TRANSPORTATION IMPACT STUDY

3855 DUNDAS STREET WEST
COMMERCIAL DEVELOPMENT
CITY OF MISSISSAUGA

PREPARED FOR:
DYMON INVESTMENTS LTD.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
2800 HIGH POINT DRIVE, SUITE 100
MILTON, ON
L9T 6P4

NOVEMBER 2018

CFCA FILE NO. 1644-5084

The material in this report reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 0	November 2018	Draft Circulation
Rev. 1	November 2018	1st Submission

1.0 Executive Summary

Background

CF Crozier & Associates Inc. (Crozier) was retained by Dymon Investments Ltd. to undertake a Transportation Impact Study in support of the development application for a proposed commercial development located at 3855 Dundas Street West in the City of Mississauga. The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted; as well as to evaluate road user safety and Transportation Demand Management (TDM) opportunities.

The development proposes three one-storey buildings and one five-storey building, consisting of a total of 5,182 sq. m (55,779 sq. ft) of retail space and a total of 11,047 sq. m (118,909 sq. ft) of self-storage spaces. The development proposes 181 parking spaces, 2 self-storage loading spaces and 10 bicycle parking spaces. The development proposes a right-in/right-out (RI/RO) access to Dundas Street West and a full-moves access to Ninth Line opposite the Glen Oaks Funeral Home & Cemetery Access (herein referred to as the Glen Oaks Access).

Scope

The study has been completed in accordance with the guidelines outlined below, as well as with Terms of Reference established with City of Mississauga staff and Region of Halton staff.

- Guidelines for the Preparation of Traffic Impact Studies (MTO, September 2014);
- Transportation Impact Study Guidelines (Region of Halton, January 2015); and
- Traffic Impact Study Guidelines (City of Mississauga).

The Transportation Impact Study analyzes the following intersections:

- Dundas Street West and Ninth Line
- Dundas Street West and Highway 403 West Ramp Terminal
- Dundas Street West and Highway 403 East Ramp Terminal
- Ninth Line and Burnhamthorpe Road
- Dundas Street West and proposed site access
- Ninth Line and Glen Oaks Access / proposed site access

Existing Conditions

Analysis of 2018 existing traffic operations indicates that the boundary road network is currently operating at acceptable levels of service, with the exception of Dundas Street and Ninth Line which is currently operating at capacity during the weekday p.m. peak hour. It was noted, however, that the modelling of the northbound right-turn is considered to overstate traffic operations for the aforementioned movement as camera footage indicates that despite the permissive phase type, northbound right-turn vehicles are steadily proceeding through the intersection during the protected eastbound and westbound left-turn phases.

Several other movements on the boundary road network are operating at or beyond capacity. There are opportunities to improve existing traffic operations, as noted:

- Implement a protected-overlap phase type for the northbound right-turn movement at Dundas Street West and Ninth Line; and
- Optimize signal timings for all signalized intersections.

Additionally, the intersection of Ninth Line and Burnhamthorpe Road is planned to be converted to roundabout control in the future, which would mitigate existing traffic operational issues.

Future Background Conditions

It is assumed that the proposed development will be fully built-out within the five-year horizon (2023). The MTO's guidelines require analysis of the five and ten year horizons from the estimated year of full build-out. Therefore, the 2023, 2028 and 2033 horizon years were analyzed, as confirmed by City staff and Regional staff.

Growth rates for Dundas Street West, Ninth Line and Burnhamthorpe Road were provided by City staff and Regional staff, and growth rates for the Highway 403 off-ramp approaches were derived from historical traffic volumes on Highway 403.

The Region of Halton has instructed Crozier to account for the future roadway improvements outlined in **Table E1** below.

Table E1
Future Roadway Improvements

Roadway	Segment or Intersection	Improvement	Assumed Year of Opening
Burnhamthorpe Road (future William Halton Parkway)	Trafalgar Road to east of Ninth Line	Widen to four lanes	2021 [1]
Ninth Line	William Halton Parkway	Two-lane roundabout construction	2021 [1]
	William Halton Parkway to Highway 407	Widen to four lanes	2025 [1]
	Dundas Street West to William Halton Parkway	Widen to four lanes	2027 [1]

Note 1: Assumed year of opening provided by Regional staff per the Region of Halton's Capital Implementation Plan.

Based on the assumed years of opening for the roadway improvements outlined above, the two-lane roundabout construction at Ninth Line and William Halton Parkway (existing Burnhamthorpe Road) and four-lane cross-section for William Halton Parkway was accounted for in the 2023, 2028 and 2033 horizon years, and the widening of Ninth Line was accounted for in the 2028 and 2033 horizon years.

Analysis of 2033 future background traffic operations indicate that the intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at or beyond capacity during the weekday a.m. and p.m. peak hours, respectively. However, the signal timing recommendations to existing traffic operations are expected to ultimately reduce critical traffic operations. It is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403. Additionally, the roundabout intersection of Ninth Line and William Halton Parkway is expected to operate at satisfactory levels of service, indicating that the implementation of roundabout control is expected to significantly improve traffic operations.

Future Total Conditions

The proposed development is expected to generate a total of 46, 161 and 223 total two-way primary trips during the weekday a.m. and p.m., and Saturday peak hours, respectively; and a total of 18, 72 and 65 total pass-by trips during the weekday a.m. and p.m., and Saturday peak hours, respectively.

Auxiliary left-turn lane analysis for the southbound left-turn movement from Ninth Line to Site Access B indicates that an exclusive southbound left-turn lane with over 25 metres of storage is warranted. However, the future widening of Ninth Line proposes a 3.0 metre centre lane which could be allocated as an exclusive southbound left-turn lane on Ninth Line to Site Access B, which would provide over 25 metres of vehicle storage.

Analysis of 2033 future total traffic operations indicate that the intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at or beyond capacity during the weekday a.m. and p.m. peak hours, respectively. These operations are consistent with 2033 future background conditions.

It is noted that the maximum forecasted increase in control delay from 2033 future background to future total conditions is 6.2 seconds, with the majority of the increases in control delay across the boundary road network approximately 1.3 seconds or less. Additionally, the maximum forecasted increase in 95th percentile queue length on the boundary road network from 2033 future background to future total conditions is 11.1 metres (equivalent to approximately two passenger cars in length). It is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403.

These metrics indicate that the addition of site traffic to the boundary road network is expected to result in minor impacts to traffic operations.

The proposed site accesses are overall expected to operate at acceptable levels of service, with the proposed full-moves site access to Ninth Line expected to operate beyond capacity during the weekday p.m. peak hour. It is expected that drivers experiencing heavy delays will divert and turn right onto Ninth Line to travel northbound as an alternate route to depart to Mississauga (via Burnhamthorpe Road). It is not considered feasible to restrict the left-turn movement out of the site access on the basis of heavy control delays during the weekday p.m. commuter peak hours, as it is expected that vehicles will be able to easily turn left from the site access onto Ninth Line during off-peak hours.

Therefore, the proposed development is supportable from a traffic operations perspective.

Safety Review

The proposed site access to Dundas Street West satisfies Region of Halton and MTO access management guidelines. The proposed site access to Ninth Line does not satisfy minimum spacing requirements per the Region's guidelines for full-moves accesses. However, the proposed site access is opposite the existing full-moves access to Glen Oaks. The proposed site access would form the fourth leg of the intersection of the existing Glen Oaks Access at Ninth Line. Therefore, the proposed full-moves access to Ninth Line is feasible, and also mitigates vehicle-vehicle collisions that would arise from an offset access alignment.

Sight distance analysis at the proposed site accesses concludes that the proposed development is supportable from a sight distance perspective.

The proposed site layout is expected to result in predictable travel patterns throughout the site and thus reduce the potential for vehicle-vehicle and vehicle-pedestrian collisions.

The illustrated truck turning circulation on the Site Plan to and from the proposed loading spaces for the self-storage building do not indicate any maneuverability issues to truck circulation.

Transportation Demand Management (TDM) Opportunities

Analysis of existing modal split indicates that there is a heavy reliance on automobile travel in the study area, which is expected given the environment of the study area.

However, there are existing transit services and active transportation facilities on Dundas Street West and Ninth Line in the study area. The future widening of Ninth Line north of Dundas Street West will provide on-street bike lanes and multi-use paths on both sides of the roadway. The provision of these active transportation facilities will provide connectivity to the existing active transportation facilities on the boundary road network and encourage walking and cycling as viable modes of transportation.

The development could provide a connection to the multi-use trail from the site to the future multi-use trail on the east side of Ninth Line to be constructed as part of the road widening. A direct connection between the site and the surrounding active transportation network would further increase pedestrian and cyclist safety, and encourage walking and cycling as viable modes of transportation.

There are also opportunities for "soft" TDM measures. For example, the retail stores could supply transit information (i.e. Mississauga "MiWay" Transit and Oakville Transit schedules and maps), maps of active transportation facilities in the Region of Halton and City of Mississauga, information on Smart Commute, and other informational material to promote awareness of alternate modes of transportation.

Conclusion

The analysis contained within this report was prepared using the Site Plan prepared by Nicholas Caragianis Architect Inc. (updated September 11, 2018). Any minor revisions to the development concept are not expected to affect the conclusions contained with this report.

In conclusion, the proposed development can be supported from a transportation operations and safety perspective, with the implementation of the noted recommendations.

TABLE OF CONTENTS

1.0 Executive Summary ii

2.0 Introduction 1
2.1 Background 1
2.2 Development Proposal 1
2.3 Purpose and Scope 1

3.0 Existing Conditions 2
3.1 Development Lands 2
3.2 Study Intersections 2
3.3 Boundary Road Network 2
3.4 Transit Operations 4
3.5 Active Transportation Network 4
3.6 Traffic Data 5
3.7 Traffic Modelling 6
3.7.1. City of Mississauga Modelling Guidelines 6
3.7.2. Left-Turn on Intergreen Adjustments 7
3.8 Intersection Operations 8

4.0 Future Background Conditions 10
4.1 Horizon Years 10
4.2 Growth Rate 11
4.2.1. Dundas Street West and Ninth Line 11
4.2.2. Burnhamthorpe Road 12
4.2.3. Highway 403 Ramp Terminals 12
4.3 Future Roadway Improvements 12
4.4 Roundabout Modelling 13
4.5 Intersection Operations 13

5.0 Site Generated Traffic 17
5.1 Unadjusted Trip Generation 17
5.2 Pass-By Trips 18
5.3 Trip Distribution 19
5.3.1. Self-Storage 19
5.3.2. Primary - Retail 20
5.3.3. Pass-By – Retail 21

6.0 Future Total Conditions 21
6.1 Basis of Assessment 21
6.2 Left-Turn Lane Warrant Analysis 22
6.3 Intersection Operations 22

7.0 Safety Review 28
7.1 Access Management 28
7.2 Sight Distance Analysis 29
7.3 Roadway Alignment 30
7.4 Vehicle-Vehicle Conflicts 30
7.5 Vehicle-Pedestrian Conflicts 31
7.6 Pedestrian and Cycling Connectivity 31
7.7 Internal Loading Circulation 31

8.0 Transportation Demand Management (TDM) Opportunities 32
8.1 Existing Modal Split 32
8.2 Existing Alternate Transportation Opportunities 32
8.3 Smart Commute 32
8.4 Future Alternate Transportation Opportunities 33
8.5 Site Specific TDM Opportunities 33

9.0 Conclusions 34

LIST OF TABLES

Table 1: Boundary Road Network
Table 2: Active Transportation Network
Table 3: Peak Hour Factors
Table 4: City of Mississauga Synchro Modelling Parameters
Table 5: Left-Turn on Intergreen Adjustments
Table 6: 2018 Existing Traffic Operations
Table 7: Compounded Growth Rates
Table 8: Future Roadway Improvements
Table 9: 2023 Future Background Traffic Operations
Table 10: 2028 Future Background Traffic Operations
Table 11: 2033 Future Background Traffic Operations
Table 12: Unadjusted Trip Generation
Table 13: Trip Generation – Primary and Pass-By Trips
Table 14: Trip Distribution – Self-Storage
Table 15: Trip Distribution – Retail (Primary)
Table 16: Left-Turn Lane Warrant Analysis Results
Table 17: 2023 Future Total Traffic Operations
Table 18: 2028 Future Total Traffic Operations
Table 19: 2033 Future Total Traffic Operations
Table 20: Sight Distance Analysis
Table 21: Existing Modal Split

LIST OF APPENDICES

Appendix A: Correspondence

Appendix B: Zoning By-Law Excerpts

Appendix C: Transit Information

Appendix D: Traffic Data

Appendix E: Level of Service Definitions

Appendix F: Detailed Capacity Analysis Worksheets

Appendix G: MTO Growth Rate Analysis

Appendix H: Ninth Line Widening Preliminary Design Drawings

Appendix I: TTS Data

Appendix J: Left-Turn Lane Warrant Analysis Worksheets

LIST OF FIGURES

Figure 1: Site Plan
Figure 2: Site Location Plan
Figure 3: Boundary Road Network
Figure 4: 2018 Existing Traffic Volumes
Figure 5: 2023 Future Background Traffic Volumes
Figure 6: 2028 Future Background Traffic Volumes
Figure 7: 2033 Future Background Traffic Volumes
Figure 8: Trip Distribution – Self-Storage
Figure 9: Trip Distribution – Retail (Primary)
Figure 10: Trip Distribution – Retail (Pass-By)
Figure 11: Trip Assignment – Self-Storage
Figure 12: Trip Assignment – Retail (Primary)
Figure 13: Trip Assignment – Retail (Pass-By)
Figure 14: 2023 Future Total Traffic Volumes
Figure 15: 2028 Future Total Traffic Volumes
Figure 16: 2033 Future Total Traffic Volumes

2.0 Introduction

2.1 Background

CF Crozier & Associates Inc. (Crozier) was retained by Dymon Investments Ltd. (Dymon) to undertake a Transportation Impact Study in support of the development application for a proposed commercial development located at 3855 Dundas Street West in the City of Mississauga.

Although the subject property is located within the City of Mississauga, Ninth Line is under the jurisdiction of the Region of Halton (designated as Regional Road 13). Additionally, the subject property is located within 200 metres of the interchange of Highway 403 and Dundas Street West, and thus is considered to be within the Ministry of Transportation of Ontario (MTO) permit control area.

2.2 Development Proposal

The development proposes three one-storey buildings and one five-storey building, consisting of a total of 5,182 sq. m (55,779 sq. ft) of retail space and a total of 11,047 sq. m (118,909 sq. ft) of self-storage spaces. The development proposes 181 parking spaces, 2 self-storage loading spaces and 10 bicycle parking spaces.

The development proposes a right-in/right-out (RI/RO) access to Dundas Street West and a full-moves access to Ninth Line opposite the Glen Oaks Funeral Home & Cemetery Access (herein referred to as the Glen Oaks Access).

The Site Plan, prepared by Nicholas Caragianis Architect Inc. (updated September 11, 2018) has been included as **Figure 1.**

2.3 Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the proposed development on the boundary road network and to recommend any required mitigation measures, if warranted.

The study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Existing, future background, and future total traffic operations on the boundary road network during the weekday a.m. and p.m. peak hours, and Saturday peak hour;
- Forecasted trip generation and distribution of the proposed development;
- Mitigation measures to support the proposed development, if required;
- Transportation safety components, including: sight distance requirements at the site accesses, access spacing and restrictions, and general safety issues pertaining to road users; and
- Transportation Demand Management (TDM) opportunities to reduce single-occupancy vehicle (SOV) trips.

The study has been completed in accordance with the following guidelines:

- Guidelines for the Preparation of Traffic Impact Studies (MTO, September 2014);
- Transportation Impact Study Guidelines (Region of Halton, January 2015); and
- Traffic Impact Study Guidelines (City of Mississauga).

The study has also been completed in accordance with Terms of Reference established with City of Mississauga staff (City staff) and Region of Halton staff (Regional staff). The MTO did not provide any comment on the proposed scope of work during the pre-consultation phase. **Appendix A** contains the correspondence outlining the approved terms of reference.

3.0 Existing Conditions

3.1 Development Lands

The subject property is located between a residential neighbourhood to the west, and employment and commercial lands to the east. The subject property is bound by Ninth Line Sports Park to the north, Dundas Street West to the south, vacant lands and Highway 403 to the east, and Ninth Line to the west. The subject property is currently vacant.

The subject property is currently zoned as E2-93 "Business Employment." **Appendix B** contains the Zoning By-Law excerpts.

Figure 2 contains the Site Location Plan.

3.2 Study Intersections

The Transportation Impact Study analyzes the following intersections:

- Dundas Street West and Ninth Line
- Dundas Street West and Highway 403 West Ramp Terminal
- Dundas Street West and Highway 403 East Ramp Terminal
- Ninth Line and Burnhamthorpe Road
- Dundas Street West and proposed site access
- Ninth Line and Glen Oaks Access / proposed site access

3.3 Boundary Road Network

The boundary road network at the site frontage is described in **Table 1** below.

Table 1
Boundary Road Network

Feature	Roadway			
	Dundas Street West	**Ninth Line**	**Burnhamthorpe Road**	**Highway 403**
Direction	Two-way (East-West)	Two-way (North-South)	Two-way (North-South)	Two-way (North-South) [1]
Classification	Arterial - Regional Road 5 (Halton Region)	Arterial - Regional Road 13 (Halton Region)	Arterial - Regional Road 27 (Halton Region)	Provincial Freeway
Jurisdiction	City of Mississauga & Region of Halton [2]	City of Mississauga & Region of Halton [2]	Region of Halton	MTO
Speed Limit	60 km/h	60 km/h	60 km/h	100 km/h *Off-Ramp advisory speed is 60 km/h*
Number of lanes total	Six	Four – south of Glen Oaks Access Two – north of Glen Oaks Access	Two	Four
Median type	Raised centre median	Centre lane – south of Dundas Street West None – north of Dundas Street West	None	Drainage channel (typical freeway separation)

Note 1: While Highway 403 primarily spans east-west, the freeway spans north-south in the immediate study area.
Note 2: Dundas Street West and Ninth Line both act as the jurisdiction line between the Town of Oakville (Region of Halton) and City of Mississauga (Region of Peel).

Dundas Street West connects to Highway 403 via a Parclo A-4 full-moves interchange.

The intersection of Dundas Street West and Ninth Line is signalized and operates under a semi-actuated mode of control, with Dundas Street West operating as the major street. The side-street phases are callable via overhead camera detection. All left-turn movements currently operate under a protected-permissive phase type. All intersection approaches feature marked pedestrian crosswalks.

The intersections of Dundas Street West and the Highway 403 ramp terminals are signalized and operate under a semi-actuated mode of control, with Dundas Street West operating as the major street. The side-street phases are callable via overhead camera detection. The minor street approaches (the off-ramp approaches) feature marked pedestrian crosswalks.

The intersection of Ninth Line and Glen Oaks Access is unsignalized with the side-street approach operating under stop control.

The intersection of Ninth Line and Burnhamthorpe Road is signalized and operates under a fully-actuated mode of control, with Burnhamthorpe Road operating as the major street. All approaches feature stop-bar loop detectors to allow the side-street phase to be called and to allow the main-street phase to be extended depending on the vehicle demand during the cycle. The southbound left-turn movement currently operates under a protected-permissive phase type. All intersection

approaches feature marked pedestrian crosswalks.

Figure 3 illustrates the existing boundary road network, including lane configurations, storage lengths, and intersection control.

3.4 Transit Operations

Oakville Transit operates bus Route 24 (South Common) in the immediate study area on Dundas Street West. The route is a two-way operation that spans from the GO Oakville station to the South Common Centre in Mississauga. The route operates from Monday to Friday from morning to evening (with peak hour headways of 15 minutes) and on Saturday and Sunday from morning to evening (with all-day headways of 30 minutes).

There are two existing bus stops in the immediate study area, located nearside at the north-east and south-west corners of the intersection of Dundas Street West and Ninth Line. These bus stops are serviced by Route 24.

City of Mississauga Transit System "Mi-Way" and GO Transit do not provide transit services within the immediate study area.

The boundary road network in **Figure 3** illustrates the existing bus stop locations in the study area. **Appendix C** contains relevant transit information.

3.5 Active Transportation Network

The existing active transportation facilities on the boundary road network are described in **Table 2** below.

Table 2
Active Transportation Network

Roadway	Pedestrian Facilities	Separation from Roadway	Cycling Facilities	Separation from Roadway
Dundas Street West	3.0 metre multi-use path (south side; west of Ninth Line)	2.5 metre concrete and grass boulevard	3.0 metre multi-use path (south side; west of Ninth Line)	2.5 metre concrete and grass boulevard
Ninth Line	3.0 metre multi-use path (west side; south of Dundas Street West) 1.5 metre concrete sidewalk (east side; south of Dundas Street West)	2.5 metre concrete and grass boulevard	3.0 metre multi-use path (west side; south of Dundas Street West) 1.5 metre on-street bike lanes (both sides; south of Dundas Street West)	2.5 metre concrete and grass boulevard (multi-use path) No separation (bike lanes)
Burnhamthorpe Road	None	N/A	None	N/A
Highway 403	None	N/A	None	N/A

As outlined above, the only roadway segments in the immediate study area to feature active transportation facilities are Dundas Street West (west of Ninth Line) and Ninth Line (south of Dundas Street West). The other roadways on the boundary road network do not feature active transportation facilities.

The boundary road network in **Figure 3** illustrates the existing pedestrian and cycling facilities in the study area.

3.6 Traffic Data

Turning movement counts were conducted by Spectrum Traffic Data Inc. staff at the study intersections on Thursday October 25, 2018 between 6:00 a.m. – 9:00 a.m., and on Saturday October 27, 2018 between 10:00 a.m. – 5:00 p.m.

Intersection analysis was conducted utilizing peak hour factors (PHFs) as calculated for each intersection during each time period. **Table 3** below outlines the calculated peak hour factors at each intersection during each peak hour.

Table 3
Peak Hour Factors

Intersection	Peak Hour	Peak Hour Factor
Dundas Street West and Ninth Line	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.97
	Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.98
	Saturday P.M. 12:15 p.m. – 1:15 p.m.	0.97
Dundas Street West and Highway 403 West Ramp Terminal	Weekday A.M. 7:30 a.m. – 8:30 a.m.	0.96
	Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.96
	Saturday P.M. 12:15 p.m. – 1:15 p.m.	0.96
Dundas Street West and Highway 403 East Ramp Terminal	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.95
	Weekday P.M. 4:45 p.m. – 5:45 p.m.	0.97
	Saturday P.M. 12:15 p.m. – 1:15 p.m.	0.97
Ninth Line and Glen Oaks Access	Weekday A.M. 7:30 a.m. – 8:30 a.m.	0.91
	Weekday P.M. 4:45 p.m. – 5:45 p.m.	0.93
	Saturday P.M. 12:15 p.m. – 1:15 p.m.	0.96
Ninth Line and Burnhamthorpe Road	Weekday A.M. 7:45 a.m. – 8:45 a.m.	0.95
	Weekday P.M. 5:00 p.m. – 6:00 p.m.	0.95
	Saturday P.M. 4:00 p.m. – 5:00 p.m.	0.96

These PHFs are overall reflective of typical urban commuter environments.

Signal timing data for the signalized intersections on Dundas Street West at Ninth Line and at both Highway 403 ramp terminals was provided by City staff.

The traffic count data and signal timing data are contained in **Appendix D**. **Figure 4** illustrates the 2018 existing traffic volumes that were recorded.

3.7 Traffic Modelling

3.7.1. City of Mississauga Modelling Guidelines

The boundary road network was modelled in Synchro 9.0 in conformance with the modelling guidelines per the City of Mississauga's "Traffic Impact Study Guidelines", as these modelling

guidelines were considered to be the most conservative amongst all of the governing Traffic Impact Study guidelines for this analysis (i.e. the Region of Halton and MTO's guidelines do not outline specific "default" lost time parameters whereas the City of Mississauga's guidelines do). **Table 4** below summarizes the Synchro modelling parameters set out by the City's guidelines.

Table 4
City of Mississauga Synchro Modelling Parameters

Parameter	Value
Ideal (base) saturation flow rate	Protected left-turn: 1,860 veh/hr/lane Exclusive through: 1,900 veh/hr/lane Exclusive right-turn: 1,640 veh/hr/lane
Lost Time [1]	Protected left-turn: 1.0 s Back-to-back left-turns: 1.0 s Main Phase: 5.0 s

Note 1: Lost time refers to the total lost time for the respective phase (intergreen minus lost time adjustment). Lost time adjustments were calculated so that the total lost time for the respective phases are equal to the values set out in the City's guidelines.

