 | 1521 | 702 | 3471 | 1399 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 120 | | | 68 | | | 291 | | | 650 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 9 | | 10 | 10 | | 9 | 11 | | 11 | 11 | | 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 3% | 5% | 0% | 14% | 0% | 5% | 3% | 0% | 4% | 12% |
| Adj. Flow (vph) | 3 | 66 | 328 | 23 | 0 | 24 | 0 | 592 | 291 | 239 | 1085 | 650 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 66 | 328 | 23 | 0 | 24 | 0 | 592 | 291 | 239 | 1085 | 650 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 60.1 | 60.1 | 5.0 | 60.1 | 60.1 |
| Minimum Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 66.0 | 66.0 |
| Total Split (s) | 33.0 | 33.0 | 33.0 | 33.0 | | 33.0 | | 66.0 | 66.0 | 11.0 | 77.0 | 77.0 |
| Total Split (%) | 30.0% | 30.0% | 30.0% | 30.0% | | 30.0% | | 60.0% | 60.0% | 10.0% | 70.0% | 70.0% |
| Maximum Green (s) | 26.3 | 26.3 | 26.3 | 26.3 | | 26.3 | | 60.1 | 60.1 | 7.0 | 71.1 | 71.1 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.0 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | 0.0 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | Lag | Lag | Lead | | |
| Lead-Lag Optimize? | | | | | | | | Yes | Yes | Yes | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | None | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 50.1 | 50.1 | | 50.1 | 50.1 |
| Flash Dont Walk (s) | 16.3 | 16.3 | 16.3 | 16.3 | | 16.3 | | 10.0 | 10.0 | | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | | 0 | 0 |
| Act Effct Green (s) | 22.0 | 22.0 | 22.0 | 22.0 | | 22.0 | | 62.2 | 62.2 | 73.2 | 73.2 | 73.2 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.21 | 0.21 | | 0.21 | | 0.60 | 0.60 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.01 | 0.16 | 0.78 | 0.08 | | 0.07 | | 0.29 | 0.28 | 0.42 | 0.44 | 0.55 |

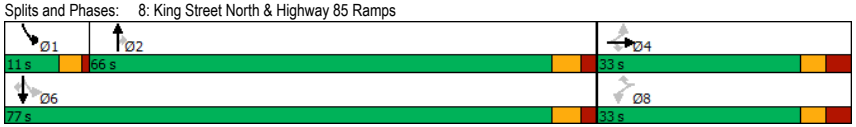




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 30.3 | 33.1 | 37.2 | 32.0 | | 0.4 | | 11.1 | 2.1 | 8.3 | 7.7 | 2.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 30.3 | 33.1 | 37.2 | 32.0 | | 0.4 | | 11.1 | 2.1 | 8.3 | 7.7 | 2.5 |
| LOS | C | C | D | C | | A | | B | A | A | A | A |
| Approach Delay | | 36.5 | | | 15.9 | | | 8.1 | | | 6.1 | |
| Approach LOS | | D | | | B | | | A | | | A | |
| Queue Length 50th (m) | 0.5 | 11.4 | 42.2 | 3.9 | | 0.0 | | 30.2 | 0.0 | 15.4 | 46.3 | 0.0 |
| Queue Length 95th (m) | 2.9 | 22.9 | 75.1 | 10.7 | | 0.0 | | 46.3 | 11.7 | 29.6 | 71.4 | 11.7 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 502 | 535 | 517 | 359 | | 438 | | 2069 | 1031 | 572 | 2460 | 1181 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.01 | 0.12 | 0.63 | 0.06 | | 0.05 | | 0.29 | 0.28 | 0.42 | 0.44 | 0.55 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 103.3 | | | |
| Natural Cycle: 110 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.78 | | | |
| Intersection Signal Delay: 10.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 86.4% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 212 | 0 | 0 | 213 | 156 | 89 |
| Future Volume (vph) | 212 | 0 | 0 | 213 | 156 | 89 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.951 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1445 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 43.7 | | | 68.1 | 111.9 | |
| Travel Time (s) | 3.1 | | | 4.9 | 8.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 230 | 0 | 0 | 232 | 170 | 97 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 230 | 0 | 0 | 232 | 267 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 37.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 212 | 0 | 0 | 213 | 156 | 89 |
| Future Vol, veh/h | 212 | 0 | 0 | 213 | 156 | 89 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 230 | 0 | 0 | 232 | 170 | 97 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 451 | 219 | 267 | 0 | - | 0 |
| Stage 1 | 219 | - | - | - | - | - |
| Stage 2 | 232 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 566 | 821 | 1297 | - | - | - |
| Stage 1 | 817 | - | - | - | - | - |
| Stage 2 | 807 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 566 | 821 | 1297 | - | - | - |
| Mov Cap-2 Maneuver | 566 | - | - | - | - | - |
| Stage 1 | 817 | - | - | - | - | - |
| Stage 2 | 807 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 15.7 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1297 | - | 566 | - | - |
| HCM Lane V/C Ratio | - | - | 0.407 | - | - |
| HCM Control Delay (s) | 0 | - | 15.7 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 83 | 148 | 58 | 118 | 104 | 37 |
| Future Volume (vph) | 83 | 148 | 58 | 118 | 104 | 37 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.913 | | | | 0.965 | |
| Flt Protected | 0.982 | | | 0.984 | | |
| Satd. Flow (prot) | 1670 | 0 | 0 | 1833 | 1798 | 0 |
| Flt Permitted | 0.982 | | | 0.984 | | |
| Satd. Flow (perm) | 1670 | 0 | 0 | 1833 | 1798 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 55.5 | | | 51.0 | 52.3 | |
| Travel Time (s) | 4.0 | | | 3.7 | 3.8 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 90 | 161 | 63 | 128 | 113 | 40 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 251 | 0 | 0 | 191 | 153 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 40.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 83 | 148 | 58 | 118 | 104 | 37 |
| Future Vol, veh/h | 83 | 148 | 58 | 118 | 104 | 37 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 90 | 161 | 63 | 128 | 113 | 40 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 387 | 133 | 153 | 0 | - | 0 |
| Stage 1 | 133 | - | - | - | - | - |
| Stage 2 | 254 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 616 | 916 | 1428 | - | - | - |
| Stage 1 | 893 | - | - | - | - | - |
| Stage 2 | 788 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 586 | 916 | 1428 | - | - | - |
| Mov Cap-2 Maneuver | 586 | - | - | - | - | - |
| Stage 1 | 850 | - | - | - | - | - |
| Stage 2 | 788 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12 | 2.5 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1428 | - | 762 | - | - |
| HCM Lane V/C Ratio | 0.044 | - | 0.33 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 12 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 3 | 23 | 172 | 219 | 33 |
| Future Volume (vph) | 4 | 3 | 23 | 172 | 219 | 33 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.942 | | | | 0.982 | |
| Flt Protected | 0.972 | | | 0.994 | | |
| Satd. Flow (prot) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Flt Permitted | 0.972 | | | 0.994 | | |
| Satd. Flow (perm) | 1391 | 0 | 0 | 1510 | 1492 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 58.0 | | | 36.4 | 51.0 | |
| Travel Time (s) | 4.2 | | | 2.6 | 3.7 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 3 | 25 | 187 | 238 | 36 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 7 | 0 | 0 | 212 | 274 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 3 | 23 | 172 | 219 | 33 |
| Future Vol, veh/h | 4 | 3 | 23 | 172 | 219 | 33 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 3 | 25 | 187 | 238 | 36 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 493 | 256 | 274 | 0 | - | 0 |
| Stage 1 | 256 | - | - | - | - | - |
| Stage 2 | 237 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 535 | 783 | 1289 | - | - | - |
| Stage 1 | 787 | - | - | - | - | - |
| Stage 2 | 802 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 523 | 783 | 1289 | - | - | - |
| Mov Cap-2 Maneuver | 523 | - | - | - | - | - |
| Stage 1 | 770 | - | - | - | - | - |
| Stage 2 | 802 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1289 | - | 610 | - | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.012 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 11 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2 | 3 | 26 | 193 | 210 | 13 |
| Future Volume (vph) | 2 | 3 | 26 | 193 | 210 | 13 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.919 | | | | 0.992 | |
| Flt Protected | 0.980 | | | 0.994 | | |
| Satd. Flow (prot) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Flt Permitted | 0.980 | | | 0.994 | | |
| Satd. Flow (perm) | 1678 | 0 | 0 | 1852 | 1848 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 59.4 | | | 44.1 | 36.4 | |
| Travel Time (s) | 4.3 | | | 3.2 | 2.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 2 | 3 | 28 | 210 | 228 | 14 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 5 | 0 | 0 | 238 | 242 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 36.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 3 | 26 | 193 | 210 | 13 |
| Future Vol, veh/h | 2 | 3 | 26 | 193 | 210 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 3 | 28 | 210 | 228 | 14 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 501 | 235 | 242 | 0 | - | 0 |
| Stage 1 | 235 | - | - | - | - | - |
| Stage 2 | 266 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 530 | 804 | 1324 | - | - | - |
| Stage 1 | 804 | - | - | - | - | - |
| Stage 2 | 779 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 517 | 804 | 1324 | - | - | - |
| Mov Cap-2 Maneuver | 517 | - | - | - | - | - |
| Stage 1 | 785 | - | - | - | - | - |
| Stage 2 | 779 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.5 | 0.9 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1324 | - | 658 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.008 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 10.5 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1 | 3 | 26 | 218 | 208 | 5 |
| Future Volume (vph) | 1 | 3 | 26 | 218 | 208 | 5 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.899 | | | | 0.997 | |
| Flt Protected | 0.988 | | | 0.995 | | |
| Satd. Flow (prot) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Flt Permitted | 0.988 | | | 0.995 | | |
| Satd. Flow (perm) | 1350 | 0 | 0 | 1512 | 1515 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 57.5 | | | 146.8 | 44.1 | |
| Travel Time (s) | 4.1 | | | 10.6 | 3.2 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 1 | 3 | 28 | 237 | 226 | 5 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 4 | 0 | 0 | 265 | 231 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 26 | 218 | 208 | 5 |
| Future Vol, veh/h | 1 | 3 | 26 | 218 | 208 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 28 | 237 | 226 | 5 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 522 | 229 | 231 | 0 | - | 0 |
| Stage 1 | 229 | - | - | - | - | - |
| Stage 2 | 293 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 515 | 810 | 1337 | - | - | - |
| Stage 1 | 809 | - | - | - | - | - |
| Stage 2 | 757 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 503 | 810 | 1337 | - | - | - |
| Mov Cap-2 Maneuver | 503 | - | - | - | - | - |
| Stage 1 | 790 | - | - | - | - | - |
| Stage 2 | 757 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 0.8 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1337 | - | 703 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | 0.006 | - | - |
| HCM Control Delay (s) | 7.8 | 0 | 10.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 506 | 79 | 159 | 1187 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Future Volume (vph) | 135 | 506 | 79 | 159 | 1187 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 |
| Storage Length (m) | 100.0 | | 0.0 | 50.0 | | 65.0 | 95.0 | | 0.0 | 85.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 1 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 100.0 | | | 85.0 | | | 40.0 | | | 40.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | 1.00 | 1.00 | | 0.99 | | 0.97 | 0.98 | 0.99 | | 0.99 | 0.98 | |
| Frt | | 0.980 | | | | 0.850 | | 0.978 | | | 0.945 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3195 | 0 | 1670 | 3574 | 1458 | 1670 | 3238 | 0 | 1653 | 3092 | 0 |
| Flt Permitted | 0.091 | | | 0.309 | | | 0.229 | | | 0.272 | | |
| Satd. Flow (perm) | 158 | 3195 | 0 | 539 | 3574 | 1421 | 396 | 3238 | 0 | 468 | 3092 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 17 | | | | 111 | | 16 | | | 97 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 195.7 | | | 296.1 | | | 157.0 | | | 246.4 | |
| Travel Time (s) | | 11.7 | | | 17.8 | | | 11.3 | | | 17.7 | |
| Confl. Peds. (#/hr) | 15 | | 21 | 21 | | 15 | 45 | | 23 | 23 | | 45 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 3% | 1% | 1% | 2% | 1% | 1% | 3% | 2% | 1% | 0% |
| Adj. Flow (vph) | 135 | 506 | 79 | 159 | 1187 | 154 | 193 | 435 | 74 | 313 | 430 | 247 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 135 | 585 | 0 | 159 | 1187 | 154 | 193 | 509 | 0 | 313 | 677 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | 8 | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 38.4 | | 5.0 | 38.4 | 38.4 | 5.0 | 30.0 | | 7.0 | 30.0 | |
| Minimum Split (s) | 9.0 | 44.4 | | 9.0 | 44.4 | 44.4 | 9.0 | 36.0 | | 13.0 | 36.0 | |
| Total Split (s) | 12.0 | 49.4 | | 14.0 | 51.4 | 51.4 | 17.0 | 36.6 | | 20.0 | 39.6 | |
| Total Split (%) | 10.0% | 41.2% | | 11.7% | 42.8% | 42.8% | 14.2% | 30.5% | | 16.7% | 33.0% | |
| Maximum Green (s) | 8.0 | 43.4 | | 10.0 | 45.4 | 45.4 | 13.0 | 30.6 | | 14.0 | 33.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 1.0 | 2.0 | | 1.0 | 2.0 | 2.0 | 1.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | -2.0 | | 0.0 | -2.0 | -2.0 | 0.0 | -2.0 | | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | Lag | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | Max | None | Max | | None | Max | |
| Walk Time (s) | | 14.4 | | | 14.4 | 14.4 | | 11.0 | | | 11.0 | |
| Flash Dont Walk (s) | | 24.0 | | | 24.0 | 24.0 | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Act Effct Green (s) | 53.8 | 45.8 | | 57.0 | 47.4 | 47.4 | 44.8 | 32.6 | | 51.9 | 36.4 | |
| Actuated g/C Ratio | 0.45 | 0.38 | | 0.48 | 0.40 | 0.40 | 0.37 | 0.27 | | 0.43 | 0.30 | |
| v/c Ratio | 0.79 | 0.48 | | 0.46 | 0.84 | 0.25 | 0.70 | 0.57 | | 0.87 | 0.67 | |