The results for signalized intersection operations were derived from Synchro. The results for unsignalized intersection operations were derived using HCM2000 methodology. 95th percentile queue lengths were derived from Synchro. The Level of Service (LOS) definitions for signalized and unsignalized intersections are included in **Appendix E**.

3.7.2. Left-Turn on Intergreen Adjustments

In addition to the City of Mississauga's modelling guidelines, adjustments were applied to account for left-turn on intergreens.

At intersections with high through volumes, left-turning vehicles waiting for gaps in the opposing traffic stream during a permissive phase may only be able maneuver through the intersection during the intergreen period. This behavior is typically observed at intersections approaching capacity, and was confirmed by viewing the camera footage collected during the traffic counts.

In accounting for the increased capacity of left-turning vehicles at the intersections in the boundary road network, the Canadian Capacity Guide recommends that up to two passenger cars can be reasonably discharged during each intergreen period for permissive phases.

The number of vehicles that are expected to discharge per intergreen period is determined by the following formula on page 3-20 in the Canadian Capacity Guide:

$Q_{LTOI} = n * X_{LTOI}$,

Where
Q_{LTOI} *= left-turn flow on intergreen (pcu/hr)*
n = number of cycles per hour
X_{LTOI} *= average number of left-turn passenger car units per intergreen period (2 assumed)*

Left turning volumes were analyzed with a reduction in volumes when movements were found to experience a volume-to-capacity ratio in excess of 1.00 under existing, future background or future total scenarios. This adjustment was not applied to left-turn movements with no opposing traffic

volumes (i.e. the Highway 403 off-ramp terminals on Dundas Street West).
Thus, adjustments were applied to the intersections of Dundas Street West and Ninth Line, and Ninth Line and Burnhamthorpe Road as outlined in **Table 5** below.

Table 5
Left-Turn on Intergreen Adjustments

Intersection	Time Period	Scenarios Applied	Movements Adjusted
Dundas Street and Ninth Line	Weekday A.M. Peak Hour	Existing Conditions Future Background Conditions Future Total Conditions	Westbound Left-Turn Northbound Left-Turn Southbound Left-Turn
	Weekday P.M. Peak Hour		Eastbound Left-Turn Northbound Left-Turn Southbound Left-Turn
Ninth Line and Burnhamthorpe Road	Weekday A.M. Peak Hour	Existing Conditions [1]	Westbound Left-Turn
	Weekday P.M. Peak Hour		Westbound Left-Turn

Note 1: This intersection is planned to be converted to roundabout control by 2021 (see Section 4.3), and thus these adjustments would not be applied to future background and future total conditions.

These modifications are in conformance with standard industry practice.

3.8 Intersection Operations

The existing intersection operations at the study intersections were analyzed using the existing traffic volumes illustrated in **Figure 4.** Detailed capacity analysis worksheets are included in **Appendix F**.

Table 6 outlines the 2018 existing traffic operations.

Table 6
2018 Existing Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	C	34.3 s	0.85 (EBT)	None
		P.M.	E	71.8 s	1.00 (WBT) 1.60 (NBR)	363.1 m > 90 m (NBR)
		SAT.	C	24.9 s	0.85 (SBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	D	43.4 s	1.18 (SBL)	None
		P.M.	D	42.2 s	0.99 (SBL) 1.08 (SBR)	None
		SAT.	C	21.6 s	0.78 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	B	17.7 s	0.73 (NBR)	None
		P.M.	B	12.2 s	0.72 (NBR)	None
		SAT.	B	14.6 s	0.75 (NBR)	None
Ninth Line and Glen Oaks Access	Stop (Minor Street)	A.M.	C	19.2 s	0.01 (EBLR)	None
		P.M.	C	15.2 s	0.04 (EBLR)	None
		SAT.	B	14.1 s	0.16 (EBLR)	None
Ninth Line and Burnhamthorpe Road	Signal	A.M.	D	37.2 s	0.92 (EBT) 0.87 (NBT)	24.2 m > 20 m (EBL) 40.4 m > 30 m (SBL)
		P.M.	D	43.2 s	0.99 (EBTR) 0.95 (WBL) 0.89 (WBT) 0.89 (NBT)	22.3 m > 20 m (EBL) 43.8 m > 30 m (SBL)
		SAT.	B	14.8 s	0.67 (SBL)	44.2 m > 30 m (SBL)

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

The boundary road network is currently operating at LOS "D" or better, with the exception of the intersection of Dundas Street West and Ninth Line which is currently operating at LOS "E" during the weekday p.m. peak hour with volume-to-capacity ratios exceeding 1.00.

The northbound right-turn movement at the intersection of Dundas Street West and Ninth Line is currently operating with a volume-to-capacity ratio of 1.60 during the weekday p.m. peak hour and a 95th percentile queue length of 363.1 metres, attributed to the existing 671 vehicles per hour for the

aforementioned movement. Heavy northbound right-turn volumes and delays were observed via the camera footage collected during the traffic counts. While this movement operates with an exclusive turn lane, this movement could operate with a protected overlap phase type (i.e. a green arrow indication for the northbound right-turn during the protected eastbound and westbound left-turn phases) to increase the capacity for the northbound right-turn lane movement.

It was observed via the camera footage collected during the traffic counts that despite the existing permissive phase type for the aforementioned movement, northbound right-turn drivers are merely coming to a "rolling" stop or in some instances not stopping at all before proceeding through the intersection during the protected eastbound and westbound left-turn phases. This indicates that the northbound right-turn movement is currently operating as if the phase type was protected overlap. Accordingly, the ideal saturation flow rate for this movement of 1640 vehicles per hour is considered to be understated, as it is expected that the ideal saturation flow rate would resemble that of a protected turning movement (1860 vehicles per hour).

Therefore, the results outlined for the northbound right-turn movement at the intersection of Dundas Street West and Ninth Line during the weekday p.m. peak hour are considered overstated.

There are other movements at intersections operating at LOS "D" or better that are currently experiencing volume-to-capacity ratios approaching or exceeding 1.00; particularly at the Highway 403 West Ramp Terminal at Dundas Street West at which the southbound left-turn movement is experiencing a volume-to-capacity ratio of 1.18 during the weekday a.m. peak hour attributed to heavy southbound left-turn volumes (as confirmed via the camera footage collected during the traffic counts).

Analysis of signal timings indicates that there are opportunities to improve the operations on the boundary road network by optimizing intersection splits. For example, optimized splits would reduce the volume-to-capacity ratio for the southbound left-turn movement at Dundas Street West and Highway 403 West Ramp Terminal from 1.18 to 0.89. Accordingly, signal timings were optimized for future background and future total analysis.

Additionally, the intersection of Ninth Line and Burnhamthorpe Road is planned to be converted to roundabout control by 2021, which would be expected to mitigate the existing critical volume-to-capacity ratios and queue lengths at the intersection.

4.0 Future Background Conditions

4.1 Horizon Years

It is assumed that the proposed development will be fully built-out within the five-year horizon (2023). Per the City of Mississauga and Region of Halton's guidelines, the horizon year is five-years from the date of the study (2018). However, the MTO's guidelines require analysis of the five and ten year horizons from the estimated year of full build-out. Therefore, the 2023, 2028 and 2033 horizon years were analyzed, as confirmed by City staff and Regional staff.

4.2 Growth Rate

4.2.1. Dundas Street West and Ninth Line

City staff have provided Crozier with growth rates to apply to Dundas Street West and Ninth Line. **Table 7** below outlines the compounded growth rates provided by City staff.

Table 7
Compounded Growth Rates

Street	Dundas Street West					
Horizon Years	2018 to 2023 (incl.)		2023 to 2028 (incl.)		2028 to 2033	
Direction	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
A.M. Peak Hour	1.0%	2.0%	0.5%	0.0% [1]	0.5%	0.0% [1]
P.M. Peak Hour	2.5%	1.0%	0.0% [1]	1.0%	0.0% [1]	1.0%
Street	**Ninth Line**					
Horizon Years	2018 to 2023 (incl.)		2023 to 2028 (incl.)		2028 to 2033	
Direction	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
A.M. Peak Hour	0.0% [1]	1.0%	6.0% [2]	5.0% [2]	6.0% [2]	5.0% [2]
P.M. Peak Hour	1.5%	0.5%	6.0% [2]	7.0% [2]	6.0% [2]	7.0% [2]

Note 1: For analysis, a growth rate of 0.5% compounded annually was applied in lieu of a zero percent growth rate.
Note 2: These growth rates were applied to through movements only. An industry standard growth rate of 2% compounded annually was applied to adjacent turning movements.

The higher growth rates on Ninth Line from 2023 onwards reflect the future widening of Ninth Line north of Dundas Street West (see Section 4.3).

The growth rates outlined above were applied to the boundary road network, with the following exceptions:

- It was not considered appropriate to apply a zero percent growth rate to any movements for future traffic forecasts. Therefore, a growth rate of 0.5% compounded annually was applied to the movements during the time periods where a zero percent growth rate is identified as above.

- The growth rates outlined above were applied to all movements on the respective roadways, with the exception of the horizon years with compounded growth rates between 5-7% (for Ninth Line). City staff have instructed Crozier to apply these higher growth rates to through movements only on Ninth Line for the respective directions and horizon years. In these instances, an industry standard growth rate of 2% compounded annually was applied to turning movements on Ninth Line.

As these growth rates were derived from City forecasting models for the weekday a.m. and p.m. peak periods, no growth rates were provided for the Saturday peak hour. Accordingly, the growth rates for the weekday p.m. peak period were assumed for the Saturday peak hour.

4.2.2. Burnhamthorpe Road

Regional staff have instructed Crozier to apply a 1% growth rate compounded annually on the boundary road network. While the growth rates provided by City staff for Dundas Street West and Ninth Line were higher and thus used in this analysis, the 1% growth rate was applied to eastbound and westbound traffic on Burnhamthorpe Road.

4.2.3. Highway 403 Ramp Terminals

To determine growth rates for the ramp approaches at the Highway 403 ramp terminals on Dundas Street West, historical growth rates were derived from Annual Average Daily Traffic (AADT) on Highway 403 at the Dundas Street West interchange. The latest AADT data available is for 2016; thus, growth rates from 2012 to 2016 were analyzed. **Appendix G** contains the growth rate data and analysis.

A compounded growth rate of 2.49% compounded annually was determined for Highway 403 between 2012 and 2016. Therefore, a growth rate of 2.5% compounded annually was applied to the ramp approaches at the Highway 403 ramp terminals.

4.3 Future Roadway Improvements

The Region of Halton is currently in the process of completing a Municipal Class Environmental Assessment for the widening of Ninth Line from two lanes to four lanes north of Dundas Street West to Highway 407. While the Environmental Study Report is not available for review at this time, the preliminary design drawings for the road widening were made available to Crozier.

Per the preliminary design drawings prepared by CIMA+ (dated June 22, 2017), the widening of Ninth Line will provide four travel lanes, a centre lane, on-street bike lanes, and a 3.0 metre multi-use path on both sides of the roadway. **Appendix H** contains the preliminary design drawings prepared by CIMA+ for the Ninth Line widening.

Additionally, the Region of Halton has identified the construction of William Halton Parkway as a future roadway improvement. The future roadway will run along the existing Burnhamthorpe Road alignment at Ninth Line. As part of the future roadway construction, the intersection of Ninth Line and Burnhamthorpe Road will be converted to a two-lane roundabout, which according to Regional staff is expected to be operational by 2021.

Table 8 outlines the future roadway improvements in the study area.

Table 8
Future Roadway Improvements

Roadway	Segment or Intersection	Improvement	Assumed Year of Opening
Burnhamthorpe Road (future William Halton Parkway)	Trafalgar Road to east of Ninth Line	Widen to four lanes	2021 [1]
Ninth Line	William Halton Parkway	Two-lane roundabout construction	2021 [1]
	William Halton Parkway to Highway 407	Widen to four lanes	2025 [1]
	Dundas Street West to William Halton Parkway	Widen to four lanes	2027 [1]

Note 1: Assumed year of opening provided by Regional staff per the Region of Halton's Capital Implementation Plan.

Based on the assumed years of opening for the roadway improvements outlined above, the two-lane roundabout construction at Ninth Line and William Halton Parkway (existing Burnhamthorpe Road) and four-lane cross-section for William Halton Parkway was accounted for in the 2023, 2028 and 2033 horizon years, and the widening of Ninth Line was accounted for in the 2028 and 2033 horizon years.

4.4 Roundabout Modelling

Modelling analysis for the future roundabout-controlled intersection of Ninth Line and William Halton Parkway was conducted using Junctions 8 (ARCADY) roundabout analysis software. Roundabout geometrics were measured from the preliminary design drawings.

4.5 Intersection Operations

The future background intersection operations at the study intersections were analyzed using the 2023, 2028 and 2033 future background traffic volumes illustrated in **Figures 5, 6 and 7,** respectively, and optimized signal timings. Detailed capacity analysis worksheets are included in **Appendix F**.

Tables 9, 10 and 11 outline the 2023, 2028 and 2033 future background traffic operations, respectively.

Table 9
2023 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	C	34.6 s	0.87 (EBT)	None
		P.M.	E	57.1 s	0.91 (EBT) 1.02 (WBT) 0.94 (NBL) 0.86 (NBT) 0.99 (NBR)	144.8 m > 130 m (NBL) 323.5 m > 90 m (NBR) 71.6 m > 65 m (SBR)
		SAT.	C	29.1 s	0.87 (SBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	D	44.0 s	0.95 (EBT) 0.96 (SBL) 0.79 (SBR)	None
		P.M.	E	57.2 s	1.03 (EBT) 0.98 (SBL) 1.08 (SBR)	None
		SAT.	C	25.0 s	0.81 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	20.3 s	0.77 (NBR)	None
		P.M.	B	14.5 s	0.76 (NBR)	None
		SAT.	B	17.2 s	0.77 (NBR)	None
Ninth Line and Glen Oaks Access	Stop (Minor Street)	A.M.	C	20.3 s	0.01 (EBLR)	None
		P.M.	C	15.5 s	0.04 (EBLR)	None
		SAT.	B	14.4 s	0.17 (EBLR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	A	5.19 s West leg	0.56 West leg	None
		P.M.	A	4.60 s South leg	0.55 South leg	None
		SAT.	A	2.81 s South leg	0.32 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

Table 10
2028 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	D	41.8 s	0.93 (EBT) 0.90 (NBL)	None
		P.M.	F	82.4 s	0.99 (EBT) 1.14 (WBT) 1.08 (NBL) 1.01 (NBT) 1.06 (NBR)	185.0 m > 130 m (NBL) 263.0 m > 90 m (NBR) 73.2 m > 65 m (SBR)
		SAT.	C	34.8 s	0.92 (SBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	E	58.6 s	1.01 (EBT) 1.03 (SBL) 0.89 (SBR)	None
		P.M.	E	71.6 s	1.09 (EBT) 1.08 (SBL) 1.19 (SBR)	None
		SAT.	C	28.5 s	0.83 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	22.9 s	0.81 (NBR)	None
		P.M.	B	16.7 s	0.78 (NBR)	None
		SAT.	B	19.5 s	0.79 (NBR)	None
Ninth Line and Glen Oaks Access	Stop (Minor Street)	A.M.	B	13.7 s	0.01 (EBLR)	None
		P.M.	B	14.2 s	0.03 (EBLR)	None
		SAT.	B	14.0 s	0.16 (EBLR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	A	7.30 s West leg	0.65 West leg	None
		P.M.	A	7.14 s South leg	0.71 South leg	None
		SAT.	A	3.28 s South leg	0.41 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

Table 11
2033 Future Background Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	E	55.1 s	1.01 (EBT) 0.91 (WBL) 1.01 (NBL) 1.00 (SBL) 0.98 (SBT)	77.5 m > 75 m (EBR) 133.5 m > 115 m (SBL)
		P.M.	F	121.4 s	0.85 (EBL) 0.97 (EBT) 1.30 (WBT) 1.28 (NBL) 1.20 (NBT) 1.20 (NBR)	194.4 m > 130 m (NBL) 319.5 m > 90 m (NBR) 84.2 m > 65 m (SBR)
		SAT.	D	43.6 s	0.91 (EBT) 0.91 (WBL) 0.97 (SBL)	128.4 m > 115 m (SBL)
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	E	77.0 s	1.07 (EBT) 1.12 (SBL) 0.99 (SBR)	None
		P.M.	F	93.0 s	1.18 (EBT) 1.17 (SBL) 1.28 (SBR)	None
		SAT.	C	32.4 s	0.77 (SBL) 0.86 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	26.1 s	0.84 (NBR)	None
		P.M.	B	19.3 s	0.80 (NBR)	None
		SAT.	C	22.2 s	0.81 (NBR)	None
Ninth Line and Glen Oaks Access	Stop (Minor Street)	A.M.	C	16.4 s	0.01 (EBLR)	None
		P.M.	C	25.0 s	0.07 (EBLR)	None
		SAT.	C	19.5 s	0.24 (EBLR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	B	14.11 s West leg	0.80 West leg	None
		P.M.	C	20.69 s South leg	0.92 South leg	None
		SAT.	A	4.18 s South leg	0.53 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

The intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at LOS "E" and "F" during the weekday a.m. and p.m. peak hours, respectively, with heavy control delays and volume-to-capacity ratios approaching or exceeding 1.00. This is a result of the already heavy traffic volumes under existing conditions being grown over a 15-year horizon, especially with high growth rates applied to northbound and southbound through traffic on Ninth Line. Additionally, several movements are expected to operate with 95th percentile queue lengths exceeding their designated storage lengths.

However, it is noted that the signal timing recommendations to existing traffic operations are expected to ultimately reduce critical traffic operations. For example, with the implementation of a protected overlap phase for the eastbound right-turn movement at Dundas Street West and Ninth Line, the volume-to-capacity ratio is expected to decrease from 1.60 to 1.20, even over a 15-year horizon with future background traffic growth. As discussed under existing conditions, the northbound right-turn movement is observed to be currently operating similar to a protected phase which indicates that the permissive phase modelling is overestimating traffic operations.

There are other movements at intersections operating at LOS "D" or better that are currently experiencing volume-to-capacity ratios approaching 1.00. However, unlike existing conditions where some of these volume-to-capacity ratios exceeded 1.00, none of these volume-to-capacity ratios are expected to exceed 1.00 under 2033 future background conditions, indicating that the optimized signal timings have ultimately reduced critical traffic operations.

It is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403.

The roundabout intersection of Ninth Line and William Halton Parkway is expected to operate at LOS "C" or better under 2033 future background conditions. The south leg is expected to operate with a volume-to-capacity ratio of 0.92, but the movement is otherwise expected to operate with minor delays. These operations indicate that the implementation of roundabout control at the intersection of Ninth Line and William Halton Parkway is expected to significantly improve traffic operations.

5.0 Site Generated Traffic

The proposed development will result in additional vehicles on the boundary road network that would otherwise not exist. The proposed development will also result in additional turning movements at the study intersections.

5.1 Unadjusted Trip Generation

Trip generation for the proposed development was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

Land Use Category (LUC) 151 "Mini-Warehouse" is defined as "… a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as 'self-storage' facilities." Therefore, LUC 151 was applied to the self-storage component of the proposed development.

LUC 820 "Shopping Centre" was applied to the retail component of the proposed development.

A fitted curve equation is provided for all land use categories outlined above, and the number of data plot points exceeds 20 data points. Therefore, the fitted curve equation was used to forecast trip generation for the proposed development.

Table 12 below outlines the unadjusted trip generation for the proposed development.

Table 12
Unadjusted Trip Generation

ITE Land Use Category	GFA	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
LUC 151 "Mini-Warehouse"	118,909 sq. ft	A.M.	7	5	12
		P.M.	9	11	20
		SAT.	22	15	37
LUC 820 "Shopping Centre"	55,779 sq. ft	A.M.	32	20	52
		P.M.	102	111	213
		SAT.	131	120	251
Development Total	**174,688 sq. ft**	**A.M.**	**39**	**25**	**64**
		P.M.	**111**	**122**	**233**
		SAT.	**153**	**135**	**288**

As with many multiuse integrated sites, internal interaction between the mixed-use facilities is expected to occur. For the proposed development, trip synergy between the self-storage and retail components is expected to occur. However, the internal trip synergy reductions are expected to be negligible given that the forecasted trip generation for the self-storage component is low in comparison to the retail component. Therefore, for the purposes of conservative analysis, internal trip reductions were not applied to the forecasted trip generation.

5.2 Pass-By Trips

As defined by the ITE Trip Generation Handbook, 3rd Edition, primary trips are trips made for the specific purpose of visiting the generator and pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Accordingly, these trips do not increase the volume of vehicles on the roadway.

Table F.9 of the ITE Trip Generation Handbook estimates a 34% pass-by trip rate for Category 820 "Shopping Centre" during the weekday p.m. peak period and a 26% pass-by trip rate during the Saturday peak period. As no data was available for the weekday a.m. peak period, the p.m. peak hour 34% pass-by trip rate was applied.

Table 13 below outlines the primary and pass-by trip generation for the proposed development.

Table 13
Trip Generation – Primary and Pass-By Trips

Component	Trip Type	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
Self-Storage	Primary	A.M.	7	5	12
		P.M.	9	11	20
		SAT.	22	15	37
	Pass-By	A.M.	0	0	0
		P.M.	0	0	0
		SAT.	0	0	0
Retail	Primary	A.M.	21	13	34
		P.M.	67	73	141
		SAT.	97	89	186
	Pass-By	A.M.	11	7	18
		P.M.	35	38	72
		SAT.	34	31	65
Total	**Primary**	**A.M.**	**28**	**18**	**46**
		P.M.	**76**	**84**	**161**
		SAT.	**119**	**104**	**223**
	Pass-By	**A.M.**	**11**	**7**	**18**
		P.M.	**35**	**38**	**72**
		SAT.	**34**	**31**	**65**

The proposed development is expected to generate a total of 46, 161 and 223 total two-way primary trips during the weekday a.m. and p.m., and Saturday peak hours, respectively; and a total of 18, 72 and 65 total pass-by trips during the weekday a.m. and p.m., and Saturday peak hours, respectively.

5.3 Trip Distribution

5.3.1. Self-Storage

The trips generated by the self-storage component of the proposed development were distributed to the boundary road network based on the location of estimated residential catchment areas and the location of existing self-storage facilities in Oakville and Mississauga.

There are several existing self-storage facilities east of Highway 403 in Mississauga and south of Highway 403 in Oakville which would be expected to capture the surrounding residential areas in Mississauga and southern Oakville. Therefore, trips are primarily expected to be local to the study area and primarily arrive from and depart to the west within Oakville.

It is estimated that approximately 90% of trips will arrive from and depart to the west within Oakville. Of these 90%, approximately 75% are expected to arrive from and depart to the west via Dundas Street West, and approximately 15% are expected to arrive from and depart to the west via Ninth Line (south) and Upper Middle Road East.

The resultant trip distribution for the self-storage component is outlined in **Table 14** below.

Table 14
Trip Distribution – Self-Storage

Arriving From / Departing To	Percentage
West (via Dundas Street West)	75%
South (via Ninth Line)	15%
North (via Ninth Line)	5%
East (via Dundas Street West)	5%
Total	**100%**

Figure 8 outlines the trip distribution for the self-storage component.

5.3.2. Primary - Retail

The primary trips generated by the retail component were distributed to the boundary road network based on 2016 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey of transportation characteristics of households in the Golden Horseshoe, County of Simcoe and surrounding areas.

For the proposed development, TTS results were filtered to auto trips entering 2006 GTA Zone 4035 during the p.m. peak period for the purposes of "market/shop." 2006 GTA Zone 4035 consists of a large retail plaza fronting Dundas Street West and Trafalgar Road in Oakville approximately three kilometres to the west of the subject property, and thus was considered to be an appropriate surrogate site for estimating retail trip distribution.

From this query, trip origins were determined and percentage of trips assigned from each origin was accounted for. Trips were assumed to travel to and from their origin points based on the most convenient route.

The resultant trip distribution for the retail component is outlined in **Table 15** below.

Table 15
Trip Distribution – Retail (Primary)

Arriving From / Departing To	Percentage
West (via Dundas Street West)	60%
South (via Ninth Line)	5%
North (via Ninth Line)	10%
East (via Dundas Street West)	15%
East (via Highway 403)	5%
West (via Highway 403)	5%
Total	**100%**

Figure 9 outlines the primary trip distribution for the retail use. **Appendix I** contains the TTS data.