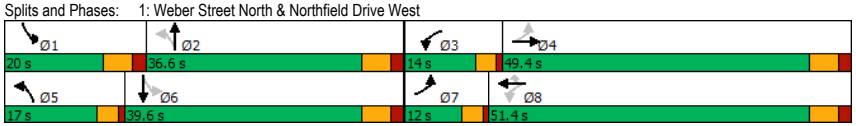




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 55.0 | 28.8 | | 21.6 | 39.6 | 8.9 | 36.4 | 39.4 | | 49.7 | 35.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 55.0 | 28.8 | | 21.6 | 39.6 | 8.9 | 36.4 | 39.4 | | 49.7 | 35.2 | |
| LOS | E | C | | C | D | A | D | D | | D | D | |
| Approach Delay | | 33.8 | | | 34.5 | | | 38.6 | | | 39.8 | |
| Approach LOS | | C | | | C | | | D | | | D | |
| Queue Length 50th (m) | 17.8 | 55.6 | | 21.3 | 138.4 | 6.6 | 29.8 | 55.5 | | 52.7 | 67.2 | |
| Queue Length 95th (m) | #52.0 | 73.0 | | 35.0 | 168.4 | 21.0 | 47.1 | 74.0 | | #89.4 | 89.3 | |
| Internal Link Dist (m) | | 171.7 | | | 272.1 | | | 133.0 | | | 222.4 | |
| Turn Bay Length (m) | 100.0 | | | 50.0 | | 65.0 | 95.0 | | | 85.0 | | |
| Base Capacity (vph) | 170 | 1229 | | 352 | 1411 | 628 | 288 | 891 | | 360 | 1004 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.79 | 0.48 | | 0.45 | 0.84 | 0.25 | 0.67 | 0.57 | | 0.87 | 0.67 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 120 | | |
| Natural Cycle: 105 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.87 | | |
| Intersection Signal Delay: 36.4 | | Intersection LOS: D |
| Intersection Capacity Utilization 98.3% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 1: Weber Street North & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 3 | 885 | 35 | 389 | 1498 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Future Volume (vph) | 3 | 885 | 35 | 389 | 1498 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1650 | 1650 | 1750 | 1650 | 1650 | 1750 |
| Storage Length (m) | 35.0 | | 0.0 | 25.0 | | 0.0 | 0.0 | | 25.0 | 7.5 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 0 | | 1 | 1 | | 0 |
| Taper Length (m) | 60.0 | | | 55.0 | | | 0.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.98 | 0.97 | 0.98 | 0.98 | |
| Frt | | 0.994 | | | 0.992 | | | | 0.850 | | 0.944 | |
| Flt Protected | 0.950 | | | 0.950 | | | | 0.965 | | 0.950 | | |
| Satd. Flow (prot) | 1686 | 3282 | 0 | 1653 | 3305 | 0 | 0 | 1592 | 1458 | 1537 | 1532 | 0 |
| Flt Permitted | 0.131 | | | 0.185 | | | | 0.804 | | 0.712 | | |
| Satd. Flow (perm) | 232 | 3282 | 0 | 321 | 3305 | 0 | 0 | 1296 | 1417 | 1134 | 1532 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 10 | | | | 332 | | 13 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 296.1 | | | 760.4 | | | 102.9 | | | 159.0 | |
| Travel Time (s) | | 17.8 | | | 45.6 | | | 7.4 | | | 11.4 | |
| Confl. Peds. (#/hr) | 10 | | 6 | 6 | | 10 | 28 | | 14 | 14 | | 28 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 2% | 3% | 2% | 1% | 2% | 0% | 0% | 2% | 2% | 0% | 0% |
| Adj. Flow (vph) | 3 | 885 | 35 | 389 | 1498 | 89 | 50 | 19 | 490 | 61 | 22 | 13 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 3 | 920 | 0 | 389 | 1587 | 0 | 0 | 69 | 490 | 61 | 35 | 0 |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | 2 | 6 | | |
| Detector Phase | 4 | 4 | | 3 | 8 | | 2 | 2 | 2 | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 48.0 | 48.0 | | 5.0 | 48.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | |
| Minimum Split (s) | 54.0 | 54.0 | | 9.0 | 63.0 | | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | |
| Total Split (s) | 58.8 | 58.8 | | 21.6 | 80.4 | | 39.6 | 39.6 | 39.6 | 39.6 | 39.6 | |
| Total Split (%) | 49.0% | 49.0% | | 18.0% | 67.0% | | 33.0% | 33.0% | 33.0% | 33.0% | 33.0% | |
| Maximum Green (s) | 52.8 | 52.8 | | 17.6 | 74.4 | | 33.6 | 33.6 | 33.6 | 33.6 | 33.6 | |
| Yellow Time (s) | 4.0 | 4.0 | | 3.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 1.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Lost Time Adjust (s) | -2.0 | -2.0 | | 0.0 | -2.0 | | | -2.0 | -2.0 | -2.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | | Lead | | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | Max | Max | | None | Max | | None | None | None | None | None | |
| Walk Time (s) | 40.0 | 40.0 | | | 40.0 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 | |
| Flash Dont Walk (s) | 8.0 | 8.0 | | | 8.0 | | 20.0 | 20.0 | 20.0 | 20.0 | 20.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 54.8 | 54.8 | | 76.4 | 76.4 | | | 32.7 | 32.7 | 32.7 | 32.7 | |
| Actuated g/C Ratio | 0.47 | 0.47 | | 0.65 | 0.65 | | | 0.28 | 0.28 | 0.28 | 0.28 | |
| v/c Ratio | 0.03 | 0.60 | | 0.95 | 0.74 | | | 0.19 | 0.77 | 0.19 | 0.08 | |