5.3.3. Pass-By – Retail

The pass-by trips generated by the retail component were distributed to the boundary road network based on existing travel patterns at the intersection of Dundas Street West and Ninth Line. Trip diversions were accounted for, particularly for the westbound right-turn movement at Dundas Street West and Ninth Line. Drivers that are currently turning right onto Ninth Line from Dundas Street West (westbound right-turn) that choose to enter the site will now have the opportunity to exit directly onto Ninth Line via Site Access B. This would result in reduced westbound right-turn movements at the intersection of Dundas Street West and Ninth Line.

The existing proportions of traffic volumes at the aforementioned intersection were assumed for pass-by trip distributions, excluding the northbound right-turn, eastbound through and southbound left-turn movements. These drivers that are destined to the east via Dundas Street West would be required to turn left from the development via Site Access B onto Ninth Line, and then turn left onto Dundas Street West to continue travelling east`. It is expected that given the multiple left-turn movements required, these trips would not make the retail component a "pass-by" destination on their travel routes.

Figure 10 outlines the pass-by trip distribution for the retail component.

Figure 11 outlines the trip assignment for the self-storage component. **Figure 12** outlines the primary trip assignment for the retail component. **Figure 13** outlines the pass-by trip assignment for the retail component.

6.0 Future Total Conditions

6.1 Basis of Assessment

The site generated traffic volumes illustrated in **Figures 11, 12 and 13** were added to the 2023, 2028 and 2033 future background traffic volumes in **Figures 5, 6 and 7**, respectively, to determine the future total traffic volumes. **Figures 14, 15 and 16** outline the 2023, 2028 and 2033 future total traffic

volumes, respectively.

6.2 Left-Turn Lane Warrant Analysis

Auxiliary left-turn lane warrant analysis was conducted for the intersection of Ninth Line and Glen Oaks Access / Site Access B under 2033 future total conditions. The analysis was conducted using the Ministry of Transportation (MTO)'s "Design Supplement for TAC Geometric Design Guide for Canadian Roads – June 2017." As the proposed site access will form the east leg of the intersection at Ninth Line, the southbound left-turn movement was analyzed for left-turn lane requirements.

The design speed of a roadway in an urban environment is typically 10-20 km/h greater than the posted speed limit. The posted speed limit on Ninth Line is 60 km/h. Therefore, a design speed of 80 km/h was assumed for the left-turn lane warrant analysis.

As the future cross-section of Ninth Line proposes a centre lane separating opposing travel flows, the warrant for "Left Turn Storage Lanes Four-Lane Divided Highways Unsignalized" was applied to the 2033 horizon year.

Table 16 below outlines the results of the left-turn lane warrant analysis.

Table 16
Left-Turn Lane Warrant Analysis Results

Location	Movement	Design Speed	Horizon Year	Number of lanes on major road	Left-Turn Lane Storage Requirement?
Ninth Line and Glen Oaks Access / Site Access B	Southbound left-turn	80 km/h	2033	Four	25+ metres

The results of the left-turn lane analysis indicate that an exclusive southbound left-turn lane with over 25 metres of storage is warranted on Ninth Line at Site Access B. The reasoning for the required storage is the northbound opposing volumes during the weekday p.m. peak hour exceeding the maximum opposing volume threshold on the left-turn lane warrant.

However, per the preliminary design drawings prepared by CIMA+, a centre lane median is proposed as part of the Ninth Line widening. The width of the centre lane at the Site Access is approximately 3.0 metres. This proposed centre lane is marked by pavement markings as a gore area (marked yellow on the preliminary design drawings). This unused centre lane could be allocated as an exclusive southbound left-turn lane on Ninth Line to Site Access B, which would provide over 25 metres of vehicle storage. This turn lane would be aligned with the existing northbound left-turn lane to the Glen Oaks access, and would operate separately from the southbound left-turn lane to Dundas Street West.

Appendix J contains the left-turn warrant analysis worksheets.

6.3 Intersection Operations

Based on the future total traffic operations at the intersection of Dundas Street West and Ninth Line, a protected-permissive phase type for the southbound left-turn movement during the Saturday peak hour is recommended. This movement, along with the northbound left-turn movement,

currently operates under a protected-permissive phase type during the weekday a.m. and p.m. peak hours but currently operates under a permissive-only phase type during the Saturday peak hour. The provision of a southbound left-turn protected-permissive phase type during the Saturday peak hour under future total conditions would accommodate the site traffic assigned to this movement and minimize the impacts of site traffic on the overall intersection.

The future total intersection operations at the study intersections were analyzed using the 2023, 2028 and 2033 future total traffic volumes illustrated in **Figures 14, 15 and 16,** respectively, and optimized signal timings. Detailed capacity analysis worksheets are included in **Appendix F**.

Tables 17, 18 and 19 outline the 2023, 2028 and 2033 future total traffic operations, respectively.

Table 17
2023 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	D	35.0 s	0.88 (EBT)	None
		P.M.	E	62.2 s	1.02 (EBL) 0.91 (EBT) 1.05 (WBT) 0.94 (NBL) 0.87 (NBT) 0.99 (NBR)	146.6 m > 130 m (NBL) 324.6 m > 90 m (NBR) 70 m > 65 m (SBR)
		SAT.	C	34.6 s	0.80 (NBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	D	44.2 s	0.95 (EBT) 0.96 (SBL) 0.79 (SBR)	None
		P.M.	E	57.0 s	1.03 (EBT) 1.00 (SBL) 1.09 (SBR)	None
		SAT.	C	25.2 s	0.81 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	20.3 s	0.77 (NBR)	None
		P.M.	B	14.6 s	0.76 (NBR)	None
		SAT.	B	17.3 s	0.77 (NBR)	None
Dundas Street West and Site Access A	Stop (Minor Street)	A.M.	B	10.1 s	0.02 (SBR)	None
		P.M.	A	9.9 s	0.10 (SBR)	None
		SAT.	B	10.1 s	0.11 (SBR)	None
Ninth Line and Glen Oaks Access / Site Access B	Stop (Minor Street)	A.M.	C	20.6 s	0.05 (WBLTR)	None
		P.M.	B	19.2 s	0.16 (WBLTR)	None
		SAT.	C	21.5 s	0.20 (WBLTR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	A	5.20 s West leg	0.56 West leg	None
		P.M.	A	4.65 s South leg	0.55 South leg	None
		SAT.	A	2.83 s South leg	0.32 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

Table 18
2028 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	D	42.1 s	0.93 (EBT) 0.89 (NBL) 0.86 (SBL)	None
		P.M.	F	87.5 s	1.10 (EBL) 0.97 (EBT) 1.15 (WBT) 1.11 (NBL) 1.04 (NBT) 1.07 (NBR)	189.9 m > 130 m (NBL) 264.1 m > 90 m (NBR) 84.2 m > 65 m (SBR)
		SAT.	D	38.1 s	0.85 (NBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	E	58.8 s	1.01 (EBT) 1.03 (SBL) 0.89 (SBR)	None
		P.M.	E	72.9 s	1.10 (EBT) 1.09 (SBL) 1.19 (SBR)	None
		SAT.	C	28.7 s	0.84 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	22.9 s	0.81 (NBR)	None
		P.M.	B	16.7 s	0.78 (NBR)	None
		SAT.	B	19.5 s	0.79 (NBR)	None
Dundas Street West and Site Access A	Stop (Minor Street)	A.M.	B	10.2 s	0.02 (SBR)	None
		P.M.	B	10.1 s	0.11 (SBR)	None
		SAT.	A	9.6 s	0.10 (SBR)	None
Ninth Line and Glen Oaks Access / Site Access B	Stop (Minor Street)	A.M.	C	18.5 s	0.04 (WBLTR)	None
		P.M.	C	24.6 s	0.21 (WBLTR)	None
		SAT.	C	22.2 s	0.20 (WBLTR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	A	7.32 s West leg	0.65 West leg	None
		P.M.	A	7.26 s South leg	0.71 South leg	None
		SAT.	A	3.31 s South leg	0.41 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

Table 19
2033 Future Total Traffic Operations

Intersection	Control	Peak Hour	Level of Service [1]	Control Delay	Critical v/c ratio [2]	95th Percentile Queue Length > Storage Length
Dundas Street West and Ninth Line	Signal	A.M.	E	55.6 s	1.01 (EBT) 0.91 (WBL) 1.00 (NBL) 1.01 (SBL) 0.98 (SBT)	77.7 m > 75 m (EBR) 116.6 m > 115 m (SBL)
		P.M.	F	127.6 s	1.14 (EBL) 0.95 (EBT) 1.34 (WBT) 1.27 (NBL) 1.21 (NBT) 1.22 (NBR) 0.92 (SBL)	193.6 m > 130 m (NBL) 330.6 m > 90 m (NBR) 86.3 m > 65 m (SBR)
		SAT.	D	43.4 s	0.90 (EBL) 0.86 (WBT) 0.91 (NBL) 0.89 (SBL)	None
Dundas Street West and Highway 403 West Ramp Terminal	Signal	A.M.	E	77.3 s	1.07 (EBT) 1.12 (SBL) 1.00 (SBR)	None
		P.M.	F	94.3 s	1.19 (EBT) 1.17 (SBL) 1.28 (SBR)	None
		SAT.	C	32.7 s	0.78 (SBL) 0.87 (SBR)	None
Dundas Street West and Highway 403 East Ramp Terminal	Signal	A.M.	C	26.1 s	0.84 (NBR)	None
		P.M.	B	19.4 s	0.80 (NBR)	None
		SAT.	C	22.2 s	0.81 (NBR)	None
Dundas Street West and Site Access A	Stop (Minor Street)	A.M.	B	10.3 s	0.02 (SBR)	None
		P.M.	B	10.4 s	0.11 (SBR)	None
		SAT.	A	9.6 s	0.10 (SBR)	None
Ninth Line and Glen Oaks Access / Site Access B	Stop (Minor Street)	A.M.	D	26.2 s	0.07 (WBLTR)	None
		P.M.	F	73.9 s	0.50 (WBLTR)	None
		SAT.	D	33.7 s	0.30 (WBLTR)	None
Ninth Line and William Halton Parkway	Round-about	A.M.	B	14.19 s West leg	0.80 West leg	None
		P.M.	C	21.47 s South leg	0.92 South leg	None
		SAT.	A	4.23 s South leg	0.53 South leg	None

Note 1: The Level of Service of a signalized intersection is based on the average control delay per vehicle (Synchro/ICU). The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM2000).

Note 2: The critical v/c ratio is considered to be the maximum v/c ratio for movements at the intersection. In addition, all v/c ratios for ramp approaches at ramp terminals greater than 0.75 are outlined and highlighted (per MTO guidelines), and all v/c ratios for all other movements greater than 0.85 are outlined and highlighted.

The intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at LOS "E" and "F" during the weekday a.m. and p.m. peak hours, respectively, with heavy control delays and volume-to-capacity ratios approaching or exceeding 1.00. Additionally, several movements are expected to operate with 95th percentile queue lengths exceeding their designated storage lengths. These operations are consistent with 2033 future background conditions, in which the critical traffic operations were a result of the already heavy traffic volumes under existing conditions being grown over a 15-year horizon, especially with high growth rates applied to northbound and southbound through traffic on Ninth Line.

As discussed under existing conditions, the northbound right-turn movement at the intersection of Dundas Street West and Ninth Line is observed to be currently operating similar to a protected phase which indicates that the permissive phase modelling is overestimating traffic operations.

However, for the intersection of Dundas Street West and Ninth Line, the maximum forecasted increase in control delay from 2033 future background to future total conditions is 6.2 seconds (during the weekday p.m. peak hour). The forecasted increase in control delay during the weekday a.m. peak period is 0.5 seconds and no increase in control delay during the Saturday peak period. The zero increase in control delay during the Saturday peak hour is a result of the recommended southbound left-turn protected-permissive phase type during the Saturday peak hour.

The maximum forecasted increase in control delay from 2033 future background to future total conditions at the Highway 403 ramp terminals on Dundas Street West is 1.3 seconds. Additionally, it is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403.

The maximum forecasted increase in 95th percentile queue length on the overall boundary road network from 2033 future background to future total conditions is 11.1 metres (equivalent to approximately two passenger cars in length).

The proposed RI/RO site access to Dundas Street West (Site Access A) is expected to operate at LOS "B" or better during the peak hours.

The proposed full-moves access to Ninth Line (Site Access B) is expected to operate at LOS "F" during the weekday p.m. peak hour. This is a result of heavy delays associated with the westbound left-turn outbound movement waiting for gaps in heavy traffic volumes on Ninth Line. Site traffic that is turning left onto Ninth Line from the site access is expected to depart to Mississauga and Highway 403.

However, while the modelling results indicate heavy control delays for the westbound left-turn movement, it is expected that drivers experiencing heavy delays will divert and turn right onto Ninth Line to travel northbound as an alternate route to depart to Mississauga (via Burnhamthorpe Road). It is not considered feasible to restrict the left-turn movement out of the site access on the basis of heavy control delays during the weekday p.m. commuter peak hours, as it is expected that vehicles

will be able to easily turn left from the site access onto Ninth Line during off-peak hours.

The roundabout intersection of Ninth Line and William Halton Parkway is expected to operate at LOS "C" or better under 2033 future total conditions. The south leg is expected to operate with a volume-to-capacity ratio of 0.92, but the movement is otherwise expected to operate with minor delays. The maximum increase in control delay from 2033 future background to future total conditions is 0.78 seconds.

These metrics indicate that the addition of site traffic to the boundary road network is expected to result in minor impacts to traffic operations. Therefore, the proposed development is supportable from a transportation operations perspective.

7.0 Safety Review

Per the Region of Halton and City of Mississauga guidelines, a safety review of the proposed development is required. The purpose of the safety review is to identify any safety deficiencies for auto drivers, pedestrians and cyclists for the proposed development, and to identify how the development proposes to maximize safety for all road users.

7.1 Access Management

The proposed site accesses were evaluated per the Region of Halton's Access Management Guideline (January 2015).

The proposed site access to Dundas Street West is located approximately 140 metres east of Ninth Line, and will be restricted to a RI/RO operation given the raised centre median on Dundas Street West. The minimum spacing requirement for a RI/RO access is 115 metres from an adjacent access or intersection. Therefore, the proposed RI/RO site access to Dundas Street West conforms to the Region's guidelines.

The proposed site access to Ninth Line is located approximately 120 metres north of Dundas Street West and is proposed to be a full-moves access. The minimum spacing requirement for a full-moves access is 300 metres from an adjacent access or intersection. While the proposed spacing does not satisfy minimum spacing requirements, it is noted that the proposed site access is opposite the existing full-moves access to Glen Oaks, which is also located approximately 120 metres north of Dundas Street West. The proposed site access would form the fourth leg of the intersection of the existing Glen Oaks Access at Ninth Line. The access is also as far north as can be sited. Therefore, the proposed full-moves access to Ninth Line is feasible. The proposed access location would also mitigate vehicle-vehicle collisions that would arise from an offset access alignment.

Additionally, the proposed RI/RO access to Dundas Street West was reviewed per the MTO's Highway Access Management Guideline (December 2013). "Figure 15: Functional Interchange Area – Access Connection Offset Spacing Criterial – Parclo A-4 I/C" was reviewed to determine minimum access spacing from the Highway 403 interchange on Dundas Street West. An access spacing between 125-185 metres is recommended between the proposed RI/RO access and the Highway 403 west ramp terminal, with a desirable offset spacing of 150 metres associated with a posted speed of 60 km/h. As the measured spacing is approximately 160 metres, the proposed RI/RO access to Dundas Street West conforms to the MTO's access management guidelines.

7.2 Sight Distance Analysis

The available sightlines at the proposed site access on Ontario Street were measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distance was measured from the proposed site accesses using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car, and
- A 4.4 metre setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

$$ISD = 0.278 * V\ major * tg$$

Where;
ISD = Intersection Sight Distance
V major = design speed of roadway (km/h)
tg = assumed time gap for vehicles to turn from stop onto roadway (s)

The design speed of a roadway in an urban environment is typically 10-20 km/h greater than the posted speed limit. The posted speed limit on Dundas Street West and Ninth Line is 60 km/h. Therefore, a design speed of 80 km/h was assumed for the sight distance analysis.

As the proposed access to Dundas Street West will be restricted to a RI/RO operation, sight distance requirements were only analyzed for vehicles turning right from the site access onto the roadway as left-turns are restricted by the access type.

Typically, vehicles turning right from an access onto a roadway will turn into and travel in the curb lane. However, for the proposed access on Dundas Street West approximately 140 metres east of Ninth Line, it is assumed that a portion of site generated traffic will turn left onto Ninth Line which would require several lane changes within a relatively short span. Thus, additional time gaps were applied to the sight distance analysis for the Dundas Street West access.

Table 20 below outlines the sight distance analysis for the proposed site accesses.

Table 20
Sight Distance Analysis

Feature	Dundas Street West Access	Ninth Line Access
Access Type	RI/RO	Full-Moves
Posted Speed Limit of Roadway	60 km/h	60 km/h
Assumed Design Speed	80 km/h	80 km/h
Base Time Gap	6.5 s [1]	7.5 s [2]
Additional Time Gap	2.0 s (time to cross three westbound through lanes and left-turn lane adjacent gore area)	1.0 s (time to cross additional northbound through lane and centre lane)
Grade of Roadway	Less than 3%	Less than 3%
Horizontal Alignment of Roadway	Straight	Straight
Sight Distance Required	190 m [3]	190 m [3]
Measured Sight Distance	> 225 m (to east)	+ 225 m (to north and south)
Minimum Sight Distance Satisfied?	Yes	Yes

Note 1: Time gap for right-turning vehicles from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.5 in the GDGCR.
Note 2: Time gap for left-turning vehicles from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.3 in the GDGCR.
Note 3: Sight distance values calculated from Intersection Sight Distance equation 9.9.1 in the GDGCR.

As outlined in **Table 7**, minimum sight distance requirements are satisfied at the proposed site accesses on Dundas Street West and Ninth Line.

Therefore, the proposed development is supportable from a sight distance perspective.

7.3 Roadway Alignment

The horizontal alignment of the boundary road network in the study area is relatively straight, and the vertical alignment of the boundary road network is relatively flat. Therefore, roadway alignment is not considered to be a traffic safety concern for the proposed development.

7.4 Vehicle-Vehicle Conflicts

The proposed site access to Ninth Line is directly opposite the existing full-moves access to Glen Oaks and is aligned to form the fourth leg of the intersection. This access alignment eliminates the potential for vehicle-vehicle conflicts that would arise from an offset access alignment.

The proposed site layout results in an outer circular internal aisle surrounding the proposed parking spaces. This outer circular formation will result in separation between vehicles driving across the site and vehicles searching for parking spaces, which will facilitate predictable travel patterns for vehicles and thus reduce the potential for vehicle-vehicle collisions.

A raised 3.0-metre-wide concrete median spanning north-south is proposed on the site to divide the self-storage building to the west of the site, and the retail buildings to the east of the site. This physical separation will separate vehicles associated with the self-storage building and vehicles associated with the retail buildings, further facilitating predictable travel patterns for vehicles and thus reducing the potential for vehicle-vehicle collisions.

7.5 Vehicle-Pedestrian Conflicts

As discussed above, the proposed site layout results in an outer circular internal site circulation in the proposed parking lot. This circular formation will result in predictable travel patterns for vehicles, and thus increase pedestrian safety when drivers walk from their vehicles to the building.

The proposed parking spaces are generally located adjacent to the buildings, thus providing safe and convenient access for drivers entering and exiting the building from their vehicles. Additionally, the proposed bicycle parking spaces are located adjacent to the buildings, thus providing safe and convenient access for cyclists arriving from and departing to the building.

There is a "central" parking area that is surrounded by the outer circular aisle, which would require drivers accessing the buildings to and from their vehicles to cross the outer aisle. However, the overall walking distance from this parking area to the surrounding buildings is not significant (approximately less than 250 metres), and thus safety concerns with pedestrian circulation are not expected.

7.6 Pedestrian and Cycling Connectivity

The predictable vehicle travel patterns within the site is expected to reduce the potential for internal collisions thus increasing safety for all road users including pedestrians and cyclists. To maximize pedestrian and cycling connectivity to and from the site, a connection to the multi-use trail could be provided from the site to the future multi-use trail on the east side of Ninth Line to be constructed as part of the road widening. A direct connection between the site and the surrounding active transportation network would further increase pedestrian and cyclist safety.

7.7 Internal Loading Circulation

The Site Plan illustrates truck turning circulation within the site to the self-storage loading spaces, for both a WB-20 tractor semi-trailer and a Heavy Single-Unit (HSU) truck. The interior loading and loading dock for the proposed self-storage building would operate as a one-way system, with vehicles entering from the site access to Dundas Street West. HSU trucks would drive directly into the loading aisle within the building, and exit at the north end of the building to the proposed site access to Ninth Line. WB-20 trucks would drive along the east side of the building in the aisle separated from the retail drive aisle by the 3.0 metre concrete median, drive past the loading space, and reverse directly into the loading space. These trucks would then turn left and exit via the proposed site access to Ninth Line.

Per the truck turning circulation shown on the Site Plan, no maneuverability constraints have been identified.

8.0 Transportation Demand Management (TDM) Opportunities

The City of Mississauga has requested that a Transportation Demand Management (TDM) plan be provided as a component of the Transportation Impact Study. The purpose of the TDM plan is to identify existing and future TDM opportunities to reduce single-occupancy vehicle (SOV) trips to and from the proposed development.

8.1 Existing Modal Split

TTS data was used to determine the existing modal split for trips entering the study area. Results were filtered to auto trips entering 2006 GTA Zone 3634 during the a.m. peak period. 2006 GTA Zone 3634 consists of the subject property, as well as other commercial and industrial buildings surrounding Highway 403 in the City of Mississauga.

The existing modal split is outlined below in **Table 21**.

Table 21
Existing Modal Split

Mode	Percentage
Transit	7%
Cycling	0%
Auto Driver	87%
Auto Passenger	5%
Walking	1%

Approximately 87% of trips travelling to the study area in the a.m. peak hour are made by auto drivers, with an additional 5% of trips made by auto passengers. These percentages indicate that there is a heavy reliance on automobile travel in the study area, which is expected given the environment of the study area and the limited existing transit and active transportation services and infrastructure in the study area.

Appendix I contains the TTS data.

8.2 Existing Alternate Transportation Opportunities

As outlined in Section 3.0, there are existing active transportation facilities on Dundas Street West (west of Ninth Line) and on Ninth Line (south of Dundas Street West), and there are existing transit services on Dundas Street West accessed by existing bus stops at the intersection of Dundas Street West and Ninth Line.

8.3 Smart Commute

Smart Commute is a non-profit Transportation Management Association (TMA) committed to reducing traffic congestion, improving air quality and taking action on climate change. There are 13 Smart Commute offices in the Greater Toronto and Hamilton Area (GTHA). Smart Commute Mississauga incorporates the immediate study area. Smart Commute works with many businesses in

the City of Mississauga by providing resources and tools which allows commuters to consider transportation alternatives, such as:

- Carpooling
- Transit
- Walking
- Cycling
- Telework

It is noted that not all of these TDM measures would apply to the proposed development. For example, users of the self-storage facility would be expected to drive to and from the site to pick up or drop off personal items, and thus not be expected to walk, bike, or use transit. Additionally, telework opportunities would not necessarily apply to employees of the retail component as retail services typically operate on scheduled hours and requires employees to work at the site.

However, these TDM measures would be expected to generally apply to the retail component. For example, customers or employees could carpool to the retail component to reduce travel expenses and pollution, and take advantage of carpooling facilities such as the High-Occupancy Vehicle (HOV) lanes on Highway 403 in Burlington, Oakville and Mississauga, and the Smart Commute online tool to help travellers find and share carpool trips. Additionally, customers or employees could walk, bike or use transit to access the proposed development through employer collaboration with Smart Commute to promote these alternate modes of transportation.

8.4 Future Alternate Transportation Opportunities

As discussed in Section 4.3, the future widening of Ninth Line north of Dundas Street West will provide on-street bike lanes and multi-use paths on both sides of the roadway. The provision of these active transportation facilities will provide connectivity to the existing active transportation facilities on the boundary road network and encourage walking and cycling as viable modes of transportation.