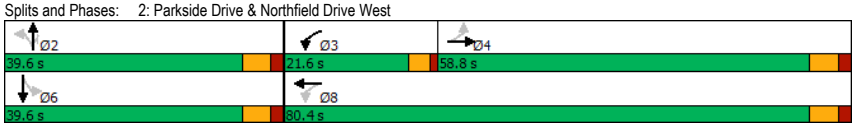




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 18.7 | 25.1 | | 52.4 | 16.3 | | | 33.7 | 21.3 | 34.0 | 22.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 18.7 | 25.1 | | 52.4 | 16.3 | | | 33.7 | 21.3 | 34.0 | 22.6 | |
| LOS | B | C | | D | B | | | C | C | C | C | |
| Approach Delay | | 25.1 | | | 23.4 | | | 22.8 | | | 29.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 0.4 | 82.7 | | 50.1 | 120.6 | | | 12.7 | 35.4 | 11.2 | 3.9 | |
| Queue Length 95th (m) | 2.4 | 110.0 | | #119.0 | 162.8 | | | 25.2 | 81.4 | 23.0 | 12.0 | |
| Internal Link Dist (m) | | 272.1 | | | 736.4 | | | 78.9 | | | 135.0 | |
| Turn Bay Length (m) | 35.0 | | | 25.0 | | | | | 25.0 | 7.5 | | |
| Base Capacity (vph) | 108 | 1538 | | 409 | 2159 | | | 394 | 661 | 344 | 474 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.60 | | 0.95 | 0.74 | | | 0.18 | 0.74 | 0.18 | 0.07 | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 120 | | | |
| Actuated Cycle Length: 117.1 | | | |
| Natural Cycle: 100 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.95 | | | |
| Intersection Signal Delay: 23.9 | | Intersection LOS: C | |
| Intersection Capacity Utilization 122.4% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 2: Parkside Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 66 | 789 | 117 | 231 | 751 | 34 | 210 | 9 | 192 | 99 | 28 | 255 |
| Future Volume (vph) | 66 | 789 | 117 | 231 | 751 | 34 | 210 | 9 | 192 | 99 | 28 | 255 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Storage Length (m) | 30.0 | | 0.0 | 40.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (m) | 55.0 | | | 85.0 | | | 0.0 | | | 0.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped Bike Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | | 0.99 | 0.99 | |
| Frt | | 0.981 | | | 0.994 | | | 0.857 | | | 0.865 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1653 | 3155 | 0 | 1547 | 3285 | 0 | 1444 | 1303 | 0 | 1458 | 1312 | 0 |
| Flt Permitted | 0.950 | | | 0.950 | | | 0.268 | | | 0.632 | | |
| Satd. Flow (perm) | 1648 | 3155 | 0 | 1546 | 3285 | 0 | 407 | 1303 | 0 | 964 | 1312 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 16 | | | 5 | | | 192 | | | 255 | |
| Link Speed (k/h) | | 60 | | | 60 | | | 50 | | | 50 | |
| Link Distance (m) | | 760.4 | | | 386.4 | | | 124.3 | | | 225.9 | |
| Travel Time (s) | | 45.6 | | | 23.2 | | | 8.9 | | | 16.3 | |
| Confl. Peds. (#/hr) | 6 | | 2 | 2 | | 6 | 2 | | 7 | 7 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 2% | 3% | 15% | 9% | 2% | 0% | 2% | 0% | 0% | 1% | 0% | 1% |
| Adj. Flow (vph) | 66 | 789 | 117 | 231 | 751 | 34 | 210 | 9 | 192 | 99 | 28 | 255 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 66 | 906 | 0 | 231 | 785 | 0 | 210 | 201 | 0 | 99 | 283 | 0 |
| Turn Type | Prot | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | 2 | | | 6 | | |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 40.0 | | 5.0 | 40.0 | | 5.0 | 8.0 | | 5.0 | 8.0 | |
| Minimum Split (s) | 10.0 | 46.0 | | 10.0 | 46.0 | | 9.5 | 14.0 | | 9.5 | 14.0 | |
| Total Split (s) | 14.0 | 46.0 | | 26.0 | 58.0 | | 21.4 | 32.6 | | 12.4 | 23.6 | |
| Total Split (%) | 12.0% | 39.3% | | 22.2% | 49.6% | | 18.3% | 27.9% | | 10.6% | 20.2% | |
| Maximum Green (s) | 9.0 | 40.0 | | 21.0 | 52.0 | | 17.4 | 26.6 | | 8.4 | 17.6 | |
| Yellow Time (s) | 3.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 1.0 | 2.0 | | 1.0 | 2.0 | |
| Lost Time Adjust (s) | -1.0 | -2.0 | | -1.0 | -2.0 | | 0.0 | -2.0 | | 0.0 | -2.0 | |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | Max | | None | Max | | None | None | | None | None | |
| Walk Time (s) | | 29.0 | | | 29.0 | | | 10.0 | | | 10.0 | |
| Flash Dont Walk (s) | | 11.0 | | | 11.0 | | | 19.0 | | | 19.0 | |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | 9.2 | 42.5 | | 20.0 | 55.8 | | 33.3 | 21.2 | | 21.0 | 12.9 | |
| Actuated g/C Ratio | 0.09 | 0.39 | | 0.19 | 0.52 | | 0.31 | 0.20 | | 0.19 | 0.12 | |
| v/c Ratio | 0.47 | 0.72 | | 0.81 | 0.46 | | 0.74 | 0.49 | | 0.44 | 0.74 | |



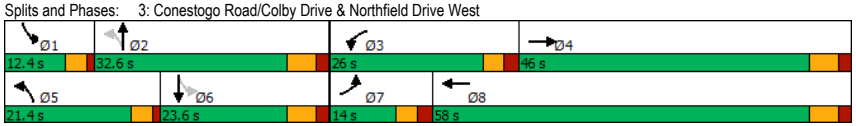


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 60.5 | 32.4 | | 64.8 | 19.1 | | 47.4 | 10.4 | | 35.6 | 20.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 60.5 | 32.4 | | 64.8 | 19.1 | | 47.4 | 10.4 | | 35.6 | 20.7 | |
| LOS | E | C | | E | B | | D | B | | D | C | |
| Approach Delay | | 34.3 | | | 29.5 | | | 29.3 | | | 24.6 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Queue Length 50th (m) | 14.0 | 86.8 | | 48.1 | 57.0 | | 38.3 | 1.7 | | 16.6 | 5.8 | |
| Queue Length 95th (m) | 30.6 | 127.3 | | #94.2 | 86.9 | | #64.3 | 21.6 | | 30.2 | 35.2 | |
| Internal Link Dist (m) | | 736.4 | | | 362.4 | | | 100.3 | | | 201.9 | |
| Turn Bay Length (m) | 30.0 | | | 40.0 | | | | | | | | |
| Base Capacity (vph) | 154 | 1253 | | 317 | 1702 | | 293 | 488 | | 229 | 448 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.43 | 0.72 | | 0.73 | 0.46 | | 0.72 | 0.41 | | 0.43 | 0.63 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 117 | | |
| Actuated Cycle Length: 107.8 | | |
| Natural Cycle: 90 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.81 | | |
| Intersection Signal Delay: 30.5 | | Intersection LOS: C |
| Intersection Capacity Utilization 96.1% | | ICU Level of Service F |
| Analysis Period (min) 15 | | |

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

Splits and Phases: 3: Conestogo Road/Colby Drive & Northfield Drive West



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 186 | 564 | 201 | 235 | 524 | 69 | 282 | 377 | 166 | 105 | 440 | 193 |
| Future Volume (vph) | 186 | 564 | 201 | 235 | 524 | 69 | 282 | 377 | 166 | 105 | 440 | 193 |
| Ideal Flow (vphpl) | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1775 | 1900 | 1750 |
| Storage Length (m) | 15.0 | | 0.0 | 45.0 | | 0.0 | 175.0 | | 0.0 | 50.0 | | 50.0 |
| Storage Lanes | 1 | | 0 | 2 | | 0 | 1 | | 0 | 1 | | 1 |
| Taper Length (m) | 75.0 | | | 75.0 | | | 100.0 | | | 85.0 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 0.97 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 0.99 | 0.99 | | 0.99 | 1.00 | | | 0.99 | | 0.99 | | |
| Frt | | 0.961 | | | 0.983 | | | 0.954 | | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1670 | 3125 | 0 | 3176 | 3225 | 0 | 1606 | 3127 | 0 | 1637 | 3539 | 1473 |
| Flt Permitted | 0.311 | | | 0.950 | | | 0.317 | | | 0.359 | | |
| Satd. Flow (perm) | 543 | 3125 | 0 | 3135 | 3225 | 0 | 536 | 3127 | 0 | 613 | 3539 | 1473 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 39 | | | 13 | | | 49 | | | | 193 |
| Link Speed (k/h) | | 60 | | | 60 | | | 60 | | | 60 | |
| Link Distance (m) | | 386.4 | | | 199.4 | | | 358.2 | | | 200.8 | |
| Travel Time (s) | | 23.2 | | | 12.0 | | | 21.5 | | | 12.0 | |
| Confl. Peds. (#/hr) | 16 | | 22 | 22 | | 16 | | | 20 | 20 | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 1% | 2% | 5% | 3% | 2% | 6% | 5% | 2% | 1% | 3% | 2% | 1% |
| Adj. Flow (vph) | 186 | 564 | 201 | 235 | 524 | 69 | 282 | 377 | 166 | 105 | 440 | 193 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 186 | 765 | 0 | 235 | 593 | 0 | 282 | 543 | 0 | 105 | 440 | 193 |
| Turn Type | pm+pt | NA | | Prot | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | 6 |
| Detector Phase | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 20.0 | | 8.0 | 20.0 | | 5.0 | 20.0 | | 5.0 | 20.0 | 20.0 |
| Minimum Split (s) | 9.0 | 48.0 | | 14.0 | 48.0 | | 9.0 | 37.0 | | 9.0 | 37.0 | 37.0 |
| Total Split (s) | 19.0 | 48.0 | | 31.0 | 60.0 | | 19.0 | 37.0 | | 19.0 | 37.0 | 37.0 |
| Total Split (%) | 14.1% | 35.6% | | 23.0% | 44.4% | | 14.1% | 27.4% | | 14.1% | 27.4% | 27.4% |
| Maximum Green (s) | 15.0 | 40.0 | | 25.0 | 52.0 | | 15.0 | 30.0 | | 15.0 | 30.0 | 30.0 |
| Yellow Time (s) | 3.0 | 4.0 | | 4.0 | 4.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 1.0 | 4.0 | | 2.0 | 4.0 | | 1.0 | 3.0 | | 1.0 | 3.0 | 3.0 |
| Lost Time Adjust (s) | 0.0 | -4.0 | | -2.0 | -4.0 | | 0.0 | -3.0 | | 0.0 | -3.0 | -3.0 |
| Total Lost Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | Yes |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | | None | None | | None | Max | | None | Max | Max |
| Walk Time (s) | | 10.0 | | | 10.0 | | | 10.0 | | | 10.0 | 10.0 |
| Flash Dont Walk (s) | | 30.0 | | | 30.0 | | | 20.0 | | | 20.0 | 20.0 |
| Pedestrian Calls (#/hr) | | 0 | | | 0 | | | 0 | | | 0 | 0 |
| Act Effct Green (s) | 49.2 | 36.4 | | 16.1 | 39.7 | | 51.5 | 38.1 | | 43.5 | 33.2 | 33.2 |
| Actuated g/C Ratio | 0.42 | 0.31 | | 0.14 | 0.34 | | 0.44 | 0.33 | | 0.37 | 0.28 | 0.28 |
| v/c Ratio | 0.53 | 0.77 | | 0.54 | 0.54 | | 0.75 | 0.52 | | 0.33 | 0.44 | 0.35 |



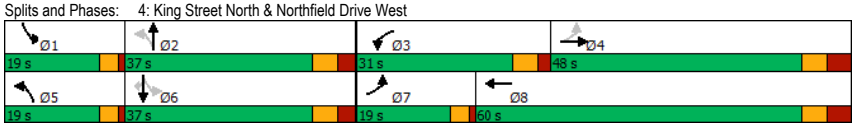


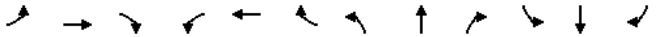
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 23.2 | 40.2 | | 52.5 | 32.2 | | 39.2 | 33.1 | | 24.7 | 37.3 | 6.9 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | 23.2 | 40.2 | | 52.5 | 32.2 | | 39.2 | 33.1 | | 24.7 | 37.3 | 6.9 |
| LOS | C | D | | D | C | | D | C | | C | D | A |
| Approach Delay | | 36.9 | | | 38.0 | | | 35.2 | | | 27.5 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (m) | 25.2 | 83.1 | | 27.6 | 59.2 | | 45.2 | 51.1 | | 14.8 | 46.1 | 0.0 |
| Queue Length 95th (m) | 39.5 | 112.0 | | 43.1 | 78.3 | | #83.3 | 82.3 | | 30.8 | 69.9 | 19.1 |
| Internal Link Dist (m) | | 362.4 | | | 175.4 | | | 334.2 | | | 176.8 | |
| Turn Bay Length (m) | 15.0 | | | 45.0 | | | 175.0 | | | 50.0 | | 50.0 |
| Base Capacity (vph) | 384 | 1208 | | 738 | 1561 | | 374 | 1051 | | 385 | 1005 | 556 |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.48 | 0.63 | | 0.32 | 0.38 | | 0.75 | 0.52 | | 0.27 | 0.44 | 0.35 |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 135 | | |
| Actuated Cycle Length: 116.9 | | |
| Natural Cycle: 110 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.77 | | |
| Intersection Signal Delay: 34.7 | | Intersection LOS: C |
| Intersection Capacity Utilization 82.8% | | ICU Level of Service E |
| Analysis Period (min) 15 | | |

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

Splits and Phases: 4: King Street North & Northfield Drive West





| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |
| Future Volume (vph) | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.913 | | | 0.994 | | | 0.997 | |
| Flt Protected | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (prot) | 0 | 1472 | 0 | 0 | 1299 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Flt Permitted | | 0.950 | | | 0.983 | | | | | | 0.997 | |
| Satd. Flow (perm) | 0 | 1472 | 0 | 0 | 1299 | 0 | 0 | 1471 | 0 | 0 | 1465 | 0 |
| Link Speed (k/h) | | 50 | | | 50 | | | 50 | | | 50 | |
| Link Distance (m) | | 54.8 | | | 75.2 | | | 46.9 | | | 55.7 | |
| Travel Time (s) | | 3.9 | | | 5.4 | | | 3.4 | | | 4.0 | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 11% | 0% | 4% | 20% | 9% | 5% | 0% |
| Adj. Flow (vph) | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 9 | 0 | 0 | 45 | 0 | 0 | 227 | 0 | 0 | 171 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 31.5% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |
| Future Vol, veh/h | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 20 | 9 | 5 | 0 |
| Mvmt Flow | 9 | 0 | 0 | 16 | 0 | 29 | 0 | 217 | 10 | 11 | 156 | 4 |