8.5 Site Specific TDM Opportunities

As discussed in Section 7.6, a connection to the multi-use trail could be provided from the site to the future multi-use trail on the east side of Ninth Line to be constructed as part of the road widening. A direct connection between the site and the surrounding active transportation network would further increase pedestrian and cyclist safety, and encourage walking and cycling as viable modes of transportation.

There are also opportunities for "soft" TDM measures. For example, the retail stores could supply transit information (i.e. Mississauga "MiWay" Transit and Oakville Transit schedules and maps), maps of active transportation facilities in the Region of Halton and City of Mississauga, information on Smart Commute, and other informational material to promote awareness of alternate modes of transportation.

9.0 Conclusions

The analysis contained within this report has resulted in the following key findings:

- Analysis of 2018 existing traffic operations indicates that the boundary road network is currently operating at acceptable levels of service, with the exception of Dundas Street and Ninth Line which is currently operating at capacity during the weekday p.m. peak hour;

- It was noted, however, that the modelling of the northbound right-turn is considered to overstate traffic operations for the aforementioned movement as camera footage indicates that despite the permissive phase type, northbound right-turn vehicles are steadily proceeding through the intersection during the protected eastbound and westbound left-turn phases;

- There are opportunities to improve existing traffic operations, as noted:

    - Implement a protected-overlap phase type for the northbound right-turn movement at Dundas Street West and Ninth Line; and
    - Optimize signal timings for all signalized intersections.

- Additionally, the intersection of Ninth Line and Burnhamthorpe Road is planned to be converted to roundabout control in the future, which would mitigate existing traffic operational issues;

- Analysis of 2033 future background traffic operations indicate that the intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at or beyond capacity during the weekday a.m. and p.m. peak hours, respectively;

- However, the signal timing recommendations to existing traffic operations are expected to ultimately reduce critical traffic operations;

- It is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403;

- Additionally, the roundabout intersection of Ninth Line and William Halton Parkway is expected to operate at satisfactory levels of service, indicating that the implementation of roundabout control is expected to significantly improve traffic operations;

- The proposed development is expected to generate a total of 46, 161 and 223 total two-way primary trips during the weekday a.m. and p.m., and Saturday peak hours, respectively; and a total of 18, 72 and 65 total pass-by trips during the weekday a.m. and p.m., and Saturday peak hours, respectively;

- Auxiliary left-turn lane analysis for the southbound left-turn movement from Ninth Line to Site Access B indicates that an exclusive southbound left-turn lane with over 25 metres of storage is warranted. However, the future widening of Ninth Line proposes a 3.0 metre centre lane which could be allocated as an exclusive southbound left-turn lane on Ninth Line to Site Access B, which would provide over 25 metres of vehicle storage;

- Analysis of 2033 future total traffic operations indicate that the intersections of Dundas Street West and Ninth Line, and Dundas Street West and Highway 403 West Ramp Terminal are expected to operate at or beyond capacity during the weekday a.m. and p.m. peak hours, respectively. These operations are consistent with 2033 future background conditions;

- It is noted that the maximum forecasted increase in control delay from 2033 future background to future total conditions is 6.2 seconds, with the majority of the increases in control delay across the boundary road network approximately 1.3 seconds or less;

- It is noted that the 95th percentile queue lengths at the Highway 403 ramp terminals to Dundas Street West are not expected to extend to the freeway segment and will not impede traffic operations on Highway 403;

- Additionally, the maximum forecasted increase in 95th percentile queue length on the boundary road network from 2033 future background to future total conditions is 11.1 metres (equivalent to approximately two passenger cars in length). These metrics indicate that the addition of site traffic to the boundary road network is expected to result in minor impacts to traffic operations;

- The proposed site accesses are overall expected to operate at acceptable levels of service, with the proposed full-moves site access to Ninth Line expected to operate beyond capacity during the weekday p.m. peak hour. It is expected that drivers experiencing heavy delays will divert and turn right onto Ninth Line to travel northbound as an alternate route to depart to Mississauga (via Burnhamthorpe Road);

- It is not considered feasible to restrict the left-turn movement out of the site access on the basis of heavy control delays during the weekday p.m. commuter peak hours, as it is expected that vehicles will be able to easily turn left from the site access onto Ninth Line during off-peak hours;

- The proposed development is supportable from a traffic operations perspective;

- The proposed site access to Dundas Street West satisfies Region of Halton and MTO access management guidelines;

- The proposed site access to Ninth Line does not satisfy minimum spacing requirements per the Region's guidelines for full-moves accesses. However, the proposed site access is opposite the existing full-moves access to Glen Oaks. The proposed site access would form the fourth leg of the intersection of the existing Glen Oaks Access at Ninth Line. Therefore, the proposed full-moves access to Ninth Line is feasible, and also mitigates vehicle-vehicle collisions that would arise from an offset access alignment;

- Sight distance analysis at the proposed site accesses concludes that the proposed development is supportable from a sight distance perspective;

- The proposed site layout is expected to result in predictable travel patterns throughout the site and thus reduce the potential for vehicle-vehicle and vehicle-pedestrian collisions;

- The illustrated truck turning circulation on the Site Plan to and from the proposed loading spaces for the self-storage building do not indicate any maneuverability issues to truck circulation;

- Analysis of existing modal split indicates that there is a heavy reliance on automobile travel in the study area, which is expected given the environment of the study area;

- However, there are existing transit services and active transportation facilities on Dundas Street West and Ninth Line in the study area;

- The future widening of Ninth Line north of Dundas Street West will provide on-street bike lanes and multi-use paths on both sides of the roadway. The provision of these active transportation facilities will provide connectivity to the existing active transportation facilities on the boundary road network and encourage walking and cycling as viable modes of transportation;

- The development could provide a multi-use trail connection from the site to the future multi-use trail on the east side of Ninth Line to be constructed as part of the road widening. A direct connection between the site and the surrounding active transportation network would further increase pedestrian and cyclist safety, and encourage walking and cycling as viable modes of transportation; and

- There are also opportunities for "soft" TDM measures. For example, the retail stores could supply transit information (i.e. Mississauga "MiWay" Transit and Oakville Transit schedules and maps), maps of active transportation facilities in the Region of Halton and City of Mississauga, information on Smart Commute, and other informational material to promote awareness of alternate modes of transportation.

The analysis contained within this report was prepared using the Site Plan prepared by Nicholas Caragianis Architect Inc. (updated September 11, 2018). Any minor revisions to the development concept are not expected to affect the conclusions contained with this report.

In conclusion, the proposed development can be supported from a transportation operations and safety perspective, with the implementation of the noted recommendations.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.



Alexander J. W. Fleming, MBA, P.Eng.
Associate

C.F. CROZIER & ASSOCIATES INC.



Darren J. Loro, C.E.T.
Transportation Technologist

/DL

J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Reports\5084_3855 Dundas Street West TIS (November 2018).docx

APPENDIX A

Correspondence

Darren Loro

From: Zain Zia <Zain.Zia@mississauga.ca>
Sent: October-11-18 11:36 AM
To: Darren Loro
Cc: Lin Rogers
Subject: RE: 3855 Dundas Street West - Terms of Reference for Traffic Impact Study

Hi Darren,

Based on our review of the Terms of Reference for 3855 Dundas Street West dated October 3, 2018 , the following comments are provided:

- Please ensure the Halton Region and MTO review and approve the Terms of Reference for this Traffic Impact Study.
- Change site address to 3855 Dundas Street West.
- Turning Movement Counts can be obtained from William Wright (William.Wright@mississauga.ca, Ext. 3221). If the data is older than 2 years, then consultant is responsible to conduct the latest counts. Please contact the Halton Region and MTO for additional count data should these locations not be available through the City.
- Please contact Tyler Xuereb (Tyler.Xuereb@mississauga.ca, Ext. 4783) to confirm growth rates. Again, these rates should be reviewed and confirmed with the Halton Region and MTO.
- Please use the following link to gather information of any developments proposed in the neighbouring lands for background traffic: http://www.mississauga.ca/portal/residents/developmentinformation. Please contact the Town of Oakville, Halton Region and MTO for additional development proposals.
- The signal timing plan for signalized intersections can be obtained from Jim Kartsomaniz (Jim.Kartsomanis@mississauga.ca, Ext. 3964). Please contact the Halton Region and MTO for signal timing plans under their respective jurisdiction.
- Internal Road System Driveway Locations - Please include truck turning templates for loading areas for each of the buildings or waste management facilities.
- A comprehensive Transportation Demand Management Plan is to be part of the report. Provide a TDM plan to demonstrate measures to be implemented to reduce single occupancy vehicle (SOV) trips to the site.
- The Traffic Impact Study is to comply with the City of Mississauga Traffic Impact Study Guidelines.
- The Traffic Impact Study is required to be signed and stamped by a Professional Engineer.

Please let me know if you have any questions.

Regards,
Zain

MISSISSAUGA

Zain Zia, B.Eng.Mgt
Engineer in Training, Transportation Projects
T 905-615-3200 ext.5318 | M 289-937-6567
zain.zia@mississauga.ca

City of Mississauga | Transportation & Infrastructure Planning,
Transportation & Works

Please consider the environment before printing.

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: 2018/10/05 12:12 PM
To: Lin Rogers
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Lin,

See attached the latest Site Plan.

Regards,
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES
| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3
| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES Consulting Engineers
Land development engineering, from the ground up.
Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

From: Lin Rogers <Lin.Rogers@mississauga.ca>
Sent: October-05-18 12:09 PM
To: Darren Loro <dloro@cfcrozier.ca>
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Darren,

Thank you for your email. Could you kindly provide a concept plan for the site?

Best, Lin

MISSISSAUGA

Lin Rogers, P. Eng
Manager, Transportation Projects
T 905-615-3200 ext.4197
lin.rogers@mississauga.ca
City of Mississauga | Transportation and Works Department,
Transportation & Infrastructure Planning Division

Please consider the environment before printing.

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: 2018/10/03 4:21 PM
To: Lin Rogers
Subject: FW: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Good afternoon Lin,

My name is Darren and I am reaching out to you from Crozier & Associates in regards to the development application for 3855 Dundas Street East. We were initially directed to Jay Lee to conduct pre-consultation but we recently learnt that she is no longer with the City and thus were directed to you instead. I hope that we have the opportunity to work together on this file.

Background

We have been retained by DYM. Capital Corporation to prepare a Traffic Impact Study for the proposed mixed-use commercial development at 3855 Dundas Street East in the City of Mississauga. The subject property is located at the northeast corner of Dundas Street East and Ninth Line, west of Highway 403.

The development proposes three one-storey buildings and one five-storey building, consisting of a total of 5,182 sq. m of retail space and a total of 11,047 sq. m of self-storage spaces. The development proposes a right/in-right-out (RI/RO) access to Dundas Street East and a full-moves access to Ninth Line opposite the Glen Oaks Funeral Home & Cemetery Access.

We have reviewed the comments that you have shared with MHBC Planning on this file, and have prepared a terms of reference for the Traffic Impact Study in accordance with your comments as well as with the City of Mississauga's Traffic Impact Study Guidelines.

The MTO and Region of Halton will also serve as approval authority for the TIS, given that the boundary road network consists of Highway 403 (MTO) and Ninth Line (Halton). As such, the study will incorporate elements from the MTO's Guidelines for the Preparation of Traffic Impact Studies, as well as the Region of Halton's Transportation Impact Study Guidelines.

Terms of Reference

The proposed terms of reference is outlined below:

1. The TIS will analyze traffic impacts during the weekday a.m and p.m. peak hours, and Saturday peak hour.

2. The following intersections will be analyzed:
    a. Dundas Street East and Highway 403 East Ramp Terminal
    b. Dundas Street East and Highway 403 West Ramp Terminal
    c. Dundas Street East and Ninth Line
    d. Dundas Street East and proposed site access (future total)
    e. Ninth Line and existing Glen Oaks Access / proposed site access

3. Traffic counts will be commissioned at the aforementioned intersections on a typical weekday between the hours of 6:00 a.m. – 9:00 a.m. and 3:00 p.m. – 7:00 p.m., and on a Saturday between the hours of 10:00 a.m. – 5:00 p.m.

4. Traffic operations will be analyzed using Synchro 9.0. Standard traffic operations metrics for signalized and unsignalized intersections including delays, volume-to-capacity ratios, and queuing will be analyzed and reported on.

5. The development is expected to be fully built-out within five years (i.e. by 2023). Per the City of Mississauga and Region of Halton TIS guidelines, the horizon year for the TIS is five-years from the date of the TIS (2018). However, the MTO requires analysis of the five and ten year horizons from the estimated year of full build-out. Therefore, the 2023, 2028 and 2033 horizon years will be analyzed.

6. Background traffic growth will be calculated using historical growth rates on Dundas Street East.

7. Trip generation will be forecasted using the ITE Trip Generation Manual, 10th Edition.

8. Trip distribution will be derived from a combination of existing travel patterns, and expected catchment areas for the self-storage and retail components of the proposed development.

9. The available sight distances at the proposed site accesses will be analyzed and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) June 2017.

10. The proposed development will be reviewed from a transportation safety perspective to identify any issues pertaining to weaving, merging, vehicle turning constraints within the site, queuing, etc.

11. Existing and future Transportation Demand Management (TDM) opportunities will be evaluated as part of the TIS to reduce auto share and promote non-auto transportation.

Please review and comment on the terms of reference as outlined above. If this is satisfactory, we will begin our analysis immediately.

If you want to discuss further, please do not hesitate to give me a call.

Thank you for your time!
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES

| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3

| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES
Consulting Engineers

Land development engineering, from the ground up.

Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

Darren Loro

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: October-18-18 1:43 PM
To: Darren Loro
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study
Attachments: 3855 DUN SP_180911.pdf

Hi Darren,

I have the following comments:

-Halton Region is currently in the process of completing a Municipal Class Environmental Assessment to widen Ninth Line to 4 lanes from north of Dundas Street to 407 ETR. Please consider this study in the Transportation Impact Study submission. The Environmental Study Report is not final and not available for review in draft form to date, however, the draft north and south section roll plans (preliminary design) is available on the EA Study website http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=143085

-Any permitted accesses and/or required road improvements (traffic signals, turn lanes, access locations/design, illumination, etc.,) for the development will be determined upon the review and approval of the Transportation Impact Study.

-Access/Intersection spacing is required to conform to the Regional Access Management Guidelines and subject to the completion of the Transportation Impact Study. The Access Management Guidelines are available on-line at http://www.halton.ca/common/pages/UserFile.aspx?fileId=136320

-Study must be in accordance to Halton Region's Transportation Impact Guidelines http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=12612

-Regarding the proposed Dundas Street access, while all access locations are to be reviewed as part of the TIS, this access must be initially shown at the east limit of the property, for consideration.

-Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.

-Include queuing analysis for southbound Ninth Line in relation to the proposed development access and show impacts, if any, to the existing accesses to the north.

-Include review and comments, as well as preliminary drawings, for a required southbound left-turn lane on Ninth Line for the development access, and how this can be designed in relation to the existing southbound left-turn lane for the Ninth Line at Dundas Street intersection (as currently shown on the EA Study south section roll plan).

-Add the intersection of Ninth Line at William Halton Parkway to the study area intersections. The existing conditions and 2023 condition must be as a 2028 and 2033

-Halton's Capital Implementation Plan timing is as follows:
--Ninth Line widening from 2 to 4 lanes, from Dundas Street to William Halton Park start of construction in 2025 (assume operational in 2027);
--Ninth Line widening from 2 to 4 lanes, from William Halton Parkway to Highway 407 start of construction 2023 (assume operational in 2025);

--William Halton Parkway construction (along existing Burnhamthorpe alignment & along new alignment), from Ninth Line to Trafalgar Road start of construction 2019 (assume operational 2021)

-Data requests for Halton Region information (traffic counts/signal timing) should be completed via the data request process as noted on the Halton Region website http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=12457 or from the City of Mississauga. As City staff have stated, if traffic data is older than 2 years, then updated turning movement counts are required.

-Town of Oakville/City of Mississauga will provide area development details.

-Please ensure MTO review and approve the Terms of Reference for this Study.

-Growth rates: From Halton Region please use 1% growth rates for both Dundas Street and Ninth Line. Please share the City of Mississauga growth rates when received, for review and approval for consistency.

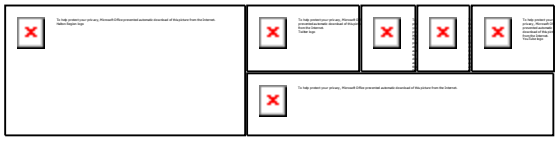
-Please include truck turning templates at all access locations as part of the TIS.

-Halton Region supports the City's request for a comprehensive Transportation Demand Management Plan is to be part of the report.

Let me know if there are any questions.

Matt

Matt Krusto
Transportation Planning Coordinator
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: Thursday, October 11, 2018 1:53 PM
To: Monaghan, Patrick
Cc: Krusto, Matt
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Good afternoon Patrick,

No worries - thank you for getting back to me.! The Site Plan is attached.

City of Mississauga staff had no comments contradicting the scope of the TOR, but they noted that they would like us to consult with them for growth rates, and to add a comprehensive TDM section in our report. I have attached the e-mail for your reference. Our scope of work will ultimately be an amalgamation of all the reviewing agencies TIS guidelines.

If you have any questions or wish to discuss further, please do not hesitate to give me a call.

Regards,
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES

| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3

| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES Consulting Engineers

Land development engineering, from the ground up.

Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

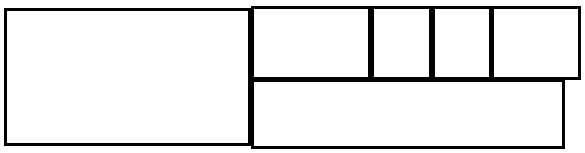
From: Monaghan, Patrick <Patrick.Monaghan@halton.ca>
Sent: October-11-18 1:45 PM
To: Darren Loro <dloro@cfcrozier.ca>
Cc: Matt Krusto <matt.krusto@halton.ca>
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Darren,

Sorry for the delay, could you please provide the proposed Site Plan?

Kind Regards,
Patrick

Patrick Monaghan
Transportation Planning Coordinator
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7213 | 1-866-442-5866



This message, including any attachments, is intended only for the person(s) named above and may contain confidential and/or privileged information. Any use, distribution, copying or disclosure by anyone other than the intended recipient is strictly prohibited. If you are not the intended recipient, please notify us immediately by telephone or e-mail and permanently delete the original transmission from us, including any attachments, without making a copy.

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: Wednesday, October 03, 2018 4:33 PM
To: Monaghan, Patrick
Subject: FW: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Good afternoon Patrick,

It's been a while since we last spoke – hoping all is well on your end!

I am reaching out to you in regards to the development application for 3855 Dundas Street East. I was directed to you for establishing a terms of reference for the preparation of a TIS. If this isn't your file, can you please provide me with the appropriate contact from the Region?

Background

Crozier & Associates has been retained by DYM. Capital Corporation to prepare a TIS for the proposed mixed-use commercial development at 3855 Dundas Street East in the City of Mississauga. The subject property is located at the northeast corner of Dundas Street East and Ninth Line, west of Highway 403.

The development proposes three one-storey buildings and one five-storey building, consisting of a total of 5,182 sq. m of retail space and a total of 11,047 sq. m of self-storage spaces. The development proposes a right/in-right-out (RI/RO) access to Dundas Street East and a full-moves access to Ninth Line opposite the Glen Oaks Funeral Home & Cemetery Access.

While the subject property is in the City of Mississauga, Ninth Line is under the jurisdiction of the Region of Halton and thus we are reaching out to establish a terms of reference for the TIS in accordance with the Region of Halton's Transportation Impact Study Guidelines (January 2015).

The City of Mississauga and MTO will also serve as approval authorities, given that the subject property is in the City of Mississauga and falls within the MTO control permit area (Highway 403). As such, the study will incorporate elements from the MTO's Guidelines for the Preparation of Traffic Impact Studies, as well as the City of Mississauga's Traffic Impact Study Guidelines.

Terms of Reference

The proposed terms of reference is outlined below:

1. The TIS will analyze traffic impacts during the weekday a.m and p.m. peak hours, and Saturday peak hour.

2. The following intersections will be analyzed:
    a. Dundas Street East and Highway 403 East Ramp Terminal
    b. Dundas Street East and Highway 403 West Ramp Terminal
    c. Dundas Street East and Ninth Line
    d. Dundas Street East and proposed site access (future total)
    e. Ninth Line and existing Glen Oaks Access / proposed site access

3. Traffic counts will be commissioned at the aforementioned intersections on a typical weekday between the hours of 6:00 a.m. – 9:00 a.m. and 3:00 p.m. – 7:00 p.m., and on a Saturday between the hours of 10:00 a.m. – 5:00 p.m.

4. Traffic operations will be analyzed using Synchro 9.0. Standard traffic operations metrics for signalized and unsignalized intersections including delays, volume-to-capacity ratios, and queuing will be analyzed and reported on.

5. The development is expected to be fully built-out within five years (i.e. by 2023). Per the City of Mississauga and Region of Halton TIS guidelines, the horizon year for the TIS is five-years from the date of the TIS (2018). However, the MTO requires analysis of the five and ten year horizons from the estimated year of full build-out. Therefore, the 2023, 2028 and 2033 horizon years will be analyzed.

6. Background traffic growth will be calculated using historical growth rates on Dundas Street East and Ninth Line.

7. Trip generation will be forecasted using the ITE Trip Generation Manual, 10th Edition.

8. Trip distribution will be derived from a combination of existing travel patterns, and expected catchment areas for the self-storage and retail components of the proposed development.

9. The available sight distances at the proposed site accesses will be analyzed and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) June 2017.

10. The proposed development will be reviewed from a transportation safety perspective to identify any issues pertaining to weaving, merging, vehicle turning constraints within the site, queuing, etc. Additionally, the proposed site accesses will be reviewed per the Region of Halton's Access Management Guideline (January 2015).

11. Existing and future Transportation Demand Management (TDM) opportunities will be evaluated as part of the TIS to reduce auto share and promote non-auto transportation.

Please review and comment on the terms of reference as outlined above. If this is satisfactory, we will begin our analysis immediately.

If you want to discuss further, please do not hesitate to give me a call.

Thank you for your time!
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES

| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3

| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES
Consulting Engineers

Land development engineering, from the ground up.

Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

Darren Loro

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: October-18-18 11:04 AM
To: Darren Loro
Subject: RE: 3855 Dundas Street West - Terms of Reference for Traffic Impact Study

Good Morning Darren,

Using the City's Travel Demand Model and supporting traffic count data the City's Transportation Planning Section has determined the projected growth for Dundas Street and Ninth Line to be used as part of your study. The recommended projected growth is shown below:

Dundas Street

	Compounded Annual Growth from Existing to 2023		Compounded Annual Growth from 2023-2028		Compounded Annual Growth from 2028-2033	
	EB	WB	EB	WB	EB	WB
Time						
AM Peak Hour	1.0%	2.0%	0.5%	0.0%	0.5%	0.0%
PM Peak Hour	2.5%	1.0%	0.0%	1.0%	0.0%	1.0%

Ninth Line

	Compounded Annual Growth from Existing to 2023		Compounded Annual Growth from 2023-2028		Compounded Annual Growth from 2028-2033	
	EB	WB	EB	WB	EB	WB
Time						
AM Peak Hour	0.0%	1.0%	6.0%	5.0%	6.0%	5.0%
PM Peak Hour	1.5%	0.5%	6.0%	7.0%	6.0%	7.0%

- In regards to the horizon years that you have requested, our current model horizon years are 2021, 2031 and 2041 and as such growth rates that you requested from existing to 2023 are rates calculated from our existing scenario to 2021 scenario, rates from 2023 to 2028 are rates derived from our 2021 to 2031 scenario as well as rates from 2028 to 2033 are derived from our 2021 to 2031 scenarios.
- The above analysis assumes the widening of Ninth line from 1 through lane in each direction to 2 through lanes in each direction, therefore your analysis should also reflect these network changes.
- Also, this analysis assumes the widening of Burnhamthorpe Road from 1 through lane to 2 through lanes in each direction.

- Growth rates provided for Ninth Line only represent growth north of Dundas Street as this is within city boundaries. Ninth Line south of Dundas Street is outside of city boundaries and as such would have to contact Halton Region for these rates.

If you have any questions regarding the information provided please let me know.