| Major/Minor | Minor2 | | | Minor1 | | | | Major1 | | | Major2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 417 | 407 | 158 | 402 | 404 | 222 | 160 | 0 | 0 | 227 | 0 | 0 |
| Stage 1 | 180 | 180 | - | 222 | 222 | - | - | - | - | - | - | - |
| Stage 2 | 237 | 227 | - | 180 | 182 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.31 | 4.1 | - | - | 4.19 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.399 | 2.2 | - | - | 2.281 | - | - |
| Pot Cap-1 Maneuver | 550 | 537 | 893 | 562 | 539 | 796 | 1432 | - | - | 1301 | - | - |
| Stage 1 | 826 | 754 | - | 785 | 723 | - | - | - | - | - | - | - |
| Stage 2 | 771 | 720 | - | 826 | 753 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 526 | 532 | 893 | 558 | 534 | 796 | 1432 | - | - | 1301 | - | - |
| Mov Cap-2 Maneuver | 526 | 532 | - | 558 | 534 | - | - | - | - | - | - | - |
| Stage 1 | 826 | 747 | - | 785 | 723 | - | - | - | - | - | - | - |
| Stage 2 | 743 | 720 | - | 819 | 746 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 12 | 10.6 | 0 | 0.5 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1432 | - | - | 526 | 691 | 1301 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.017 | 0.065 | 0.008 | - | - |
| HCM Control Delay (s) | 0 | - | - | 12 | 10.6 | 7.8 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.2 | 0 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 38 | 62 | 346 | 328 | 10 | 62 | 227 | 759 | 382 | 75 | 848 | 33 |
| Future Volume (vph) | 38 | 62 | 346 | 328 | 10 | 62 | 227 | 759 | 382 | 75 | 848 | 33 |
| Ideal Flow (vphpl) | 1775 | 1650 | 1650 | 1775 | 1650 | 1650 | 1775 | 1900 | 1750 | 1775 | 1775 | 1775 |
| Storage Length (m) | 25.0 | | 0.0 | 35.0 | | 0.0 | 35.0 | | 0.0 | 45.0 | | 0.0 |
| Storage Lanes | 0 | | 1 | 2 | | 0 | 1 | | 1 | 1 | | 0 |
| Taper Length (m) | 30.0 | | | 40.0 | | | 80.0 | | | 60.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Ped Bike Factor | | 1.00 | 0.98 | 0.99 | 0.99 | | | | 0.97 | 0.99 | 1.00 | |
| Frt | | | 0.850 | | 0.871 | | | | 0.850 | | 0.994 | |
| Flt Protected | | 0.981 | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 0 | 1589 | 1402 | 3146 | 1339 | 0 | 1686 | 3539 | 1488 | 1606 | 3286 | 0 |
| Flt Permitted | | 0.864 | | 0.950 | | | 0.134 | | | 0.950 | | |
| Satd. Flow (perm) | 0 | 1399 | 1372 | 3100 | 1339 | 0 | 238 | 3539 | 1443 | 1596 | 3286 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | No | | | Yes |
| Satd. Flow (RTOR) | | | 254 | | 62 | | | | | | 3 | |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 155.4 | | | 105.1 | | | 302.0 | | | 358.2 | |
| Travel Time (s) | | 11.2 | | | 7.6 | | | 18.1 | | | 21.5 | |
| Confl. Peds. (#/hr) | 1 | | 5 | 5 | | 1 | 2 | | 9 | 9 | | 2 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 4% | 0% | 7% | 0% | 2% | 0% | 5% | 2% | 0% |
| Adj. Flow (vph) | 38 | 62 | 346 | 328 | 10 | 62 | 227 | 759 | 382 | 75 | 848 | 33 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 100 | 346 | 328 | 72 | 0 | 227 | 759 | 382 | 75 | 881 | 0 |
| Turn Type | Perm | NA | Perm | Prot | NA | | pm+pt | NA | pm+ov | Prot | NA | |
| Protected Phases | | 4 | | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Permitted Phases | 4 | | 4 | | | | 2 | | 2 | | | |
| Detector Phase | 4 | 4 | 4 | 3 | 8 | | 5 | 2 | 3 | 1 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 5.0 | 10.0 | | 5.0 | 20.0 | 5.0 | 5.0 | 20.0 | |
| Minimum Split (s) | 17.0 | 17.0 | 17.0 | 11.0 | 17.0 | | 9.0 | 27.0 | 11.0 | 10.0 | 27.0 | |
| Total Split (s) | 35.0 | 35.0 | 35.0 | 25.0 | 60.0 | | 19.0 | 42.0 | 25.0 | 18.0 | 41.0 | |
| Total Split (%) | 29.2% | 29.2% | 29.2% | 20.8% | 50.0% | | 15.8% | 35.0% | 20.8% | 15.0% | 34.2% | |
| Maximum Green (s) | 28.0 | 28.0 | 28.0 | 19.0 | 53.0 | | 15.0 | 35.0 | 19.0 | 13.0 | 34.0 | |
| Yellow Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | |
| All-Red Time (s) | 3.0 | 3.0 | 3.0 | 2.0 | 3.0 | | 1.0 | 3.0 | 2.0 | 2.0 | 3.0 | |
| Lost Time Adjust (s) | | -3.0 | 0.0 | -2.0 | -3.0 | | 0.0 | -3.0 | -2.0 | -1.0 | -3.0 | |
| Total Lost Time (s) | | 4.0 | 7.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lead/Lag | Lag | Lag | Lag | Lead | | | Lead | Lag | Lead | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | Yes | Yes | Yes | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Recall Mode | None | None | None | None | None | | None | Max | None | None | Max | |
| Walk Time (s) | | 7.0 | 7.0 | | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | | 11.0 | 11.0 | | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | | 0 | 0 | | 0 | | | 0 | | | 0 | |
| Act Effct Green (s) | | 18.8 | 15.8 | 17.6 | 40.5 | | 54.1 | 42.9 | 60.5 | 10.9 | 37.4 | |
| Actuated g/C Ratio | | 0.18 | 0.15 | 0.17 | 0.39 | | 0.52 | 0.41 | 0.58 | 0.11 | 0.36 | |
| v/c Ratio | | 0.40 | 0.82 | 0.61 | 0.13 | | 0.72 | 0.52 | 0.45 | 0.45 | 0.74 | |

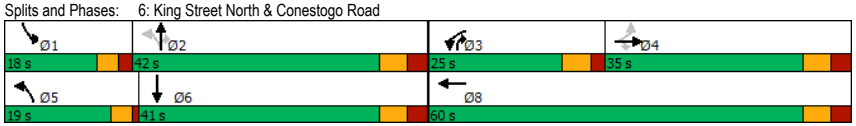




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | | 42.5 | 28.4 | 46.4 | 6.6 | | 33.5 | 27.6 | 14.9 | 54.7 | 35.4 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 42.5 | 28.4 | 46.4 | 6.6 | | 33.5 | 27.6 | 14.9 | 54.7 | 35.4 | |
| LOS | | D | C | D | A | | C | C | B | D | D | |
| Approach Delay | | 31.6 | | | 39.2 | | | 25.0 | | | 36.9 | |
| Approach LOS | | C | | | D | | | C | | | D | |
| Queue Length 50th (m) | | 19.1 | 18.2 | 33.0 | 1.3 | | 23.7 | 63.2 | 38.9 | 15.0 | 83.6 | |
| Queue Length 95th (m) | | 35.9 | 55.2 | 54.7 | 9.7 | | #75.1 | 108.3 | 86.0 | 33.5 | #142.4 | |
| Internal Link Dist (m) | | 131.4 | | | 81.1 | | | 278.0 | | | 334.2 | |
| Turn Bay Length (m) | | | | 35.0 | | | 35.0 | | | 45.0 | | |
| Base Capacity (vph) | | 422 | 558 | 643 | 758 | | 335 | 1461 | 900 | 218 | 1186 | |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | | 0.24 | 0.62 | 0.51 | 0.09 | | 0.68 | 0.52 | 0.42 | 0.34 | 0.74 | |

| Intersection Summary | | |
|---|---|---|
| Area Type: | Other | |
| Cycle Length: 120 | | |
| Actuated Cycle Length: 103.8 | | |
| Natural Cycle: 70 | | |
| Control Type: Semi Act-Uncoord | | |
| Maximum v/c Ratio: 0.82 | | |
| Intersection Signal Delay: 31.3 | | Intersection LOS: C |
| Intersection Capacity Utilization 74.1% | | ICU Level of Service D |
| Analysis Period (min) 15 | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | |
| Queue shown is maximum after two cycles. | | |

Splits and Phases: 6: King Street North & Conestogo Road



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 193 | 849 | 607 | 131 | 0 | 1542 |
| Future Volume (vph) | 193 | 849 | 607 | 131 | 0 | 1542 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | 80.0 | | 0.0 | 20.0 | |
| Storage Lanes | 2 | 1 | | 0 | 1 | |
| Taper Length (m) | 7.5 | | | | 55.0 | |
| Lane Util. Factor | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 |
| Ped Bike Factor | | 0.99 | 0.99 | | | |
| Frt | | 0.850 | 0.973 | | | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 3467 | 1615 | 3452 | 0 | 1900 | 3610 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 3467 | 1591 | 3452 | 0 | 1900 | 3610 |
| Right Turn on Red | | Yes | | Yes | | |
| Satd. Flow (RTOR) | | 270 | 34 | | | |
| Link Speed (k/h) | 50 | | 60 | | | 60 |
| Link Distance (m) | 426.0 | | 348.2 | | | 230.2 |
| Travel Time (s) | 30.7 | | 20.9 | | | 13.8 |
| Confl. Peds. (#/hr) | | 3 | | 38 | 38 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 0% | 0% | 4% | 0% | 0% |
| Adj. Flow (vph) | 210 | 923 | 660 | 142 | 0 | 1676 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 210 | 923 | 802 | 0 | 0 | 1676 |
| Turn Type | Prot | Perm | NA | | pm+pt | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | | 6 | |
| Detector Phase | 8 | 8 | 2 | | 1 | 6 |
| Switch Phase | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 54.5 | | 5.0 | 54.5 |
| Minimum Split (s) | 15.4 | 15.4 | 60.5 | | 9.0 | 60.5 |
| Total Split (s) | 38.5 | 38.5 | 60.5 | | 11.0 | 71.5 |
| Total Split (%) | 35.0% | 35.0% | 55.0% | | 10.0% | 65.0% |
| Maximum Green (s) | 33.1 | 33.1 | 54.5 | | 7.0 | 65.5 |
| Yellow Time (s) | 3.3 | 3.3 | 3.7 | | 3.0 | 3.7 |
| All-Red Time (s) | 2.1 | 2.1 | 2.3 | | 1.0 | 2.3 |
| Lost Time Adjust (s) | -1.4 | -1.4 | -2.0 | | 0.0 | -2.0 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lead/Lag | | | Lag | | Lead | |
| Lead-Lag Optimize? | | | Yes | | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Recall Mode | None | None | Max | | None | Max |
| Walk Time (s) | 10.0 | 10.0 | 42.5 | | | 42.5 |
| Flash Dont Walk (s) | 23.1 | 23.1 | 12.0 | | | 12.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | | | 0 |
| Act Effct Green (s) | 34.5 | 34.5 | 67.5 | | | 67.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.61 | | | 0.61 |
| v/c Ratio | 0.19 | 1.35 | 0.38 | | | 0.76 |

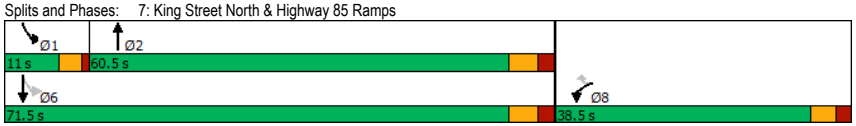




| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Control Delay | 28.2 | 190.9 | 10.8 | | | 18.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | | 0.0 |
| Total Delay | 28.2 | 190.9 | 10.8 | | | 18.2 |
| LOS | C | F | B | | | B |
| Approach Delay | 160.7 | | 10.8 | | | 18.2 |
| Approach LOS | F | | B | | | B |
| Queue Length 50th (m) | 17.7 | ~230.6 | 42.4 | | | 133.5 |
| Queue Length 95th (m) | 27.2 | #309.8 | 54.6 | | | 163.0 |
| Internal Link Dist (m) | 402.0 | | 324.2 | | | 206.2 |
| Turn Bay Length (m) | | 80.0 | | | | |
| Base Capacity (vph) | 1087 | 684 | 2131 | | | 2215 |
| 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 | 0.19 | 1.35 | 0.38 | | | 0.76 |