Regards,

Tyler

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: 2018/10/12 2:36 PM
To: Tyler Xuereb
Subject: RE: 3855 Dundas Street West - Terms of Reference for Traffic Impact Study

Hi Tyler,

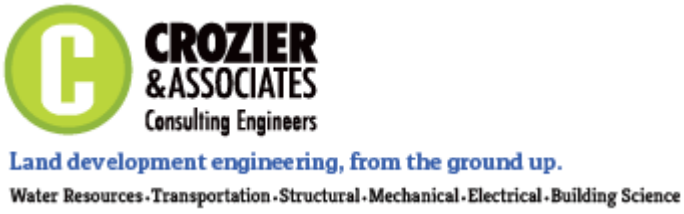
We will be analyzing the following intersections:

a. Dundas Street East and Highway 403 East Ramp Terminal
b. Dundas Street East and Highway 403 West Ramp Terminal
c. Dundas Street East and Ninth Line
d. Dundas Street East and proposed site access (future total only)
e. Ninth Line and existing Glen Oaks Access / proposed site access (future total only)

The horizon years agreed upon with Zain are: 2023 (anticipated full build-out), 2028 (five-year horizon) and 2033 (ten-year horizon). As this TIS will also be subject to MTO approval, we went with a five and ten year horizon from full build-out per the MTO's TIS guidelines. These horizon years are still to be confirmed with the MTO.

Hope this helps!
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES
| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3
| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510



This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

From: Tyler Xuereb <Tyler.Xuereb@mississauga.ca>
Sent: October-12-18 2:32 PM
To: Darren Loro <dloro@cfcrozier.ca>
Subject: RE: 3855 Dundas Street West - Terms of Reference for Traffic Impact Study

Hello Darren.

I can for sure help with this request, can you provided me with the list of intersections that you will be analyzing as well as the horizon years.

Thanks,

Tyler

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: 2018/10/12 2:24 PM
To: Tyler Xuereb
Subject: FW: 3855 Dundas Street West - Terms of Reference for Traffic Impact Study

Good afternoon Tyler,

I am e-mailing from C.F. Crozier & Associates Consulting Engineers. We have been retained to prepare a Traffic Impact Study for the proposed commercial development at 3855 Dundas Street East in the City of Mississauga.

I have been directed to you by Zain Zia to establish future background growth rates on the boundary road network (Dundas Street East and Ninth Line), although we do understand that Ninth Line is a Halton Regional road. Can you please provide us with growth rates for us to use in our TIS?

If you have any questions or wish to discuss further, please do not hesitate to give me a call.

Regards,
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES
| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3
| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES Consulting Engineers
Land development engineering, from the ground up.
Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

From: Zain Zia <Zain.Zia@mississauga.ca>
Sent: October-11-18 11:36 AM
To: Darren Loro <dloro@cfcrozier.ca>

Darren Loro

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: October-18-18 3:50 PM
To: Darren Loro
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Darren,

The intersection of Ninth Line at William Halton Parkway is the former Ninth Line at Burnhamthorpe Road intersection. Burnhamthorpe Road is now called William Halton Parkway.

Also, sorry there was an unfinished sentence there as well. It should read:

-Add the intersection of Ninth Line at William Halton Parkway to the study area intersections. The 2018 analysis can be as per existing intersection conditions, the 2023, 2028 and 2033 year analysis must be based on the intersection being a 2 lane Roundabout (start of construction for the Roundabout and 4-laning of William Halton Parkway (existing Burnhamthorpe Road) is planned for 2019).

Sorry about that.

Matt

From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: Thursday, October 18, 2018 3:04 PM
To: Krusto, Matt
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Matt,

Thank you for circulating your comments on our Terms of Reference. We will make sure to incorporate them into the TIS.

Question: Which intersection are you referring to with Ninth Line and William Halton Parkway (per the highlight below)?

Thanks,
Darren

| **DARREN LORO,** C.E.T. | TRANSPORTATION TECHNOLOGIST | C.F. CROZIER & ASSOCIATES
| 40 Huron Street, Suite 301 | Collingwood, ON L9Y 4R3
| cfcrozier.ca | dloro@cfcrozier.ca | tel 705 446 3510

CROZIER & ASSOCIATES Consulting Engineers
Land development engineering, from the ground up.
Water Resources · Transportation · Structural · Mechanical · Electrical · Building Science

This communication is intended solely for the attention and use of the named recipients and contains information that is privileged and confidential. If you are not the intended recipient, or the person responsible for delivering this information to the intended recipient, please notify us immediately by telephone. If you have received this information in error, please be notified that you are not authorized to read, copy, distribute, use or retain this message or any part of it.

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: October-18-18 1:43 PM
To: Darren Loro <dloro@cfcrozier.ca>
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

Hi Darren,

I have the following comments:

-Halton Region is currently in the process of completing a Municipal Class Environmental Assessment to widen Ninth Line to 4 lanes from north of Dundas Street to 407 ETR. Please consider this study in the Transportation Impact Study submission. The Environmental Study Report is not final and not available for review in draft form to date, however, the draft north and south section roll plans (preliminary design) is available on the EA Study website http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=143085

-Any permitted accesses and/or required road improvements (traffic signals, turn lanes, access locations/design, illumination, etc.,) for the development will be determined upon the review and approval of the Transportation Impact Study.

-Access/Intersection spacing is required to conform to the Regional Access Management Guidelines and subject to the completion of the Transportation Impact Study. The Access Management Guidelines are available on-line at http://www.halton.ca/common/pages/UserFile.aspx?fileId=136320

-Study must be in accordance to Halton Region's Transportation Impact Guidelines http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=12612

-Regarding the proposed Dundas Street access, while all access locations are to be reviewed as part of the TIS, this access must be initially shown at the east limit of the property, for consideration.

-Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.

-Include queuing analysis for southbound Ninth Line in relation to the proposed development access and show impacts, if any, to the existing accesses to the north.

-Include review and comments, as well as preliminary drawings, for a required southbound left-turn lane on Ninth Line for the development access, and how this can be designed in relation to the existing southbound left-turn lane for the Ninth Line at Dundas Street intersection (as currently shown on the EA Study south section roll plan).

-Add the intersection of Ninth Line at William Halton Parkway to the study area intersections. The existing conditions and 2023 condition must be as a 2028 and 2033

-Halton's Capital Implementation Plan timing is as follows:
--Ninth Line widening from 2 to 4 lanes, from Dundas Street to William Halton Park start of construction in 2025 (assume operational in 2027);
--Ninth Line widening from 2 to 4 lanes, from William Halton Parkway to Highway 407 start of construction 2023 (assume operational in 2025);

--William Halton Parkway construction (along existing Burnhamthorpe alignment & along new alignment), from Ninth Line to Trafalgar Road start of construction 2019 (assume operational 2021)

-Data requests for Halton Region information (traffic counts/signal timing) should be completed via the data request process as noted on the Halton Region website http://www.halton.ca/cms/One.aspx?portalId=8310&pageId=12457 or from the City of Mississauga. As City staff have stated, if traffic data is older than 2 years, then updated turning movement counts are required.

-Town of Oakville/City of Mississauga will provide area development details.

-Please ensure MTO review and approve the Terms of Reference for this Study.

-Growth rates: From Halton Region please use 1% growth rates for both Dundas Street and Ninth Line. Please share the City of Mississauga growth rates when received, for review and approval for consistency.

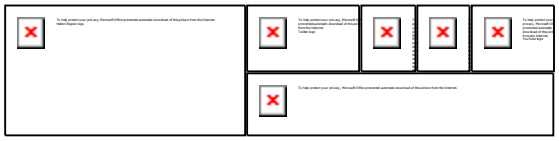
-Please include truck turning templates at all access locations as part of the TIS.

-Halton Region supports the City's request for a comprehensive Transportation Demand Management Plan is to be part of the report.

Let me know if there are any questions.

Matt

Matt Krusto
Transportation Planning Coordinator
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



From: Darren Loro [mailto:dloro@cfcrozier.ca]
Sent: Thursday, October 11, 2018 1:53 PM
To: Monaghan, Patrick
Cc: Krusto, Matt
Subject: RE: 3855 Dundas Street East - Terms of Reference for Traffic Impact Study

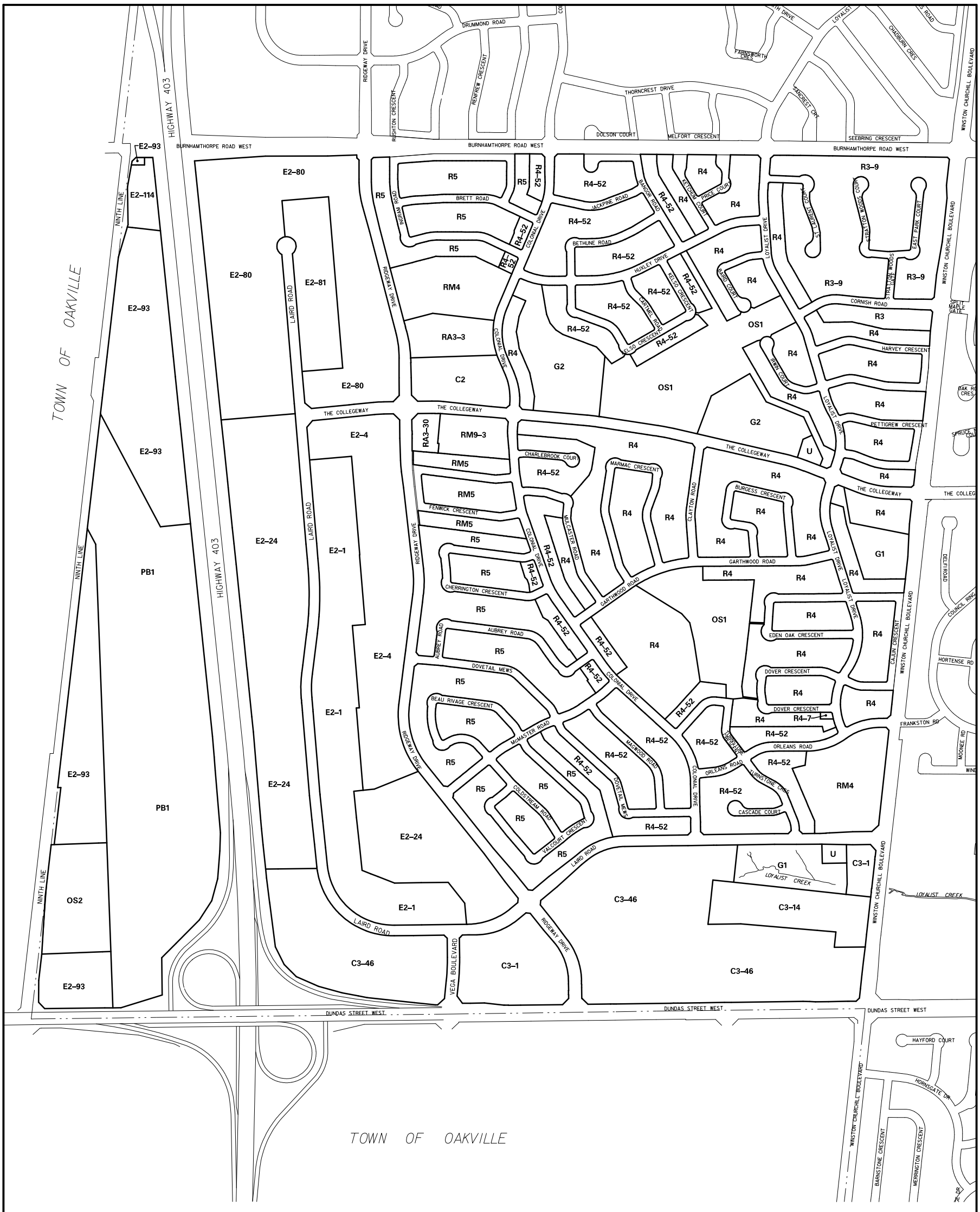
Good afternoon Patrick,

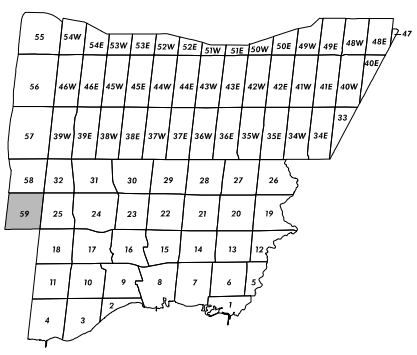
No worries - thank you for getting back to me.! The Site Plan is attached.

City of Mississauga staff had no comments contradicting the scope of the TOR, but they noted that they would like us to consult with them for growth rates, and to add a comprehensive TDM section in our report. I have attached the e-mail for your reference. Our scope of work will ultimately be an amalgamation of all the reviewing agencies TIS guidelines.

APPENDIX B

Zoning By-Law Excerpts





MISSISSAUGA

0 100 200
METRES

Greenlands Overlay

Zoning Notation Example:
R4–12 = R4–Exception 12

Zoning
Map 59

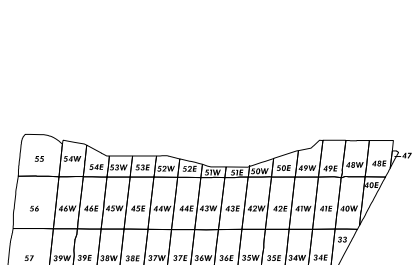
Schedule "B" To
By–law No. 0225–2007

Revised: 2015 October 31

Produced by Transportation and Works Department, Geomatics Section

Technical Revisions: 2016 October 31





MISSISSAUGA

0 100 200
METRES

Greenlands Overlay

Zoning Notation Example:
R4–12 = R4–Exception 12

Zoning
Map 59

Schedule "B" To
By–law No. 0225–2007

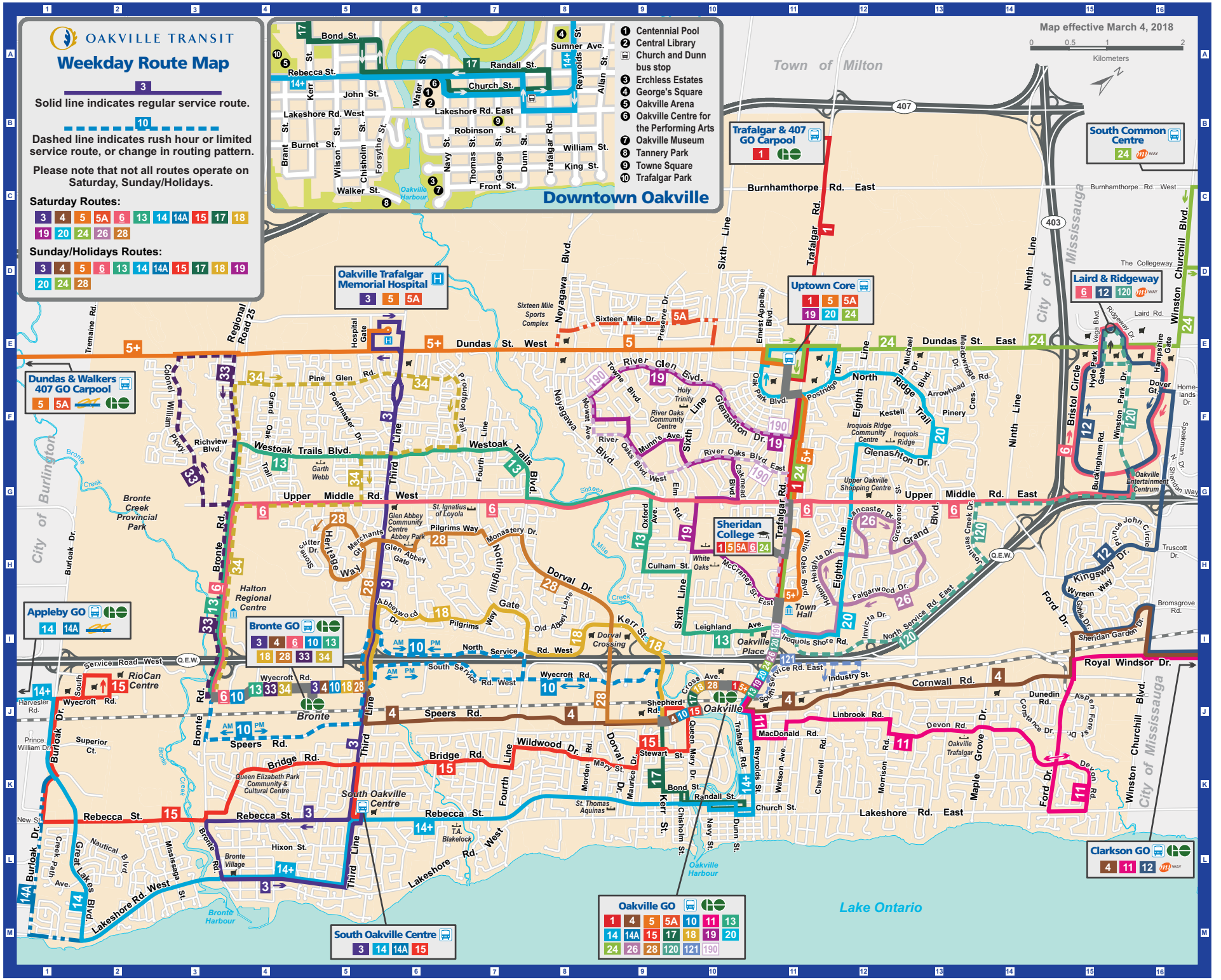
Revised: 2015 October 31

Produced by Transportation and Works Department, Geomatics Section

Technical Revisions: 2016 October 31

APPENDIX C

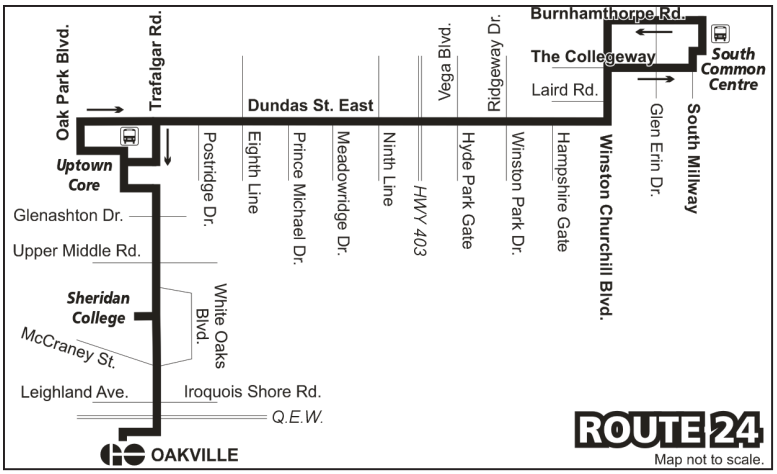
Transit Information


OAKVILLE TRANSIT
Weekday Route Map
3
Solid line indicates regular service route.
10
Dashed line indicates rush hour or limited service route, or change in routing pattern.
Please note that not all routes operate on Saturday, Sunday/Holidays.
Saturday Routes:
3 4 5 5A 6 13 14 14A 15 17 18 19 20 24 26 28
Sunday/Holidays Routes:
3 4 5 6 13 14 14A 15 17 18 19 20 24 28
Map effective March 4, 2018
Kilometers
Town of Milton
City of Mississauga
Lake Ontario
Downtown Oakville
1 Centennial Pool
2 Central Library
Church and Dunn bus stop
3 Erchless Estates
4 George's Square
5 Oakville Arena
6 Oakville Centre for the Performing Arts
7 Oakville Museum
8 Tannery Park
9 Towne Square
10 Trafalgar Park
Trafalgar & 407 GO Carpool
1
South Common Centre
24
Laird & Ridgeway
6 12 120
Uptown Core
1 5 5A 19 20 24
Oakville Trafalgar Memorial Hospital
3 5 5A
Dundas & Walkers 407 GO Carpool
5 5A
Sheridan College
1 5 5A 6 24
Appleby GO
14 14A
Bronte GO
3 4 6 10 13 18 28 33 34
Oakville GO
1 4 5 5A 10 11 13 14 14A 15 17 18 19 20 24 26 28 120 121 190
South Oakville Centre
3 14 14A 15
Clarkson GO
4 11 12
Dundas St. West
Dundas St. East
Upper Middle Rd. West
Upper Middle Rd. East
Speers Rd.
Cornwall Rd.
Lakeshore Rd. East
Lakeshore Rd. West
Bridge Rd.
Rebecca St.
Wyecroft Rd.
Westoak Trails Blvd.
Glenashton Dr.
North Service Rd. West
South Service Rd. West
North Service Rd. East
South Service Rd. East
Service Road West
Q.E.W.
Trafalgar Rd.
Third Line
Fourth Line
Sixth Line
Eighth Line
Ninth Line
Dorval Dr.
Kerr St.
Bronte Rd.
Burloak Dr.
Neyagawa Blvd.
Regional Road 25
Halton Regional Centre
RioCan Centre
South Oakville Centre
Oakville Place
Town Hall
Bronte Creek Provincial Park
Queen Elizabeth Park Community & Cultural Centre
Bronte Village
Oakville Harbour
Bronte Harbour
Sixteen Mile Sports Complex
River Oaks Community Centre
Iroquois Ridge Community Centre
Upper Oakville Shopping Centre
Oakville Entertainment Centrum
Glen Abbey Community Centre
Glen Abbey Gate
Pilgrims Way
Monastery Dr.
Abbeywood Dr.
Dorval Crossing
Old Abbey Lane
Leighland Ave.
Invicta Dr.
Iroquois Shore Rd.
Falgarwood Dr.
Postridge Dr.
North Ridge Trail
Eighth Line
Kestell
Pinery
Arrowhead
Meadowridge Rd.
Oak Park Blvd.
Towne Blvd.
Holy Trinity
Mumm's Ave.
River Oaks Blvd.
River Oaks Blvd. East
River Oaks Blvd. West
Oakmead Blvd.
Lancaster Dr.
Grosvenor
Grand Blvd.
White Oaks Blvd.
Honon Heights Dr.
McCraney St. East
Culham St.
Oxford Rd.
Mill Creek
Sixteen Creek
Bronte Creek
Sixteen Mile Dr.
Preserve Dr.
Ernest Appelbe Blvd.
Proudfoot Trail
Pine Glen Rd.
Postmaster Dr.
Garth Webb
Colonel William Pkwy.
Richview Blvd.
Tremaine Rd.
Hospital Gate
Glen Abbey Community Centre Abbey Park
Merchants Gt.
Heritage Way
Cutler Dr.
Solera Dr.
Burloak Dr.
Prince William Dr.
Superior Ct.
Harvester Rd.
New St.
Nautical Blvd.
Great Lakes Blvd.
Mississaga St.
Creek Path Ave.
Hixon St.
T.A. Blakelock
St. Thomas Aquinas
St. Ignatius of Loyola
Queen Mary Dr.
Stewart St.
Bond St.
Randall St.
Church St.
Wildwood Dr.
Morden Rd.
Maurice Dr.
Mary St.
Shepherd Rd.
Cross Ave.
Industry St.
Linbrook Rd.
MacDonald Rd.
Devon Rd.
Oakville Trafalgar
Dunedin Rd.
Constance Dr.
Maple Grove Dr.
Chartwell Rd.
Morrison Rd.
Reynolds St.
Watson Ave.
Ford Dr.
Royal Windsor Dr.
Sheridan Garden Dr.
Kingsway Dr.
Wynten Way
Gable Dr.
Prince John Circle
Truscott Dr.
Bromsgrove Rd.
Bristol Circle
Buckingham Rd.
Winston Park Dr.
Hyde Park Gate
Hampshire Gate
Dover Gt.
Homelands Dr.
Speakman Dr.
N. Sheridan Way
Ridgeway Dr.
Vega Blvd.
Laird Rd.
The Collegeway
Winston Churchill Blvd.
Burnhamthorpe Rd. West
Burnhamthorpe Rd. East
Lakeshore Rd. West
Lakeshore Rd. East
Bond St.
Randall St.
Church St.
Water St.
Kerr St.
John St.
Rebecca St.
Brant St.
Burnet St.
Wilson St.
Chisholm St.
Forsythe St.
Navy St.
Thomas St.
George St.
Dunn St.
Trafalgar Rd.
Reynolds St.
Sumner Ave.
Allan St.
William St.
King St.
Front St.
Walker St.
Robinson St.
Lakeshore Rd. East
Oakville Harbour
AM 10 PM
Wyecroft Rd.
Speers Rd.
Bronte
Oakville
Harvester Rd.
Prince William Dr.
Superior Ct.
New St.
Nautical Blvd.
Great Lakes Blvd.
Creek Path Ave.
Mississaga St.
Hixon St.
Bronte Village
Bronte Harbour
Lakeshore Rd. West
Lakeshore Rd. East
Rebecca St.
Bridge Rd.
Speers Rd.
Wyecroft Rd.
Service Road West
Q.E.W.
Halton Regional Centre
Bronte Creek Provincial Park
Queen Elizabeth Park Community & Cultural Centre
South Oakville Centre
Oakville Place
Town Hall
Glen Abbey Community Centre
Glen Abbey Gate
Pilgrims Way
Monastery Dr.
Abbeywood Dr.
Dorval Crossing
Old Abbey Lane
Leighland Ave.
Invicta Dr.
Iroquois Shore Rd.
Falgarwood Dr.
Postridge Dr.
North Ridge Trail
Eighth Line
Kestell
Pinery
Arrowhead
Meadowridge Rd.
Oak Park Blvd.
Towne Blvd.
Holy Trinity
Mumm's Ave.
River Oaks Blvd.
River Oaks Blvd. East
River Oaks Blvd. West
Oakmead Blvd.
Lancaster Dr.
Grosvenor
Grand Blvd.
White Oaks Blvd.
Honon Heights Dr.
McCraney St. East
Culham St.
Oxford Rd.
Mill Creek
Sixteen Creek
Bronte Creek
Sixteen Mile Dr.
Preserve Dr.
Ernest Appelbe Blvd.
Proudfoot Trail
Pine Glen Rd.
Postmaster Dr.
Garth Webb
Colonel William Pkwy.
Richview Blvd.
Tremaine Rd.
Hospital Gate
Glen Abbey Community Centre Abbey Park
Merchants Gt.
Heritage Way
Cutler Dr.
Solera Dr.
Burloak Dr.
Prince William Dr.
Superior Ct.
Harvester Rd.
New St.
Nautical Blvd.
Great Lakes Blvd.
Mississaga St.
Creek Path Ave.
Hixon St.
T.A. Blakelock
St. Thomas Aquinas
St. Ignatius of Loyola
Queen Mary Dr.
Stewart St.
Bond St.
Randall St.
Church St.
Wildwood Dr.
Morden Rd.
Maurice Dr.
Mary St.
Shepherd Rd.
Cross Ave.
Industry St.
Linbrook Rd.
MacDonald Rd.
Devon Rd.
Oakville Trafalgar
Dunedin Rd.
Constance Dr.
Maple Grove Dr.
Chartwell Rd.
Morrison Rd.
Reynolds St.
Watson Ave.
Ford Dr.
Royal Windsor Dr.
Sheridan Garden Dr.
Kingsway Dr.
Wynten Way
Gable Dr.
Prince John Circle
Truscott Dr.
Bromsgrove Rd.
Bristol Circle
Buckingham Rd.
Winston Park Dr.
Hyde Park Gate
Hampshire Gate
Dover Gt.
Homelands Dr.
Speakman Dr.
N. Sheridan Way
Ridgeway Dr.
Vega Blvd.
Laird Rd.
The Collegeway
Winston Churchill Blvd.
Burnhamthorpe Rd. West
Burnhamthorpe Rd. East
Water St.
Kerr St.
John St.
Rebecca St.
Brant St.
Burnet St.
Wilson St.
Chisholm St.
Forsythe St.
Navy St.
Thomas St.
George St.
Dunn St.
Trafalgar Rd.
Reynolds St.
Sumner Ave.
Allan St.
William St.
King St.
Front St.
Walker St.
Robinson St.
Lakeshore Rd. East
Oakville Harbour

24 SOUTH COMMON

Monday to Friday Effective September 4, 2016

Timepoint	Oakville GO (Depart)	Sheridan College	Trafalgar & Upper Middle	Uptown Core	Dundas & Eighth Line	Dundas & Hampshire	South Common (Arrive)	South Common (Depart)	Dundas & Hampshire	Dundas & Eighth Line	Uptown Core	Trafalgar & Upper Middle	Sheridan College	Oakville GO (Arrive)
Monday to Friday														
	To South Common							**To Oakville GO**						
a.m.	--	--	--	--	--	--	--	6:25	6:35	6:42	6:48	6:54	6:57	7:06
	--	--	--	--	--	--	--	6:40	6:50	6:57	7:03	7:09	7:12	7:21
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:55	7:05	7:12	7:18	7:24	7:27	7:36
	6:25	6:34	6:37	6:45	6:50	6:57	7:06	7:10	7:20	7:27	7:33	7:39	7:42	7:51
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:06
	6:55	7:04	7:07	7:15	7:20	7:27	7:36	7:40	7:50	7:57	8:03	8:09	8:12	8:21
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:36
	7:25	7:34	7:37	7:45	7:50	7:57	8:06	8:10	8:20	8:27	8:33	8:39	8:42	8:51
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:25	8:35	8:42	8:48	8:54	8:57	9:06
	7:55	8:04	8:07	8:15	8:20	8:27	8:36	8:40	8:50	8:57	9:03	9:09	9:12	9:21
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:36
	8:25	8:34	8:37	8:45	8:50	8:57	9:06	9:10	9:20	9:27	9:33	9:39	9:42	9:51
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:25	9:35	9:42	9:48	9:54	9:57	10:06
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:36
	and every 30 minutes until							***and every 30 minutes until***						
p.m.	3:10	3:19	3:22	3:30	3:35	3:42	3:51	3:55	4:05	4:12	4:18	4:24	4:27	4:36
	3:40	3:49	3:52	4:00	4:05	4:12	4:21	4:25	4:35	4:42	4:48	4:54	4:57	5:06
	4:10	4:19	4:22	4:30	4:35	4:42	4:51	4:55	5:05	5:12	5:18	5:24	5:27	5:36
	4:25	4:34	4:37	4:45	4:50	4:57	5:06	5:10	5:20	5:27	5:33	5:39	5:42	5:51
	4:40	4:49	4:52	5:00	5:05	5:12	5:21	5:25	5:35	5:42	5:48	5:54	5:57	6:06
	4:55	5:04	5:07	5:15	5:20	5:27	5:36	5:40	5:50	5:57	6:03	6:09	6:12	6:21
	5:10	5:19	5:22	5:30	5:35	5:42	5:51	5:55	6:05	6:12	6:18	6:24	6:27	6:36
	5:25	5:34	5:37	5:45	5:50	5:57	6:06	6:10	6:20	6:27	6:33	6:39	6:42	6:51
	5:40	5:49	5:52	6:00	6:05	6:12	6:21	6:25	6:35	6:42	6:48	6:54	6:57	7:06
	5:55	6:04	6:07	6:15	6:20	6:27	6:36	6:40	6:50	6:57	7:03	7:09	7:12	7:21
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:55	7:05	7:12	7:18	7:24	7:27	7:36
	6:25	6:34	6:37	6:45	6:50	6:57	7:06	7:10	7:20	7:27	7:33	7:39	7:42	7:51
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:06
	6:55	7:04	7:07	7:15	7:20	7:27	7:36	7:40	7:50	7:57	8:03	8:09	8:12	8:21
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:36
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:25	8:35	8:42	8:48	8:54	8:57	9:06
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:36
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:25	9:35	9:42	9:48	9:54	9:57	10:06
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:36
	9:40	9:49	9:52	10:00	10:05	10:12	10:21	10:25	10:35	10:42	10:48	10:54	10:57	11:06
	10:10	10:19	10:22	10:30	10:35	10:42	10:51	10:55	11:05	11:12	11:18	11:24	11:27	11:36
	10:40	10:49	10:52	11:00	11:05	11:12	11:21	11:25	11:35	11:42	11:48	11:54	11:57	12:06





Late Night Service departs from the Oakville GO station at 11:40 p.m., 12:30 and 1:30 a.m., Monday to Saturday, and 7:40 p.m. on Sunday and holidays. Let the driver know the nearest bus stop to your destination within Oakville. Drop-off service covers up to Winston Churchill Blvd. only.

Have you tried real-time bus tracking?

Track your bus at oakvilletransit.ca or download the Oakville Transit mobile app.

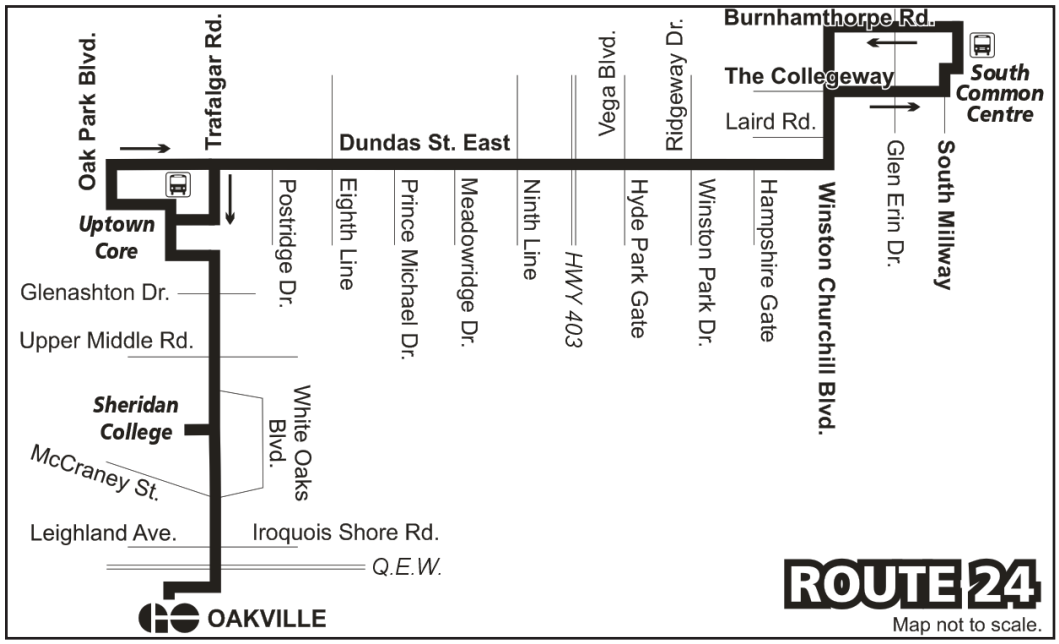
Download on the App Store GET IT ON Google play

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

24 SOUTH COMMON

Saturday, Sunday/Holidays ***Effective September 4, 2016***

Timepoint	Oakville GO (Depart)	Sheridan College	Trafalgar & Upper Middle	Uptown Core	Dundas & Eighth Line	Dundas & Hampshire	South Common (Arrive)	South Common (Depart)	Dundas & Hampshire	Dundas & Eighth Line	Uptown Core	Trafalgar & Upper Middle	Sheridan College	Oakville GO (Arrive)
Saturday														
	To South Common							**To Oakville GO**						
a.m.	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:06
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:36
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:25	8:35	8:42	8:48	8:54	8:57	9:06
	and every 30 minutes until							***and every 30 minutes until***						
p.m.	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:06
	7:10	7:19	7:22	7:30	7:35	7:42	7:51	7:55	8:05	8:12	8:18	8:24	8:27	8:36
	7:40	7:49	7:52	8:00	8:05	8:12	8:21	8:25	8:35	8:42	8:48	8:54	8:57	9:06
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:25	9:35	9:42	9:48	9:54	9:57	10:06
	9:40	9:49	9:52	10:00	10:05	10:12	10:21	10:25	10:35	10:42	10:48	10:54	10:57	11:06
	10:40	10:49	10:52	11:00	11:05	11:12	11:21	11:25	11:35	11:42	11:48	11:54	11:57	12:06
Sunday / Holidays														
	To South Common							**To Oakville GO**						
a.m.	--	--	--	--	--	--	--	8:25	8:35	8:42	8:48	8:54	8:57	9:06
	8:10	8:19	8:22	8:30	8:35	8:42	8:51	8:55	9:05	9:12	9:18	9:24	9:27	9:36
	8:40	8:49	8:52	9:00	9:05	9:12	9:21	9:25	9:35	9:42	9:48	9:54	9:57	10:06
	9:10	9:19	9:22	9:30	9:35	9:42	9:51	9:55	10:05	10:12	10:18	10:24	10:27	10:36
	and every 30 minutes until							***and every 30 minutes until***						
p.m.	5:40	5:49	5:52	6:00	6:05	6:12	6:21	6:25	6:35	6:42	6:48	6:54	6:57	7:06
	6:10	6:19	6:22	6:30	6:35	6:42	6:51	6:55	7:05	7:12	7:18	7:24	7:27	7:36
	6:40	6:49	6:52	7:00	7:05	7:12	7:21	7:25	7:35	7:42	7:48	7:54	7:57	8:06



Late Night Service

departs from the Oakville GO station at 11:40 p.m., 12:30 and 1:30 a.m., Monday to Saturday, and 7:40 p.m. on Sunday and holidays. Let the driver know the nearest bus stop to your destination within Oakville.



Drop-off service covers up to Winston Churchill Blvd. only.

Have you tried real-time bus tracking?

Track your bus at oakvilletransit.ca or download the Oakville Transit mobile app.

Download on the App Store | GET IT ON Google play

Oakville Transit
430 Wyecroft Road
8:30 a.m. - 4:30 p.m.
Monday - Friday

oakvilletransit.ca
@oakvilletransit

Mailing Address
Oakville Transit
1225 Trafalgar Road
Oakville, ON L6H 0H3

Info Line 905-815-2020
care-A-van 905-337-9222

While every effort will be made to operate our service to these timetables, all schedules including bus stop times and transfer times are based on normal traffic and weather conditions and as such are subject to change. Oakville Transit will not be responsible for any loss, damage or inconvenience that may result from any errors, omissions or service delays.

APPENDIX D

Traffic Data

Turning Movement Count (1 . DUNDAS ST E & NINTH LINE)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	4	27	21	0	0	52	4	62	5	0	0	71	2	7	6	0	0	15	41	238	6	0	0	285	423	
06:15:00	4	50	28	0	0	82	8	101	7	1	0	117	11	15	19	0	0	45	43	300	12	0	0	355	599	
06:30:00	9	50	45	0	0	104	5	136	9	1	0	151	11	27	13	0	0	51	59	371	13	0	0	443	749	
06:45:00	8	78	41	0	0	127	13	180	10	0	0	203	17	15	23	0	0	55	59	449	23	0	0	531	916	2687
07:00:00	9	70	35	0	0	114	11	163	7	1	0	182	17	48	28	0	1	93	50	405	29	0	0	484	873	3137
07:15:00	8	89	47	0	0	144	13	177	11	0	0	201	25	66	22	0	0	113	71	615	44	0	0	730	1188	3726
07:30:00	13	131	54	0	0	198	32	210	24	0	0	266	43	68	30	0	0	141	59	562	67	0	0	688	1293	4270
07:45:00	19	159	71	0	0	249	13	227	42	0	0	282	43	99	31	0	0	173	86	584	51	0	0	721	1425	4779
08:00:00	21	132	55	0	0	208	41	218	47	0	0	306	30	66	37	0	0	133	74	601	59	0	0	734	1381	5287
08:15:00	36	140	56	0	0	232	48	230	37	0	0	315	36	82	43	0	0	161	92	523	65	0	0	680	1388	5487
08:30:00	40	117	61	0	0	218	26	173	28	0	0	227	39	64	53	0	0	156	95	561	57	1	0	714	1315	5509
08:45:00	32	112	49	0	0	193	20	221	17	1	0	259	30	57	40	0	0	127	84	507	47	0	0	638	1217	5301
BREAK																										
15:00:00	31	47	26	0	0	104	49	474	36	4	0	563	44	95	75	0	0	214	33	266	27	0	0	326	1207	
15:15:00	40	60	30	0	0	130	34	414	33	2	0	483	63	113	80	0	0	256	44	306	33	0	0	383	1252	
15:30:00	47	79	30	0	1	156	46	477	26	1	0	550	76	111	71	0	0	258	44	314	34	0	0	392	1356	
15:45:00	51	66	23	0	0	140	44	468	31	2	0	545	115	149	79	0	0	343	35	275	42	0	0	352	1380	5195
16:00:00	63	67	37	0	0	167	43	548	33	2	1	626	156	147	68	0	2	371	38	310	26	0	0	374	1538	5526
16:15:00	54	65	27	0	0	146	29	558	24	1	1	612	164	140	100	0	1	404	38	301	28	0	0	367	1529	5803
16:30:00	52	74	35	0	0	161	28	450	36	0	0	514	178	177	87	0	0	442	35	284	24	0	0	343	1460	5907
16:45:00	57	78	30	0	0	165	31	574	28	0	0	633	194	157	61	0	1	412	47	374	31	0	0	452	1662	6189
17:00:00	62	76	33	0	0	171	38	689	30	0	1	757	170	171	88	0	0	429	29	346	32	1	0	408	1765	6416
17:15:00	70	68	36	0	0	174	33	613	29	1	0	676	174	199	66	0	1	439	45	378	39	0	0	462	1751	6638
17:30:00	44	78	39	0	0	161	40	697	27	1	0	765	153	156	84	0	0	393	38	392	35	0	0	465	1784	6962
17:45:00	54	74	22	0	0	150	33	601	35	0	0	669	174	190	92	0	0	456	40	323	42	0	0	405	1680	6980
18:00:00	57	62	45	0	0	164	36	539	28	2	0	605	110	123	69	0	0	302	43	304	31	0	0	378	1449	6664
18:15:00	41	61	21	0	0	123	38	578	35	4	1	655	102	86	64	0	0	252	47	345	22	1	0	415	1445	6358
18:30:00	38	53	30	0	0	121	34	485	28	1	0	548	78	98	70	0	1	246	39	310	18	1	0	368	1283	5857
18:45:00	14	44	25	0	0	83	42	442	37	1	0	522	50	86	62	0	0	198	32	323	30	0	0	385	1188	5365
Grand Total	978	2207	1052	0	1	4237	832	10705	740	26	4	12303	2305	2812	1561	0	7	6678	1440	10867	967	4	0	13278	**36496**	-
Approach%	23.1%	52.1%	24.8%	0%		-	6.8%	87%	6%	0.2%		-	34.5%	42.1%	23.4%	0%		-	10.8%	81.8%	7.3%	0%		-	-	-

Totals %	2.7%	6%	2.9%	0%	11.6%	2.3%	29.3%	2%	0.1%	33.7%	6.3%	7.7%	4.3%	0%	18.3%	3.9%	29.8%	2.6%	0%	36.4%	-	-
Heavy	20	54	18	0	-	27	333	25	0	-	124	73	63	0	-	58	273	13	0	-	-	-
Heavy %	2%	2.4%	1.7%	0%	-	3.2%	3.1%	3.4%	0%	-	5.4%	2.6%	4%	0%	-	4%	2.5%	1.3%	0%	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

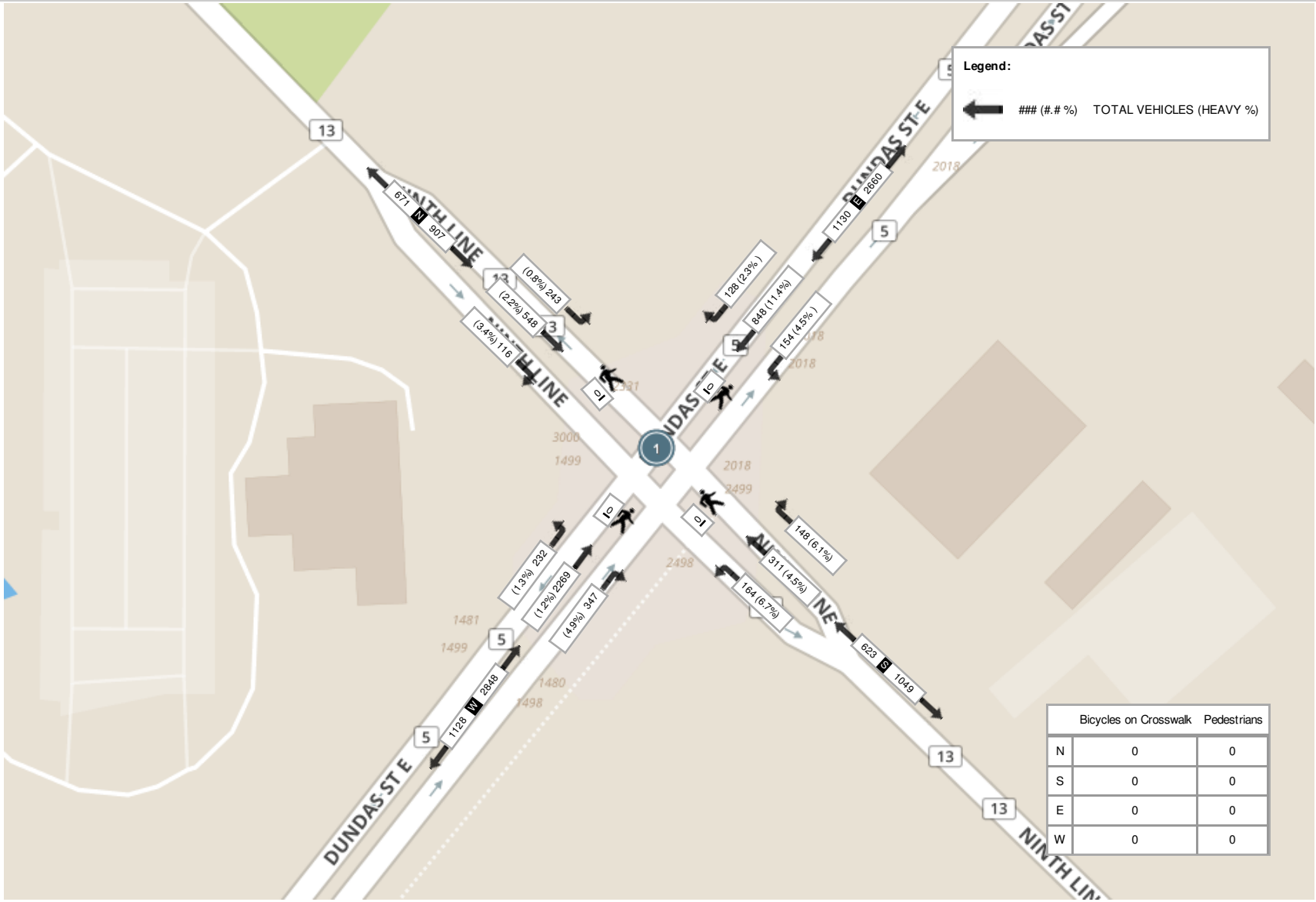
Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	19	159	71	0	0	249	13	227	42	0	0	282	43	99	31	0	0	173	86	584	51	0	0	721	1425
08:00:00	21	132	55	0	0	208	41	218	47	0	0	306	30	66	37	0	0	133	74	601	59	0	0	734	1381
08:15:00	36	140	56	0	0	232	48	230	37	0	0	315	36	82	43	0	0	161	92	523	65	0	0	680	1388
08:30:00	40	117	61	0	0	218	26	173	28	0	0	227	39	64	53	0	0	156	95	561	57	1	0	714	1315
Grand Total	116	548	243	0	0	907	128	848	154	0	0	1130	148	311	164	0	0	623	347	2269	232	1	0	2849	**5509**
Approach%	12.8%	60.4%	26.8%	0%		-	11.3%	75%	13.6%	0%		-	23.8%	49.9%	26.3%	0%		-	12.2%	79.6%	8.1%	0%		-	-
Totals %	2.1%	9.9%	4.4%	0%		16.5%	2.3%	15.4%	2.8%	0%		20.5%	2.7%	5.6%	3%	0%		11.3%	6.3%	41.2%	4.2%	0%		51.7%	-
PHF	0.73	0.86	0.86	0		0.91	0.67	0.92	0.82	0		0.9	0.86	0.79	0.77	0		0.9	0.91	0.94	0.89	0.25		0.97	-
Heavy	4	12	2	0		18	3	97	7	0		107	9	14	11	0		34	17	27	3	0		47	-
Heavy %	3.4%	2.2%	0.8%	0%		2%	2.3%	11.4%	4.5%	0%		9.5%	6.1%	4.5%	6.7%	0%		5.5%	4.9%	1.2%	1.3%	0%		1.6%	-
Lights	112	535	241	0		888	125	751	147	0		1023	139	297	153	0		589	330	2242	229	1		2802	-
Lights %	96.6%	97.6%	99.2%	0%		97.9%	97.7%	88.6%	95.5%	0%		90.5%	93.9%	95.5%	93.3%	0%		94.5%	95.1%	98.8%	98.7%	100%		98.4%	-
Single-Unit Trucks	1	8	1	0		10	3	52	6	0		61	3	6	7	0		16	4	14	0	0		18	-
Single-Unit Trucks %	0.9%	1.5%	0.4%	0%		1.1%	2.3%	6.1%	3.9%	0%		5.4%	2%	1.9%	4.3%	0%		2.6%	1.2%	0.6%	0%	0%		0.6%	-
Buses	3	3	0	0		6	0	5	0	0		5	2	3	1	0		6	3	5	2	0		10	-
Buses %	2.6%	0.5%	0%	0%		0.7%	0%	0.6%	0%	0%		0.4%	1.4%	1%	0.6%	0%		1%	0.9%	0.2%	0.9%	0%		0.4%	-
Articulated Trucks	0	1	1	0		2	0	40	1	0		41	4	5	3	0		12	10	8	1	0		19	-
Articulated Trucks %	0%	0.2%	0.4%	0%		0.2%	0%	4.7%	0.6%	0%		3.6%	2.7%	1.6%	1.8%	0%		1.9%	2.9%	0.4%	0.4%	0%		0.7%	-
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0.2%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