Intersection Summary
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Natural Cycle: 135
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 61.2 Intersection LOS: E
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: King Street North & Highway 85 Ramps



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 1 | 189 | 160 | 0 | 286 | 0 | 906 | 369 | 22 | 1000 | 846 |
| Future Volume (vph) | 23 | 1 | 189 | 160 | 0 | 286 | 0 | 906 | 369 | 22 | 1000 | 846 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 0 | 1900 | 0 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (m) | 0.0 | | 80.0 | 0.0 | | 0.0 | 0.0 | | 90.0 | 25.0 | | 150.0 |
| Storage Lanes | 1 | | 1 | 1 | | 1 | 0 | | 1 | 1 | | 1 |
| Taper Length (m) | 7.5 | | | 7.5 | | | 7.5 | | | 75.0 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Ped Bike Factor | 1.00 | | 0.96 | 0.97 | | 0.99 | | | 0.97 | 1.00 | | 0.97 |
| Frt | | | 0.850 | | | 0.850 | | | 0.850 | | | 0.850 |
| Flt Protected | 0.950 | | | 0.950 | | | | | | 0.950 | | |
| Satd. Flow (prot) | 1805 | 1900 | 1553 | 1787 | 0 | 1615 | 0 | 3539 | 1583 | 1805 | 3539 | 1553 |
| Flt Permitted | 0.950 | | | 0.757 | | | | | | 0.252 | | |
| Satd. Flow (perm) | 1800 | 1900 | 1485 | 1378 | 0 | 1591 | 0 | 3539 | 1542 | 478 | 3539 | 1502 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | | 60 | | | 82 | | | 401 | | | 920 |
| Link Speed (k/h) | | 50 | | | 50 | | | 60 | | | 60 | |
| Link Distance (m) | | 157.5 | | | 131.0 | | | 183.5 | | | 348.2 | |
| Travel Time (s) | | 11.3 | | | 9.4 | | | 11.0 | | | 20.9 | |
| Confl. Peds. (#/hr) | 3 | | 32 | 32 | | 3 | 13 | | 6 | 6 | | 13 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 0% | 4% | 1% | 0% | 0% | 0% | 2% | 2% | 0% | 2% | 4% |
| Adj. Flow (vph) | 25 | 1 | 205 | 174 | 0 | 311 | 0 | 985 | 401 | 24 | 1087 | 920 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 25 | 1 | 205 | 174 | 0 | 311 | 0 | 985 | 401 | 24 | 1087 | 920 |
| Turn Type | Perm | NA | Perm | Perm | | Perm | | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | | | 2 | 6 | | 6 |
| Detector Phase | 4 | 4 | 4 | 8 | | 8 | | 2 | 2 | 6 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Minimum Split (s) | 16.7 | 16.7 | 16.7 | 16.7 | | 16.7 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (s) | 49.5 | 49.5 | 49.5 | 49.5 | | 49.5 | | 60.5 | 60.5 | 60.5 | 60.5 | 60.5 |
| Total Split (%) | 45.0% | 45.0% | 45.0% | 45.0% | | 45.0% | | 55.0% | 55.0% | 55.0% | 55.0% | 55.0% |
| Maximum Green (s) | 42.8 | 42.8 | 42.8 | 42.8 | | 42.8 | | 54.6 | 54.6 | 54.6 | 54.6 | 54.6 |
| Yellow Time (s) | 3.3 | 3.3 | 3.3 | 3.3 | | 3.3 | | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| All-Red Time (s) | 3.4 | 3.4 | 3.4 | 3.4 | | 3.4 | | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| Lost Time Adjust (s) | -2.7 | -2.7 | -2.7 | -2.7 | | -2.7 | | -1.9 | -1.9 | -1.9 | -1.9 | -1.9 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Recall Mode | None | None | None | None | | None | | Max | Max | Max | Max | Max |
| Walk Time (s) | 10.0 | 10.0 | 10.0 | 10.0 | | 10.0 | | 44.6 | 44.6 | 44.6 | 44.6 | 44.6 |
| Flash Dont Walk (s) | 22.8 | 22.8 | 22.8 | 22.8 | | 22.8 | | 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| Pedestrian Calls (#/hr) | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Act Effct Green (s) | 20.7 | 20.7 | 20.7 | 20.7 | | 20.7 | | 56.7 | 56.7 | 56.7 | 56.7 | 56.7 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.24 | 0.24 | | 0.24 | | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| v/c Ratio | 0.06 | 0.00 | 0.51 | 0.52 | | 0.70 | | 0.42 | 0.35 | 0.08 | 0.46 | 0.70 |

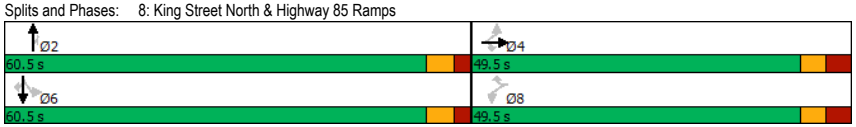




| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Control Delay | 24.0 | 23.0 | 23.5 | 33.6 | | 29.8 | | 8.2 | 1.7 | 7.6 | 8.6 | 4.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.0 | 23.0 | 23.5 | 33.6 | | 29.8 | | 8.2 | 1.7 | 7.6 | 8.6 | 4.0 |
| LOS | C | C | C | C | | C | | A | A | A | A | A |
| Approach Delay | | 23.6 | | | 31.2 | | | 6.3 | | | 6.5 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Queue Length 50th (m) | 3.3 | 0.1 | 21.0 | 25.9 | | 35.7 | | 36.1 | 0.0 | 1.3 | 41.5 | 0.0 |
| Queue Length 95th (m) | 9.2 | 1.3 | 41.3 | 45.1 | | 63.1 | | 65.4 | 11.3 | 5.5 | 74.7 | 15.0 |
| Internal Link Dist (m) | | 133.5 | | | 107.0 | | | 159.5 | | | 324.2 | |
| Turn Bay Length (m) | | | 80.0 | | | | | | 90.0 | 25.0 | | 150.0 |
| Base Capacity (vph) | 962 | 1015 | 821 | 736 | | 888 | | 2348 | 1158 | 317 | 2348 | 1306 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.03 | 0.00 | 0.25 | 0.24 | | 0.35 | | 0.42 | 0.35 | 0.08 | 0.46 | 0.70 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 85.5 | | | |
| Natural Cycle: 80 | | | |
| Control Type: Semi Act-Uncoord | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 10.3 | | Intersection LOS: B | |
| Intersection Capacity Utilization 121.8% | | ICU Level of Service H | |
| Analysis Period (min) 15 | | | |