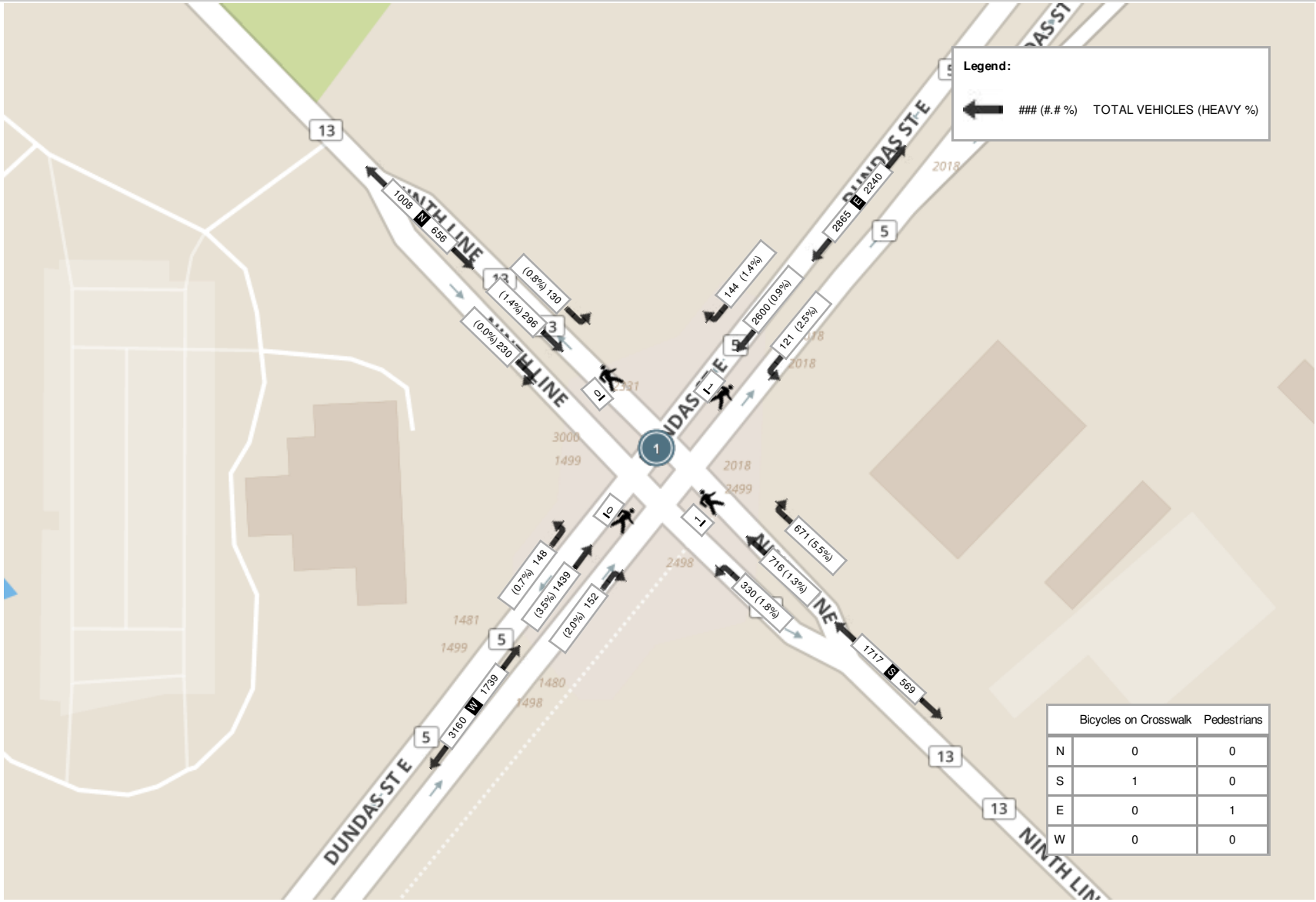
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST W						S Approach NINTH LINE						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	62	76	33	0	0	171	38	689	30	0	1	757	170	171	88	0	0	429	29	346	32	1	0	408	1765
17:15:00	70	68	36	0	0	174	33	613	29	1	0	676	174	199	66	0	1	439	45	378	39	0	0	462	1751
17:30:00	44	78	39	0	0	161	40	697	27	1	0	765	153	156	84	0	0	393	38	392	35	0	0	465	1784
17:45:00	54	74	22	0	0	150	33	601	35	0	0	669	174	190	92	0	0	456	40	323	42	0	0	405	1680
Grand Total	230	296	130	0	0	656	144	2600	121	2	1	2867	671	716	330	0	1	1717	152	1439	148	1	0	1740	**6980**
Approach%	35.1%	45.1%	19.8%	0%		-	5%	90.7%	4.2%	0.1%		-	39.1%	41.7%	19.2%	0%		-	8.7%	82.7%	8.5%	0.1%		-	-
Totals %	3.3%	4.2%	1.9%	0%		9.4%	2.1%	37.2%	1.7%	0%		41.1%	9.6%	10.3%	4.7%	0%		24.6%	2.2%	20.6%	2.1%	0%		24.9%	-
PHF	0.82	0.95	0.83	0		0.94	0.9	0.93	0.86	0.5		0.94	0.96	0.9	0.9	0		0.94	0.84	0.92	0.88	0.25		0.94	-
Heavy	0	4	1	0		5	2	24	3	0		29	37	9	6	0		52	3	50	1	0		54	-
Heavy %	0%	1.4%	0.8%	0%		0.8%	1.4%	0.9%	2.5%	0%		1%	5.5%	1.3%	1.8%	0%		3%	2%	3.5%	0.7%	0%		3.1%	-
Lights	230	292	129	0		651	142	2576	118	2		2838	634	707	324	0		1665	149	1389	147	1		1686	-
Lights %	100%	98.6%	99.2%	0%		99.2%	98.6%	99.1%	97.5%	100%		99%	94.5%	98.7%	98.2%	0%		97%	98%	96.5%	99.3%	100%		96.9%	-
Single-Unit Trucks	0	4	0	0		4	1	9	0	0		10	17	6	4	0		27	1	26	1	0		28	-
Single-Unit Trucks %	0%	1.4%	0%	0%		0.6%	0.7%	0.3%	0%	0%		0.3%	2.5%	0.8%	1.2%	0%		1.6%	0.7%	1.8%	0.7%	0%		1.6%	-
Buses	0	0	0	0		0	0	6	0	0		6	1	1	0	0		2	0	5	0	0		5	-
Buses %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0.1%	0.1%	0%	0%		0.1%	0%	0.3%	0%	0%		0.3%	-
Articulated Trucks	0	0	1	0		1	1	9	3	0		13	19	2	2	0		23	2	19	0	0		21	-
Articulated Trucks %	0%	0%	0.8%	0%		0.2%	0.7%	0.3%	2.5%	0%		0.5%	2.8%	0.3%	0.6%	0%		1.3%	1.3%	1.3%	0%	0%		1.2%	-
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 Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	0%		-

Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 05:00 PM - 06:00 PM **Weather: Overcast (7.4 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	1	0
E	0	1
W	0	0

Turning Movement Count (1 . DUNDAS ST E & NINTH LINE)

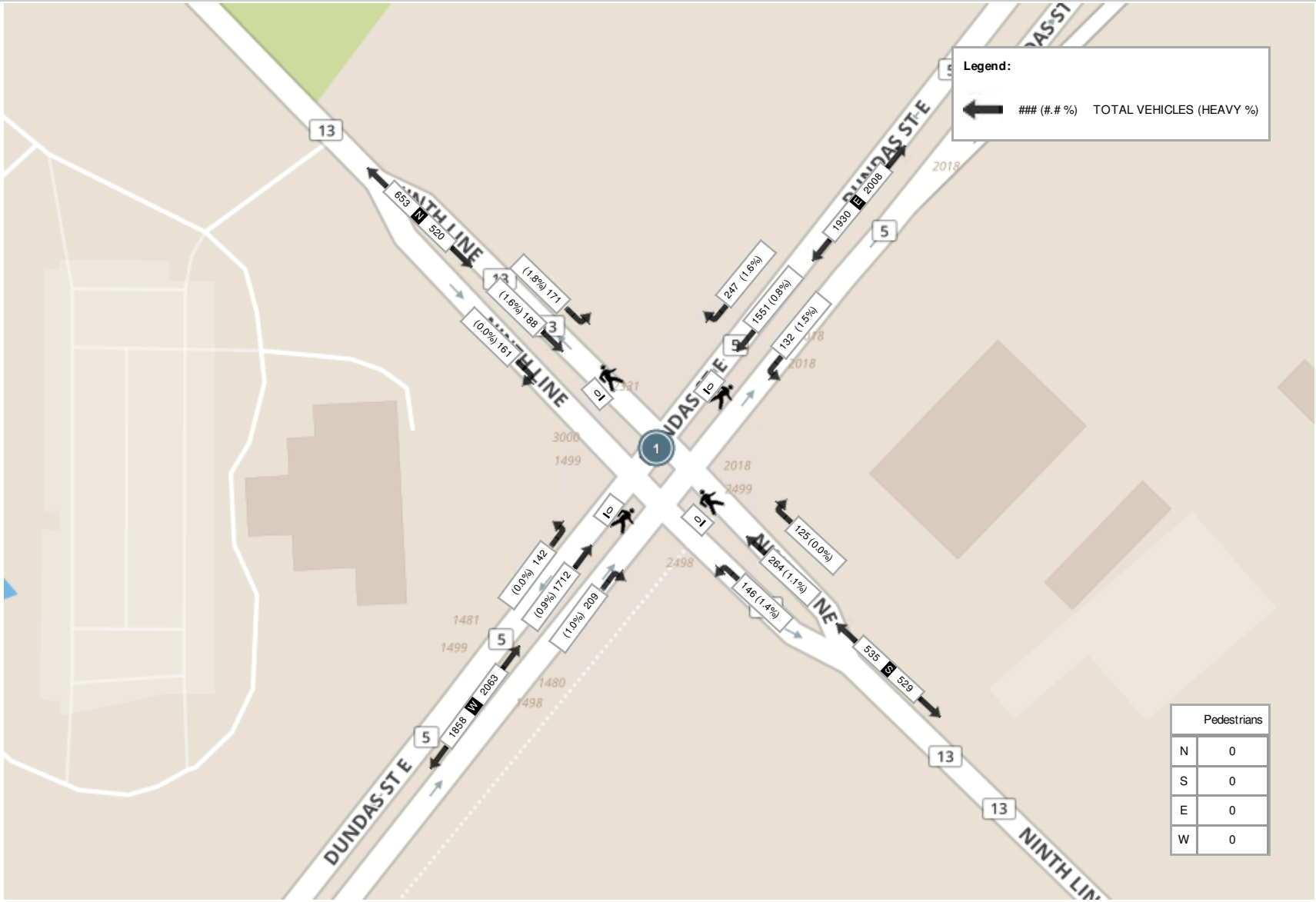
Start Time	N Approach NINTH LINE						E Approach DUNDAS ST E						S Approach NINTH LINE						W Approach DUNDAS ST E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	32	44	43	1	0	120	33	227	10	1	1	271	27	36	30	0	1	93	45	350	20	0	0	415	899	
10:15:00	24	37	29	0	0	90	19	244	15	0	0	278	18	29	25	0	0	72	34	402	22	0	0	458	898	
10:30:00	16	36	32	0	0	84	33	275	17	0	0	325	37	41	25	0	0	103	46	362	25	0	0	433	945	
10:45:00	16	45	46	0	0	107	23	272	26	1	0	322	26	55	37	0	0	118	36	397	32	0	0	465	1012	3754
11:00:00	23	35	40	0	0	98	31	310	25	0	0	366	32	34	36	0	0	102	62	418	28	0	0	508	1074	3929
11:15:00	19	30	27	0	0	76	26	394	21	1	0	442	30	43	31	0	0	104	44	397	26	1	0	468	1090	4121
11:30:00	25	41	45	0	0	111	31	341	20	5	0	397	34	63	25	0	0	122	34	408	25	0	0	467	1097	4273
11:45:00	26	41	27	0	0	94	55	379	28	1	0	463	26	48	36	0	0	110	42	428	34	0	0	504	1171	4432
12:00:00	39	53	42	0	0	134	58	338	36	1	0	433	33	57	33	1	0	124	47	370	32	0	0	449	1140	4498
12:15:00	25	47	48	0	0	120	60	350	26	2	0	438	30	71	26	0	0	127	48	460	28	0	0	536	1221	4629
12:30:00	40	46	33	0	0	119	63	436	34	0	0	533	31	67	30	0	0	128	57	427	40	0	0	524	1304	4836
12:45:00	44	50	45	0	0	139	66	352	43	2	0	463	34	73	40	0	0	147	48	418	43	0	0	509	1258	4923
13:00:00	52	45	45	0	0	142	58	413	29	5	0	505	30	53	50	0	0	133	56	407	31	0	0	494	1274	5057
13:15:00	30	52	39	0	0	121	25	424	24	3	0	476	20	38	35	0	0	93	51	386	37	1	0	475	1165	5001
13:30:00	20	42	45	0	0	107	36	353	25	4	0	418	32	58	22	0	0	112	48	404	26	1	0	479	1116	4813
13:45:00	23	37	39	0	0	99	39	427	34	1	0	501	40	40	33	1	0	114	55	410	23	0	0	488	1202	4757
14:00:00	39	52	56	0	0	147	56	368	36	3	0	463	37	83	32	0	0	152	33	345	23	0	0	401	1163	4646
14:15:00	61	50	46	0	0	157	57	385	35	3	0	480	32	46	36	0	0	114	46	442	35	0	0	523	1274	4755
14:30:00	40	64	53	0	0	157	34	470	29	1	0	534	30	47	39	0	0	116	45	386	26	0	0	457	1264	4903
14:45:00	41	39	62	0	0	142	41	406	24	1	0	472	35	60	45	0	0	140	56	391	35	0	0	482	1236	4937
15:00:00	26	50	45	0	0	121	45	455	35	1	0	536	45	59	39	0	0	143	50	398	30	0	0	478	1278	5052
15:15:00	39	49	41	0	0	129	42	490	20	1	0	553	29	62	30	0	0	121	49	379	26	0	0	454	1257	5035
15:30:00	28	31	33	0	0	92	34	430	26	2	0	492	32	65	30	0	0	127	48	378	33	0	0	459	1170	4941
15:45:00	20	43	42	0	0	105	33	505	31	2	0	571	27	58	35	0	0	120	40	350	27	0	0	417	1213	4918
16:00:00	27	36	24	0	0	87	43	454	20	1	0	518	29	58	35	0	0	122	37	368	29	0	0	434	1161	4801
16:15:00	30	51	41	0	0	122	33	406	29	3	0	471	31	87	31	0	0	149	40	422	30	0	0	492	1234	4778
16:30:00	29	50	30	0	0	109	51	505	23	1	0	580	23	59	37	0	0	119	37	368	31	0	0	436	1244	4852
16:45:00	19	64	31	0	0	114	39	413	31	1	0	484	24	61	40	0	0	125	47	310	45	0	0	402	1125	4764
Grand Total	853	1260	1129	1	0	3243	1164	10822	752	47	1	12785	854	1551	943	2	1	3350	1281	10981	842	3	0	13107	**32485**	-
Approach%	26.3%	38.9%	34.8%	0%		-	9.1%	84.6%	5.9%	0.4%		-	25.5%	46.3%	28.1%	0.1%		-	9.8%	83.8%	6.4%	0%		-	**-**	-
Totals %	2.6%	3.9%	3.5%	0%		10%	3.6%	33.3%	2.3%	0.1%		39.4%	2.6%	4.8%	2.9%	0%		10.3%	3.9%	33.8%	2.6%	0%		40.3%	**-**	-

Heavy	6	11	11	0	-	15	74	7	0	-	6	16	15	0	-	14	99	6	0	-	-	-	
Heavy %	0.7%	0.9%	1%	0%	-	1.3%	0.7%	0.9%	0%	-	0.7%	1%	1.6%	0%	-	1.1%	0.9%	0.7%	0%	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	N Approach NINTH LINE						E Approach DUNDAS ST E						S Approach NINTH LINE						W Approach DUNDAS ST E						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
12:15:00	25	47	48	0	0	120	60	350	26	2	0	438	30	71	26	0	0	127	48	460	28	0	0	536	1221
12:30:00	40	46	33	0	0	119	63	436	34	0	0	533	31	67	30	0	0	128	57	427	40	0	0	524	1304
12:45:00	44	50	45	0	0	139	66	352	43	2	0	463	34	73	40	0	0	147	48	418	43	0	0	509	1258
13:00:00	52	45	45	0	0	142	58	413	29	5	0	505	30	53	50	0	0	133	56	407	31	0	0	494	1274
Grand Total	161	188	171	0	0	520	247	1551	132	9	0	1939	125	264	146	0	0	535	209	1712	142	0	0	2063	**5057**
Approach%	31%	36.2%	32.9%	0%		-	12.7%	80%	6.8%	0.5%		-	23.4%	49.3%	27.3%	0%		-	10.1%	83%	6.9%	0%		-	-
Totals %	3.2%	3.7%	3.4%	0%		10.3%	4.9%	30.7%	2.6%	0.2%		38.3%	2.5%	5.2%	2.9%	0%		10.6%	4.1%	33.9%	2.8%	0%		40.8%	-
PHF	0.77	0.94	0.89	0		0.92	0.94	0.89	0.77	0.45		0.91	0.92	0.9	0.73	0		0.91	0.92	0.93	0.83	0		0.96	-
Heavy	0	3	3	0		6	4	12	2	0		18	0	3	2	0		5	2	15	0	0		17	-
Heavy %	0%	1.6%	1.8%	0%		1.2%	1.6%	0.8%	1.5%	0%		0.9%	0%	1.1%	1.4%	0%		0.9%	1%	0.9%	0%	0%		0.8%	-
Lights	161	185	168	0		514	243	1539	130	9		1921	125	261	144	0		530	207	1697	142	0		2046	-
Lights %	100%	98.4%	98.2%	0%		98.8%	98.4%	99.2%	98.5%	100%		99.1%	100%	98.9%	98.6%	0%		99.1%	99%	99.1%	100%	0%		99.2%	-
Single-Unit Trucks	0	3	3	0		6	3	7	1	0		11	0	3	1	0		4	1	8	0	0		9	-
Single-Unit Trucks %	0%	1.6%	1.8%	0%		1.2%	1.2%	0.5%	0.8%	0%		0.6%	0%	1.1%	0.7%	0%		0.7%	0.5%	0.5%	0%	0%		0.4%	-
Buses	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	2	0	0		2	-
Buses %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	-
Articulated Trucks	0	0	0	0		0	1	2	1	0		4	0	0	1	0		1	1	5	0	0		6	-
Articulated Trucks %	0%	0%	0%	0%		0%	0.4%	0.1%	0.8%	0%		0.2%	0%	0%	0.7%	0%		0.2%	0.5%	0.3%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)



Turning Movement Count (2 . DUNDAS ST E & HWY 403 W RAMP TERMINAL)

Start Time	N Approach HWY 403 W OFF RAMP TERMINAL					E Approach DUNDAS ST E					W Approach DUNDAS ST E					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	U-Turn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	45	30	0	0	75	0	24	0	0	24	253	0	0	0	253	352	
06:15:00	71	51	0	0	122	0	39	0	0	39	339	0	0	0	339	500	
06:30:00	80	75	0	0	155	0	54	0	0	54	381	0	0	0	381	590	
06:45:00	134	100	0	0	234	0	79	0	0	79	487	0	0	0	487	800	2242
07:00:00	101	87	0	0	188	0	66	0	0	66	484	0	0	0	484	738	2628
07:15:00	124	121	0	0	245	0	93	0	0	93	611	0	0	0	611	949	3077
07:30:00	151	129	0	0	280	0	109	0	0	109	667	0	0	0	667	1056	3543
07:45:00	180	193	0	0	373	0	110	0	0	110	640	0	0	0	640	1123	3866
08:00:00	186	160	0	0	346	0	148	0	0	148	684	0	0	0	684	1178	4306
08:15:00	162	205	0	0	367	0	166	0	0	166	637	0	0	0	637	1170	4527
08:30:00	129	183	0	0	312	0	124	0	0	124	585	0	0	0	585	1021	4492
08:45:00	133	149	0	0	282	0	118	0	0	118	601	0	0	0	601	1001	4370
BREAK																	
15:00:00	231	77	0	0	308	0	306	0	0	306	367	0	0	0	367	981	
15:15:00	244	64	0	0	308	0	300	1	0	301	359	0	0	0	359	968	
15:30:00	204	79	0	3	283	0	308	0	0	308	427	0	0	0	427	1018	
15:45:00	254	90	0	3	344	0	295	0	0	295	413	0	0	0	413	1052	4019
16:00:00	274	87	0	0	361	0	366	0	0	366	444	0	0	0	444	1171	4209
16:15:00	264	68	0	0	332	0	323	0	0	323	537	0	0	0	537	1192	4433
16:30:00	206	71	0	0	277	0	312	0	0	312	496	0	0	0	496	1085	4500
16:45:00	196	86	0	0	282	0	391	0	0	391	554	0	0	0	554	1227	4675
17:00:00	365	78	0	1	443	0	349	0	0	349	540	0	0	0	540	1332	4836
17:15:00	300	81	0	0	381	0	407	0	0	407	480	0	0	0	480	1268	4912
17:30:00	301	79	0	0	380	0	395	0	0	395	531	0	0	0	531	1306	5133

17:45:00	302	87	0	0	389	0	343	0	0	343	498	0	0	0	498	1230	5136
18:00:00	253	74	0	0	327	0	378	0	0	378	407	0	0	0	407	1112	4916
18:15:00	294	59	0	0	353	0	340	0	0	340	518	0	0	0	518	1211	4859
18:30:00	254	82	0	0	336	0	308	1	0	309	383	0	0	0	383	1028	4581
18:45:00	192	62	0	0	254	0	336	0	0	336	376	0	0	0	376	966	4317
Grand Total	5630	2707	0	7	8337	0	6587	2	0	6589	13699	0	0	0	13699	**28625**	-
Approach%	67.5%	32.5%	0%		-	0%	100%	0%		-	100%	0%	0%		-	**-**	-
Totals %	19.7%	9.5%	0%		29.1%	0%	23%	0%		23%	47.9%	0%	0%		47.9%	**-**	-
Heavy	260	141	0		-	0	130	0		-	402	0	0		-	**-**	-
Heavy %	4.6%	5.2%	0%		-	0%	2%	0%		-	2.9%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

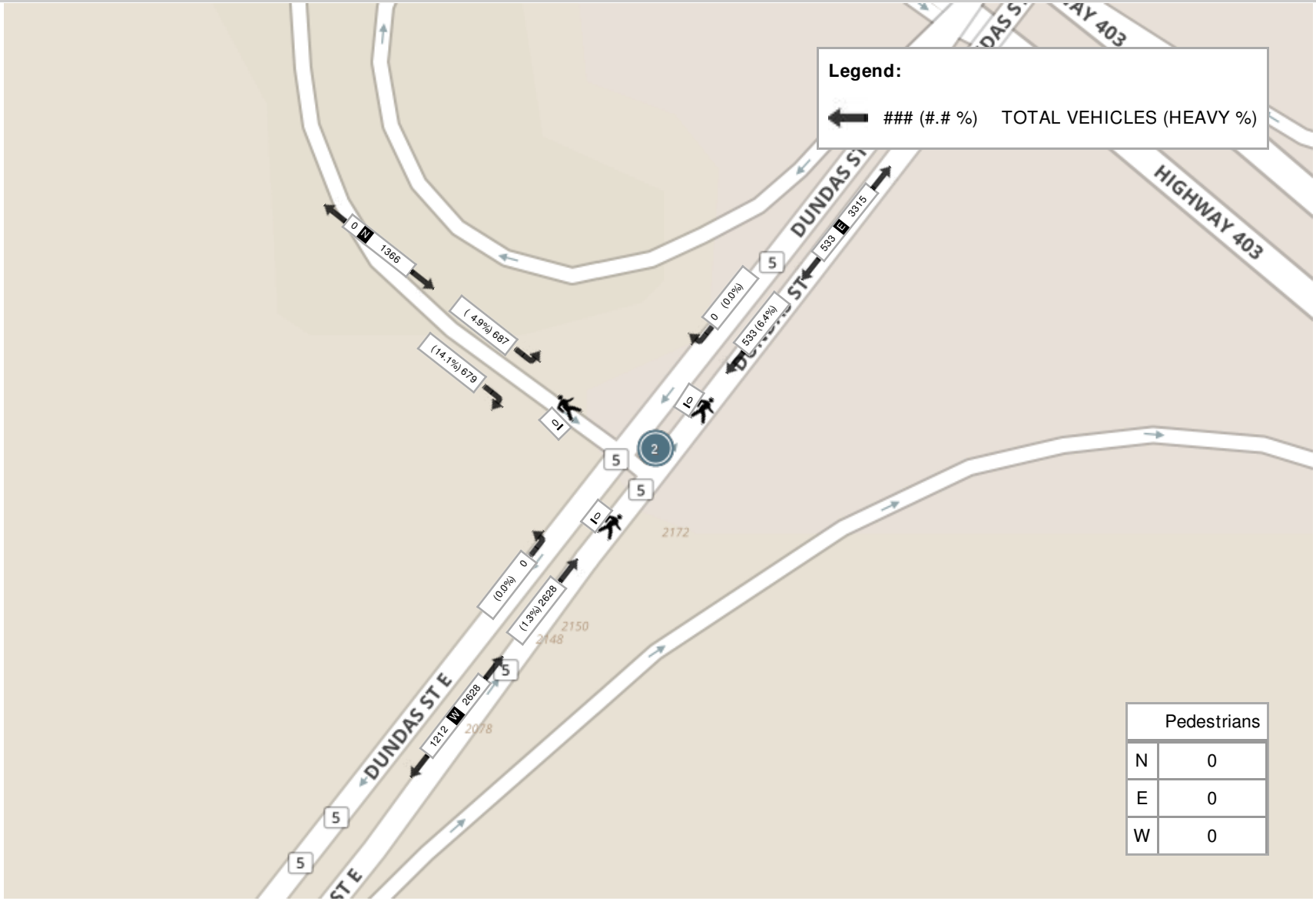
Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)

Start Time	N Approach HWY 403 W OFF RAMP TERMINAL					E Approach DUNDAS ST E					W Approach DUNDAS ST E					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
07:30:00	151	129	0	0	280	0	109	0	0	109	667	0	0	0	667	1056
07:45:00	180	193	0	0	373	0	110	0	0	110	640	0	0	0	640	1123
08:00:00	186	160	0	0	346	0	148	0	0	148	684	0	0	0	684	1178
08:15:00	162	205	0	0	367	0	166	0	0	166	637	0	0	0	637	1170
Grand Total	679	687	0	0	1366	0	533	0	0	533	2628	0	0	0	2628	**4527**
Approach%	49.7%	50.3%	0%		-	0%	100%	0%		-	100%	0%	0%		-	**-**
Totals %	15%	15.2%	0%		30.2%	0%	11.8%	0%		11.8%	58.1%	0%	0%		58.1%	**-**
PHF	0.91	0.84	0		0.92	0	0.8	0		0.8	0.96	0	0		0.96	**-**
Heavy	96	34	0		130	0	34	0		34	34	0	0		34	**-**
Heavy %	14.1%	4.9%	0%		9.5%	0%	6.4%	0%		6.4%	1.3%	0%	0%		1.3%	**-**
Lights	583	653	0		1236	0	499	0		499	2594	0	0		2594	**-**
Lights %	85.9%	95.1%	0%		90.5%	0%	93.6%	0%		93.6%	98.7%	0%	0%		98.7%	**-**
Single-Unit Trucks	55	17	0		72	0	26	0		26	15	0	0		15	**-**
Single-Unit Trucks %	8.1%	2.5%	0%		5.3%	0%	4.9%	0%		4.9%	0.6%	0%	0%		0.6%	**-**
Buses	3	0	0		3	0	5	0		5	6	0	0		6	**-**
Buses %	0.4%	0%	0%		0.2%	0%	0.9%	0%		0.9%	0.2%	0%	0%		0.2%	**-**
Articulated Trucks	38	17	0		55	0	3	0		3	13	0	0		13	**-**
Articulated Trucks %	5.6%	2.5%	0%		4%	0%	0.6%	0%		0.6%	0.5%	0%	0%		0.5%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

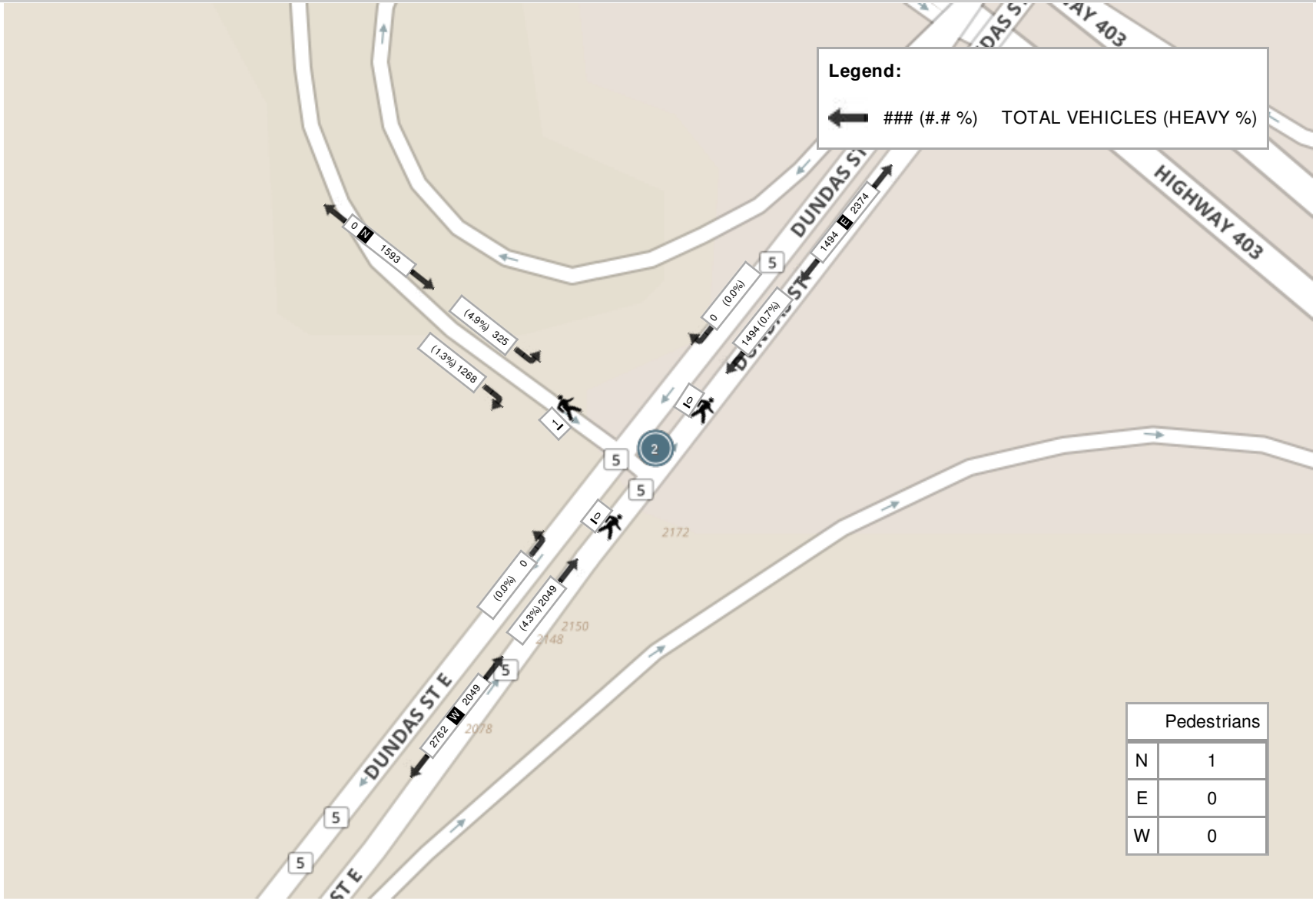
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)

Start Time	N Approach HWY 403 W OFF RAMP TERMINAL					E Approach DUNDAS ST E					W Approach DUNDAS ST E					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	365	78	0	1	443	0	349	0	0	349	540	0	0	0	540	1332
17:15:00	300	81	0	0	381	0	407	0	0	407	480	0	0	0	480	1268
17:30:00	301	79	0	0	380	0	395	0	0	395	531	0	0	0	531	1306
17:45:00	302	87	0	0	389	0	343	0	0	343	498	0	0	0	498	1230
Grand Total	1268	325	0	1	1593	0	1494	0	0	1494	2049	0	0	0	2049	**5136**
Approach%	79.6%	20.4%	0%		-	0%	100%	0%		-	100%	0%	0%		-	**-**
Totals %	24.7%	6.3%	0%		31%	0%	29.1%	0%		29.1%	39.9%	0%	0%		39.9%	**-**
PHF	0.87	0.93	0		0.9	0	0.92	0		0.92	0.95	0	0		0.95	**-**
Heavy	16	16	0		32	0	11	0		11	88	0	0		88	**-**
Heavy %	1.3%	4.9%	0%		2%	0%	0.7%	0%		0.7%	4.3%	0%	0%		4.3%	**-**
Lights	1252	309	0		1561	0	1483	0		1483	1961	0	0		1961	**-**
Lights %	98.7%	95.1%	0%		98%	0%	99.3%	0%		99.3%	95.7%	0%	0%		95.7%	**-**
Single-Unit Trucks	7	8	0		15	0	3	0		3	45	0	0		45	**-**
Single-Unit Trucks %	0.6%	2.5%	0%		0.9%	0%	0.2%	0%		0.2%	2.2%	0%	0%		2.2%	**-**
Buses	0	0	0		0	0	6	0		6	7	0	0		7	**-**
Buses %	0%	0%	0%		0%	0%	0.4%	0%		0.4%	0.3%	0%	0%		0.3%	**-**
Articulated Trucks	9	8	0		17	0	2	0		2	36	0	0		36	**-**
Articulated Trucks %	0.7%	2.5%	0%		1.1%	0%	0.1%	0%		0.1%	1.8%	0%	0%		1.8%	**-**
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	100%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)



Turning Movement Count (2 . DUNDAS ST E & HWY 403 W RAMP TERMINAL)

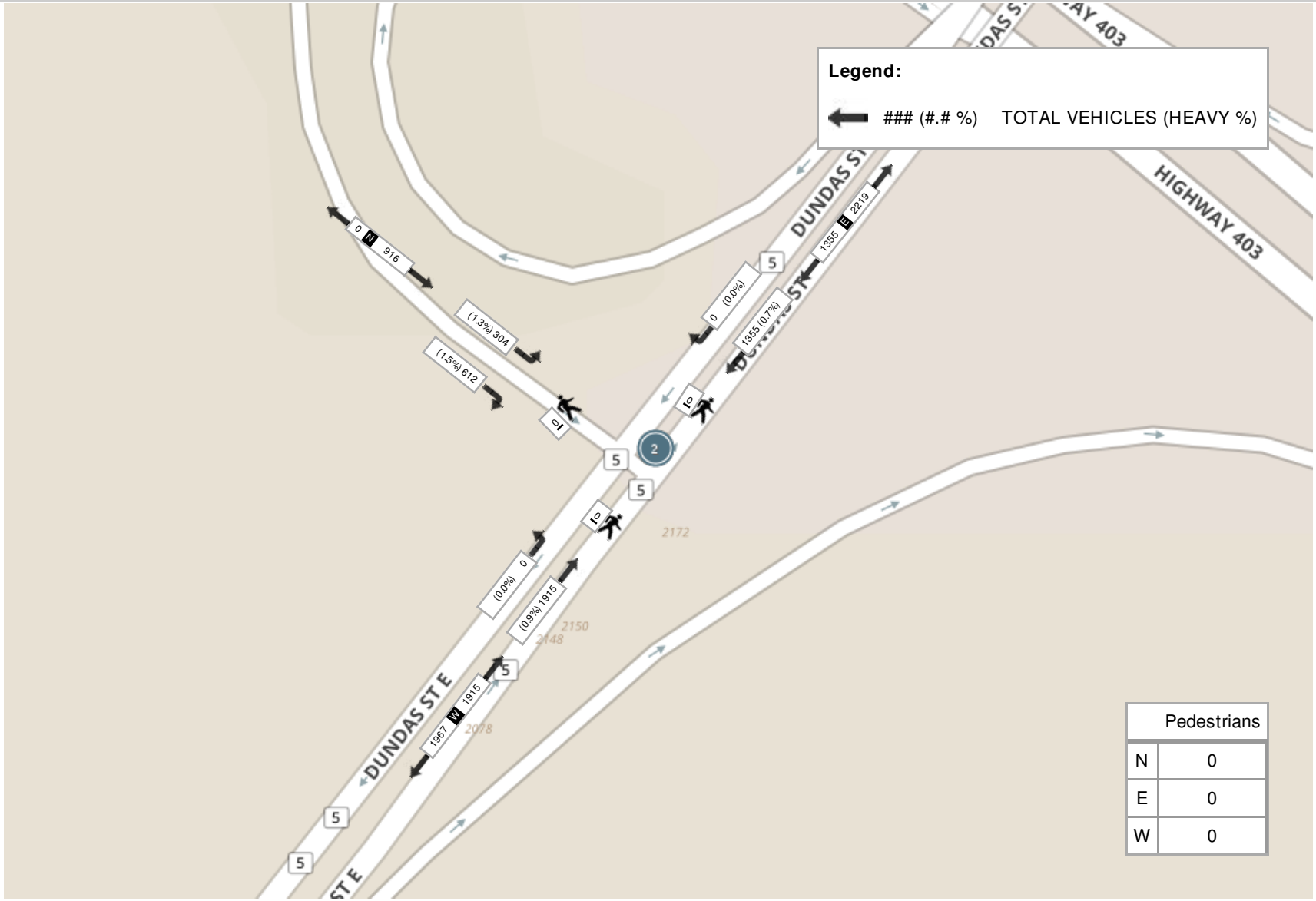
Start Time	N Approach HWY 403 W OFF RAMP TERMINAL					E Approach DUNDAS ST E					W Approach DUNDAS ST E					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	U-Turn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	78	63	0	0	141	0	194	0	0	194	431	0	0	0	431	766	
10:15:00	100	65	0	2	165	0	194	0	1	194	394	0	0	0	394	753	
10:30:00	93	45	0	0	138	0	222	0	0	222	430	0	0	0	430	790	
10:45:00	94	76	0	0	170	0	230	0	0	230	425	0	0	0	425	825	3134
11:00:00	108	53	0	0	161	0	266	0	0	266	477	0	0	0	477	904	3272
11:15:00	125	68	0	0	193	0	295	0	0	295	468	0	0	0	468	956	3475
11:30:00	116	62	0	0	178	0	310	0	0	310	421	0	0	0	421	909	3594
11:45:00	133	54	0	0	187	0	297	0	0	297	487	0	0	0	487	971	3740
12:00:00	120	82	0	0	202	0	313	1	0	314	440	0	0	0	440	956	3792
12:15:00	147	67	0	0	214	0	311	0	0	311	500	0	0	0	500	1025	3861
12:30:00	163	73	0	0	236	0	360	0	0	360	491	0	0	0	491	1087	4039
12:45:00	161	95	0	0	256	0	312	0	0	312	446	0	0	0	446	1014	4082
13:00:00	141	69	0	0	210	0	372	1	0	373	478	0	0	0	478	1061	4187
13:15:00	141	78	0	0	219	0	327	1	0	328	465	0	0	0	465	1012	4174
13:30:00	148	90	0	0	238	0	288	0	0	288	433	0	0	0	433	959	4046
13:45:00	158	68	0	0	226	0	329	0	0	329	502	0	0	0	502	1057	4089
14:00:00	117	64	0	0	181	0	352	0	0	352	411	0	0	0	411	944	3972
14:15:00	143	62	0	0	205	0	330	0	0	330	478	0	0	0	478	1013	3973
14:30:00	157	64	0	0	221	0	370	0	0	370	451	0	0	0	451	1042	4056
14:45:00	157	66	0	0	223	0	339	0	0	339	446	0	0	0	446	1008	4007
15:00:00	156	51	0	0	207	0	346	1	0	347	473	0	0	0	473	1027	4090
15:15:00	171	81	0	0	252	0	378	0	0	378	434	0	0	0	434	1064	4141
15:30:00	167	79	0	0	246	0	345	0	0	345	418	0	0	0	418	1009	4108

15:45:00	181	68	0	0	249	0	359	0	0	359	412	0	0	0	412	1020	4120
16:00:00	157	84	0	0	241	0	343	0	0	343	414	0	0	0	414	998	4091
16:15:00	179	70	0	0	249	0	311	0	0	311	459	0	0	0	459	1019	4046
16:30:00	195	69	0	0	264	0	352	0	0	352	429	0	0	0	429	1045	4082
16:45:00	184	76	0	0	260	0	314	1	0	315	326	0	0	0	326	901	3963
Grand Total	3990	1942	0	2	5932	0	8759	5	1	8764	12439	0	0	0	12439	**27135**	-
Approach%	67.3%	32.7%	0%		-	0%	99.9%	0.1%		-	100%	0%	0%		-	**-**	-
Totals %	14.7%	7.2%	0%		21.9%	0%	32.3%	0%		32.3%	45.8%	0%	0%		45.8%	**-**	-
Heavy	46	40	0		-	0	52	0		-	107	0	0		-	**-**	-
Heavy %	1.2%	2.1%	0%		-	0%	0.6%	0%		-	0.9%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	N Approach HWY 403 W OFF RAMP TERMINAL					E Approach DUNDAS ST E					W Approach DUNDAS ST E					Int. Total (15 min)
	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	
12:15:00	147	67	0	0	214	0	311	0	0	311	500	0	0	0	500	1025
12:30:00	163	73	0	0	236	0	360	0	0	360	491	0	0	0	491	1087
12:45:00	161	95	0	0	256	0	312	0	0	312	446	0	0	0	446	1014
13:00:00	141	69	0	0	210	0	372	1	0	373	478	0	0	0	478	1061
Grand Total	612	304	0	0	916	0	1355	1	0	1356	1915	0	0	0	1915	**4187**
Approach%	66.8%	33.2%	0%		-	0%	99.9%	0.1%		-	100%	0%	0%		-	**-**
Totals %	14.6%	7.3%	0%		21.9%	0%	32.4%	0%		32.4%	45.7%	0%	0%		45.7%	**-**
PHF	0.94	0.8	0		0.89	0	0.91	0.25		0.91	0.96	0	0		0.96	**-**
Heavy	9	4	0		13	0	9	0		9	17	0	0		17	**-**
Heavy %	1.5%	1.3%	0%		1.4%	0%	0.7%	0%		0.7%	0.9%	0%	0%		0.9%	**-**
Lights	603	300	0		903	0	1346	1		1347	1898	0	0		1898	**-**
Lights %	98.5%	98.7%	0%		98.6%	0%	99.3%	100%		99.3%	99.1%	0%	0%		99.1%	**-**
Single-Unit Trucks	6	3	0		9	0	4	0		4	10	0	0		10	**-**
Single-Unit Trucks %	1%	1%	0%		1%	0%	0.3%	0%		0.3%	0.5%	0%	0%		0.5%	**-**
Buses	0	0	0		0	0	4	0		4	2	0	0		2	**-**
Buses %	0%	0%	0%		0%	0%	0.3%	0%		0.3%	0.1%	0%	0%		0.1%	**-**
Articulated Trucks	3	1	0		4	0	1	0		1	5	0	0		5	**-**
Articulated Trucks %	0.5%	0.3%	0%		0.4%	0%	0.1%	0%		0.1%	0.3%	0%	0%		0.3%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)



	Pedestrians
N	0
E	0
W	0

Turning Movement Count (3 . DUNDAS ST E & HWY 403 E RAMP TERMINAL)

Start Time	E Approach DUNDAS ST E					S Approach HWY 403 E OFF RAMP TERMINAL					W Approach DUNDAS ST E					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	U-Turn W:W	Peds W:	Approach Total		
06:00:00	39	0	0	0	39	59	3	0	0	62	0	108	0	0	108	209	
06:15:00	65	0	0	0	65	57	6	0	0	63	0	186	0	0	186	314	
06:30:00	79	0	0	0	79	74	8	0	0	82	0	240	0	0	240	401	
06:45:00	86	0	0	0	86	79	11	0	0	90	0	354	0	0	354	530	1454
07:00:00	101	0	0	0	101	68	6	0	0	74	0	320	0	0	320	495	1740
07:15:00	127	0	0	0	127	101	9	0	1	110	0	426	0	0	426	663	2089
07:30:00	144	0	0	0	144	90	16	0	0	106	0	502	0	0	502	752	2440
07:45:00	125	0	0	0	125	124	9	0	0	133	0	562	1	0	563	821	2731
08:00:00	150	0	0	0	150	97	28	0	0	125	0	588	0	0	588	863	3099
08:15:00	145	0	0	0	145	117	23	0	0	140	0	602	0	0	602	887	3323
08:30:00	147	0	0	0	147	86	7	0	0	93	0	545	0	0	545	785	3356
08:45:00	151	0	0	0	151	110	8	0	0	118	0	547	0	0	547	816	3351
BREAK																	
15:00:00	352	0	0	0	352	83	23	0	0	106	0	303	0	0	303	761	
15:15:00	331	0	0	0	331	114	9	0	0	123	0	289	0	0	289	743	
15:30:00	351	0	0	0	351	105	15	0	0	120	0	342	0	0	342	813	
15:45:00	336	0	0	0	336	90	12	0	1	102	0	325	0	0	325	763	3080
16:00:00	424	0	0	0	424	87	22	0	1	109	0	329	0	0	329	862	3181
16:15:00	359	0	1	0	360	69	14	0	1	83	0	359	1	0	360	803	3241
16:30:00	461	0	0	0	461	113	13	0	3	126	0	319	0	0	319	906	3334
16:45:00	431	0	0	0	431	93	12	0	4	105	0	388	0	0	388	924	3495
17:00:00	473	0	1	0	474	116	11	0	0	127	0	382	0	0	382	983	3616
17:15:00	448	0	1	0	449	90	13	0	1	103	0	375	0	0	375	927	3740
17:30:00	463	0	0	0	463	86	14	0	0	100	0	423	0	0	423	986	3820

17:45:00	385	0	0	0	385	70	12	0	0	82	0	398	0	0	398	865	3761
18:00:00	409	0	0	0	409	105	10	0	0	115	0	319	0	0	319	843	3621
18:15:00	393	0	0	0	393	105	13	0	1	118	0	359	0	0	359	870	3564
18:30:00	386	0	0	0	386	116	22	0	0	138	0	310	0	0	310	834	3412
18:45:00	337	0	0	0	337	106	17	0	0	123	0	322	0	0	322	782	3329
Grand Total	7698	0	3	0	7701	2610	366	0	13	2976	0	10522	2	0	10524	**21201**	-
Approach%	100%	0%	0%		-	87.7%	12.3%	0%		-	0%	100%	0%		-	**-**	-
Totals %	36.3%	0%	0%		36.3%	12.3%	1.7%	0%		14%	0%	49.6%	0%		49.6%	**-**	-
Heavy	164	0	0		-	99	21	0		-	0	291	0		-	**-**	-
Heavy %	2.1%	0%	0%		-	3.8%	5.7%	0%		-	0%	2.8%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