Splits and Phases: 8: King Street North & Highway 85 Ramps





| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 142 | 0 | 0 | 255 | 172 | 201 |
| Future Volume (vph) | 142 | 0 | 0 | 255 | 172 | 201 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.927 | |
| Flt Protected | 0.950 | | | | | |
| Satd. Flow (prot) | 1444 | 0 | 0 | 1520 | 1409 | 0 |
| Flt Permitted | 0.950 | | | | | |
| Satd. Flow (perm) | 1444 | 0 | 0 | 1520 | 1409 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 47.0 | | | 55.7 | 124.3 | |
| Travel Time (s) | 3.4 | | | 4.0 | 8.9 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 154 | 0 | 0 | 277 | 187 | 218 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 154 | 0 | 0 | 277 | 405 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 3 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 142 | 0 | 0 | 255 | 172 | 201 |
| Future Vol, veh/h | 142 | 0 | 0 | 255 | 172 | 201 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 154 | 0 | 0 | 277 | 187 | 218 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 573 | 296 | 405 | 0 | - | 0 |
| Stage 1 | 296 | - | - | - | - | - |
| Stage 2 | 277 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 481 | 743 | 1154 | - | - | - |
| Stage 1 | 755 | - | - | - | - | - |
| Stage 2 | 770 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 481 | 743 | 1154 | - | - | - |
| Mov Cap-2 Maneuver | 481 | - | - | - | - | - |
| Stage 1 | 755 | - | - | - | - | - |
| Stage 2 | 770 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 16 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1154 | - | 481 | - | - |
| HCM Lane V/C Ratio | - | - | 0.321 | - | - |
| HCM Control Delay (s) | 0 | - | 16 | - | - |
| HCM Lane LOS | A | - | C | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.4 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 56 | 97 | 141 | 171 | 94 | 78 |
| Future Volume (vph) | 56 | 97 | 141 | 171 | 94 | 78 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.915 | | | | 0.939 | |
| Flt Protected | 0.982 | | | 0.978 | | |
| Satd. Flow (prot) | 1674 | 0 | 0 | 1822 | 1749 | 0 |
| Flt Permitted | 0.982 | | | 0.978 | | |
| Satd. Flow (perm) | 1674 | 0 | 0 | 1822 | 1749 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 52.7 | | | 47.0 | 46.9 | |
| Travel Time (s) | 3.8 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 61 | 105 | 153 | 186 | 102 | 85 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 166 | 0 | 0 | 339 | 187 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 45.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 4.9 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 56 | 97 | 141 | 171 | 94 | 78 |
| Future Vol, veh/h | 56 | 97 | 141 | 171 | 94 | 78 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 61 | 105 | 153 | 186 | 102 | 85 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 637 | 145 | 187 | 0 | - | 0 |
| Stage 1 | 145 | - | - | - | - | - |
| Stage 2 | 492 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 441 | 902 | 1387 | - | - | - |
| Stage 1 | 882 | - | - | - | - | - |
| Stage 2 | 615 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 387 | 902 | 1387 | - | - | - |
| Mov Cap-2 Maneuver | 387 | - | - | - | - | - |
| Stage 1 | 774 | - | - | - | - | - |
| Stage 2 | 615 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.2 | 3.6 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1387 | - | 607 | - | - |
| HCM Lane V/C Ratio | 0.11 | - | 0.274 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | 13.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | 1.1 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 28 | 20 | 4 | 282 | 184 | 6 |
| Future Volume (vph) | 28 | 20 | 4 | 282 | 184 | 6 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.943 | | | | 0.995 | |
| Flt Protected | 0.972 | | | 0.999 | | |
| Satd. Flow (prot) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Flt Permitted | 0.972 | | | 0.999 | | |
| Satd. Flow (perm) | 1393 | 0 | 0 | 1518 | 1512 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 41.2 | | | 47.9 | 47.0 | |
| Travel Time (s) | 3.0 | | | 3.4 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 30 | 22 | 4 | 307 | 200 | 7 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 52 | 0 | 0 | 311 | 207 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.2% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 28 | 20 | 4 | 282 | 184 | 6 |
| Future Vol, veh/h | 28 | 20 | 4 | 282 | 184 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 30 | 22 | 4 | 307 | 200 | 7 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 519 | 204 | 207 | 0 | - | 0 |
| Stage 1 | 204 | - | - | - | - | - |
| Stage 2 | 315 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 517 | 837 | 1364 | - | - | - |
| Stage 1 | 830 | - | - | - | - | - |
| Stage 2 | 740 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 515 | 837 | 1364 | - | - | - |
| Mov Cap-2 Maneuver | 515 | - | - | - | - | - |
| Stage 1 | 827 | - | - | - | - | - |
| Stage 2 | 740 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.4 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1364 | - | 613 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | 0.085 | - | - |
| HCM Control Delay (s) | 7.6 | 0 | 11.4 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 11 | 23 | 5 | 277 | 202 | 2 |
| Future Volume (vph) | 11 | 23 | 5 | 277 | 202 | 2 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.909 | | | | 0.999 | |
| Flt Protected | 0.984 | | | 0.999 | | |
| Satd. Flow (prot) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Flt Permitted | 0.984 | | | 0.999 | | |
| Satd. Flow (perm) | 1666 | 0 | 0 | 1861 | 1861 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 54.7 | | | 43.4 | 47.9 | |
| Travel Time (s) | 3.9 | | | 3.1 | 3.4 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 12 | 25 | 5 | 301 | 220 | 2 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 37 | 0 | 0 | 306 | 222 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 28.6% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 11 | 23 | 5 | 277 | 202 | 2 |
| Future Vol, veh/h | 11 | 23 | 5 | 277 | 202 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 12 | 25 | 5 | 301 | 220 | 2 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 532 | 221 | 222 | 0 | - | 0 |
| Stage 1 | 221 | - | - | - | - | - |
| Stage 2 | 311 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 508 | 819 | 1347 | - | - | - |
| Stage 1 | 816 | - | - | - | - | - |
| Stage 2 | 743 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 506 | 819 | 1347 | - | - | - |
| Mov Cap-2 Maneuver | 506 | - | - | - | - | - |
| Stage 1 | 813 | - | - | - | - | - |
| Stage 2 | 743 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.6 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1347 | - | 682 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.054 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.6 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.2 | - | - |



| Lane Group | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 4 | 23 | 5 | 277 | 224 | 1 |
| Future Volume (vph) | 4 | 23 | 5 | 277 | 224 | 1 |
| Ideal Flow (vphpl) | 1550 | 1550 | 1550 | 1550 | 1550 | 1550 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 0.884 | | | | 0.999 | |
| Flt Protected | 0.993 | | | 0.999 | | |
| Satd. Flow (prot) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Flt Permitted | 0.993 | | | 0.999 | | |
| Satd. Flow (perm) | 1334 | 0 | 0 | 1518 | 1518 | 0 |
| Link Speed (k/h) | 50 | | | 50 | 50 | |
| Link Distance (m) | 38.7 | | | 145.4 | 43.4 | |
| Travel Time (s) | 2.8 | | | 10.5 | 3.1 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 4 | 25 | 5 | 301 | 243 | 1 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 29 | 0 | 0 | 306 | 244 | 0 |
| Sign Control | Stop | | | Free | Free | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization 32.8% | | ICU Level of Service A | |
| Analysis Period (min) 15 | | | |





| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 23 | 5 | 277 | 224 | 1 |
| Future Vol, veh/h | 4 | 23 | 5 | 277 | 224 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 25 | 5 | 301 | 243 | 1 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 555 | 244 | 244 | 0 | - | 0 |
| Stage 1 | 244 | - | - | - | - | - |
| Stage 2 | 311 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - | - |
| Pot Cap-1 Maneuver | 493 | 795 | 1322 | - | - | - |
| Stage 1 | 797 | - | - | - | - | - |
| Stage 2 | 743 | - | - | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | 491 | 795 | 1322 | - | - | - |
| Mov Cap-2 Maneuver | 491 | - | - | - | - | - |
| Stage 1 | 793 | - | - | - | - | - |
| Stage 2 | 743 | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 0.1 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1322 | - | 728 | - | - |
| HCM Lane V/C Ratio | 0.004 | - | 0.04 | - | - |
| HCM Control Delay (s) | 7.7 | 0 | 10.2 | - | - |
| HCM Lane LOS | A | A | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

# Appendix N

## Region of Waterloo TDM Checklist

Region of Waterloo

# Travel Demand Management (TDM) Implementation Checklist

Version 9/18/2013

| | | | |
|---|---|---|---|
| **Case Study:** | 525-565 Conestogo Road | **Site Context:** | |
| **TDM Checklist No:** | 1 | **ZBL Parking Requirement:** | 4398 |
| **Date:** | June 2021 | **Applicable Parking Reduction:** | 25% |

**The Transportation Demand Management (TDM) Checklist and Parking Management Worksheet are not designed for residential properties, but can be used to inform mixed-use developments.**

## TABLE A — Site Access

In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities and features should encourage walking and cycling.

| Points | | Features | Yes | N/A |
|---|---|---|---|---|
| A1 | 2 | Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park or plaza. | X | |
| A2 | 1 | External to site: Continuous sidewalks (consistent with AODA Accessible Built Environment Standard) are provided along both sides of all adjacent public streets (over and above requirement)<br>AND Internal to site: Pedestrian walkways (consistent with AODA Accessible Built Environment Standard e.g.1.8m min width) are provided through large parking areas to link the building with the public street sidewalk system | | |
| A3 | 3 | Non-residential: development provides secure bike storage for 5% of the building occupants. Consistent with LEED requirements. | X | |
| A4 | 4 | Shower and change facilities for employees provided on-site consistent with LEED requirements. | X | |
| A5 | 2 | Provision of active uses at-grade along street frontages (e.g. retail). | X | |

| Category Max = | 10 | Total Points Applicable = | 10 | Score = | 10 |
|---|---|---|---|---|---|

## TABLE B — Public Transportation Access

The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents.

| Points | | Features | Yes | N/A |
|---|---|---|---|---|
| B1 | 1 | Bus shelters with seating are provided at the transit stop immediately adjacent to the development in consultation with Transportation Planning at the Region of Waterloo | | |
| B2 | 1 | Information regarding public transit routes, schedules and fares are provided in an accessible and visible location on site and in adjacent bus stops | | |
| B3a | 5 | Located within 800m of a Rapid Transit Station | X | |
| B3b | 3 | Located within 600 m of a bus service with headways of 15 min or less or is located in a designated mixed use corridor or node. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.** | | |
| B3c | 1 | Located within 400 m of a bus service with headways of 16 min to 30 min. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.** | | |

| Category Max = | 5 | Total Points Applicable = | 5 | Score = | 5 |
|---|---|---|---|---|---|

## TABLE C — Parking

Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing parking supply to match expected demand can a have a positive influence on the selection of alternative travel modes.

| Points | | Features | Yes | N/A |
|---|---|---|---|---|
| C1 | 24 | Utilizes reduced parking supply consistent with the TDM Parking Management Worksheet. Contact your Area Municipal planning authority to determine whether the Worksheet is applicable to your development. **Note: Points are awarded for either C1, C2, or C3 only. Please choose whichever applies with the highest value.** | X | |
| C2 | 24 | Includes allowances for shared parking in mixed-use zones. **Note: Points are awarded for C1, C2, or C3 only. Please choose whichever applies after consulting with the Area Municipal planning authority.** | | |
| C3 | 15 | Provides no more than the minimum number of parking spaces, as required by applicable Zoning By-Law. **Note: Points are awarded for either C1, C2, or C3 only. Please choose whichever applies.** | | |
| C4 | 10 | Implements paid parking on part or all of the site (e.g. parking permits, paid parking zones near main entrances) | | |
| C5 | 3 | Provides priority parking for carpooling/vanpooling participants equivalent to 5% of employee spaces | | |
| C6 | 5 | Commercial Uses: Provide car-share spaces equivalent to 2% of building occupants | | |
| C7 | 3 | Parking is not located on major street frontage or between a road right of way and the building facade. | X | |
| C8 | 5 | 25% to 50% of parking is located underground or in a structure | | |
| C9 | 10 | 50% to 75% of parking is located underground or in a structure | | |
| C10 | 15 | 75% of parking or more is located underground or in a structure | X | |
| C11 | 3 | Parking spaces provided off-site on a lot within 300 metres of the lot containing such use. | | |

| Category Max = | 25 | Total Points Applicable = | 25 | Score = | 25 |
|---|---|---|---|---|---|

**Case Study:** 525-565 Conestogo Road **Checklist No:** 1
**Date:** June 2021 **Site Context:** 0

| TABLE D | | Trip Reduction Incentives | | |
|---|---|---|---|---|
| A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel. | | | | |
| **Points** | | **Features** | | **N/A** |
| **D1** | **2** | The building owner/occupant will make available a ride matching service for car/vanpooling | | |
| **D2** | **2** | The building owner/occupant will make available emergency ride home options | | |
| **D3** | **5** | The building owner/occupant will make available subsidized transit passes for all occupants for a period of two years | | |
| **D4** | **5** | The building owner/occupant agrees to charge for parking as an unbundled cost to occupants | **X** | |
| **D5** | **2** | The building owner/occupant agrees to provide reduced cost parking for users of car/van pool, bicycle, moped/motorcycle spaces | | |
| **D6** | **10** | The building owner/occupant has prepared a TDM plan to the satisfaction of the Region of Waterloo and the Area Municipality that targets a 10% reduction in peak hour trips using forecast trip generation with status quo travel characteristics | | |
| **D7** | **5** | The employer has provided flexible working hours, telework or shift work arrangements. | | |
| **D8** | **14** | The development agrees to join Travelwise (TMA) that provides the same services outlined under items D1, D2, D6 | | |
| **D9** | **5** | The building owner/occupant will make available car sharing services | | |
| **D10** | **2** | The development includes mixed uses (i.e. retail, commercial or food services, daycares, or other complementary uses) on-site or located within 400 metres. | **X** | |
| **Category Max =** | 25 | **Total Points Applicable =** 25 | **Score =** | 7 |

| TABLE E | Checklist Summary | | | |
|---|---|---|---|---|
| For each item, a "Yes" answer is equivalent to the points as indicated in the section. N/A sections should be explained in an attachment to this table.<br>The score for each section is reflected as a percentage and calculated by dividing the points by the "Total Applicable". | | | | |
| **Category** | **Minimum Requirement** | **Total Applicable** | **Points Scored** | **Comments** |
| Pedestrian & Cyclist Orientation | 24 | 10 | 10 | |
| Public Transit Access | | 5 | 5 | |
| Parking | | 25 | 25 | |
| **SUB-TOTAL** | | **40** | **40** | |
| *Trip Reduction Incentives* | | *25* | 7 | |
| ***OVERALL TOTAL*** | | ***65*** | **47** | |

| TABLE F | Scoring Summary | | |
|---|---|---|---|
| **FINAL SCORE** | **RATING (check one)** | | |
| 50 - 65 | **** | | **TDM SUPPORTIVE DEVELOPMENT** |
| 40 -49 | *** | **X** | |
| 30 - 39 | ** | | |
| 24 - 29 | * | | |
| 0 - 23 | | | Non-TDM Supportive Development<br>(Review and upgrade TDM elements to pass) |

Comments:

Region of Waterloo

# Parking Management Worksheet

Version 9/18/2013

**Case Study:** 525-565 Conestogo Road **Site Context:**

**Date:** June 2021 **Reduction Worksheet No:** 1

**"Urban Growth Centres -** (UGC) area classification includes the Downtown / Uptown and RT Station Areas of Kitchener, Waterloo and Cambridge.

**"Intensification Corridor"** (IC) classification is applied to sites within 800 metres of the future CTC line

**"Other"** classification applies to all other sites

Please highlight the cell percentages applicable to your development under the appropriate classification. Please note that the Parking Management Worksheet and the Transportation Demand Management (TDM) Checklist are not designed for residential properties, but can be used for mixed-use developments. Local municipalities are the decision-making bodies with respect to consideration of parking reductions below Zoning By-law requirements.

| TABLE A | Pedestrian and Cyclist Orientation | | | |
|---|---|---|---|---|
| In creating an environment that supports pedestrian and cycling activity, the public realm must be accessible, safe, and comfortable to encourage movement on the street and in the surrounding area(s). These facilities and features should encourage walking and cycling. | | | | |
| | **Features** | **UGC** | **IC** | **Other** |
| **A1** | Development incorporates functional building entrances that are oriented to public space or to locations where pedestrians and transit users arrive from such as a street, square, park or plaza. | 1% | 1% | 1% |
| **A2** | Continuous sidewalks (1.5m min. width) are provided along both sides of all adjacent public streets and pedestrian walkways (1.5m min width) are provided through large parking areas to link the building with the public street sidewalk system | 0% | 0% | 1% |
| **A3** | Non-Residential: Development provides secure bike storage for 4% of the building occupants | 2% | 2% | 1% |
| **A4** | Shower and change facilities provided on-site consistent with LEED requirements. | 1% | 1% | 1% |
| **A5** | Provision of active uses at-grade along street frontages. | 1% | 1% | 1% |
| | **Category Maximum** | **4%** | **4%** | **4%** |
| | **Available Parking Reduction** | | **4%** | |

| TABLE B | Public Transportation Access | | | |
|---|---|---|---|---|
| The availability and proximity of convenient public transit service with direct pedestrian linkages to the building will provide viable travel options for employees, visitors and residents. | | | | |
| | **Features** | **UGC** | **IC** | **Other** |
| **B1** | Bus shelters with seating are provided at the transit stop immediately adjacent to the development, in consultation with Transportation Planning at the Region of Waterloo | 0% | 0% | 1% |
| **B2** | Information regarding public transit routes, schedules and fares are provided in an accessible and visible location on site and in adjacent bus stops | 0% | 0% | 1% |
| **B3a** | Located in an UGC or within 800 m of a future Rapid Transit Station | 24% | 12% | 0% |
| **B3b** | Located within 600m a transit route with 15 minute headways (or less) or is located in a designated mixed use corridor or node. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.** | - | - | 3% |
| **B3c** | Located within 400 metres of a bus service with headways of 15 min to 30 min. **Note: Points are awarded for either B3a, B3b or B3c only. Please choose whichever represents the highest order of transit.** | - | - | 1% |
| | **Category Maximum** | **24%** | **12%** | **5%** |
| | **Available Parking Reduction** | | **12%** | |

| TABLE C | Parking | | | |
|---|---|---|---|---|
| Vehicle parking facilities can affect the character, travel mode and cost of a development. Reducing parking supply to match expected demand can have a positive influence on the selection of alternative travel modes. | | | | |
| | **Features** | **UGC** | **IC** | **Other** |
| **C1** | Provides priority parking for carpooling/vanpooling participants equivalent to 5% of employee spaces | 0% | 0% | 5% |
| **C2** | Commercial Uses: Provide car-share spaces equivalent to 2% of building occupants | 2% | 2% | 0% |
| **C3** | Implements paid parking system on all or part of the site (e.g. parking permits, paid parking zones near main entrances) | 2% | 2% | 1% |
| **C4** | Parking is not located on major street frontage. | 0% | 0% | 1% |
| **C5** | 25% to 50% of parking is located underground or in a structure | 2% | 1% | 0% |
| **C6** | 50% to 75% of parking is located underground or in a structure | 4% | 2% | 0% |
| **C7** | 75% of parking or more is located underground or in a structure | 5% | 3% | 0% |
| | **Category Maximum** | **6%** | **4%** | **6%** |
| | **Available Parking Reduction** | | **4%** | |

**Sample Parking Reduction Worksheet** **FORM-2**

**Case Study:** 525-565 Conestogo Road **Site Context:** 0
**Date:** June 2021 **Worksheet No:** 1

| TABLE D | Trip Reduction Incentives | | | |
|---|---|---|---|---|
| A formal TDM plan will identify specific initiatives that will be initiated in order to encourage reduced single occupant vehicle travel. | | | | |
| | **Features** | **UGC** | **IC** | **Other** |
| **D1** | The building owner/occupant will provide a ride matching service for car/vanpooling | 0% | 0% | 1% |
| **D2** | The building owner/occupant will provide emergency ride home options | 3% | 2% | 1% |
| **D3** | The building owner/occupant will provide subsidized transit passes for all occupants for a period of two years | 10% | 4% | 2% |
| **D4** | The building owner/occupant agrees to charge for parking as a separate cost to occupants | 10% | 5% | 2% |
| **D5** | The building owner/occupant agrees to provide reduced cost for users of car/van pool, bicycle, moped/motorcycle spaces | 0% | 0% | 1% |
| **D6** | The development agrees to join Travelwise (TMA) that provides the same services outlined under items D1 and D2 | 9% | 6% | 4% |
| | **Category Maximum** | **23%** | **11%** | **7%** |
| | **Available Parking Reduction** | | **5%** | |

| TABLE E | Parking Reduction Summary | | | | |
|---|---|---|---|---|---|
| Please indicate the total reduction available based upon Tables A through D above. | | | | | |
| | | **Maximum Achievable Reduction** | | | |
| **Category** | **Reduction Achieved** | **UGC** | **IC** | **Other** | **Comments** |
| Pedestrian & Cyclist Orientation | **4%** | 4% | 4% | 4% | |
| Public Transit Access | **12%** | 24% | 12% | 5% | |
| Parking | **4%** | 6% | 4% | 6% | |
| Trip Reduction Incentives | **5%** | 23% | 11% | 7% | |
| **TOTAL** | **25%** | **57%** | **31%** | **22%** | |

| TABLE F | TOTAL REDUCTION ACHIEVED | 25% |
|---|---|---|

Comments: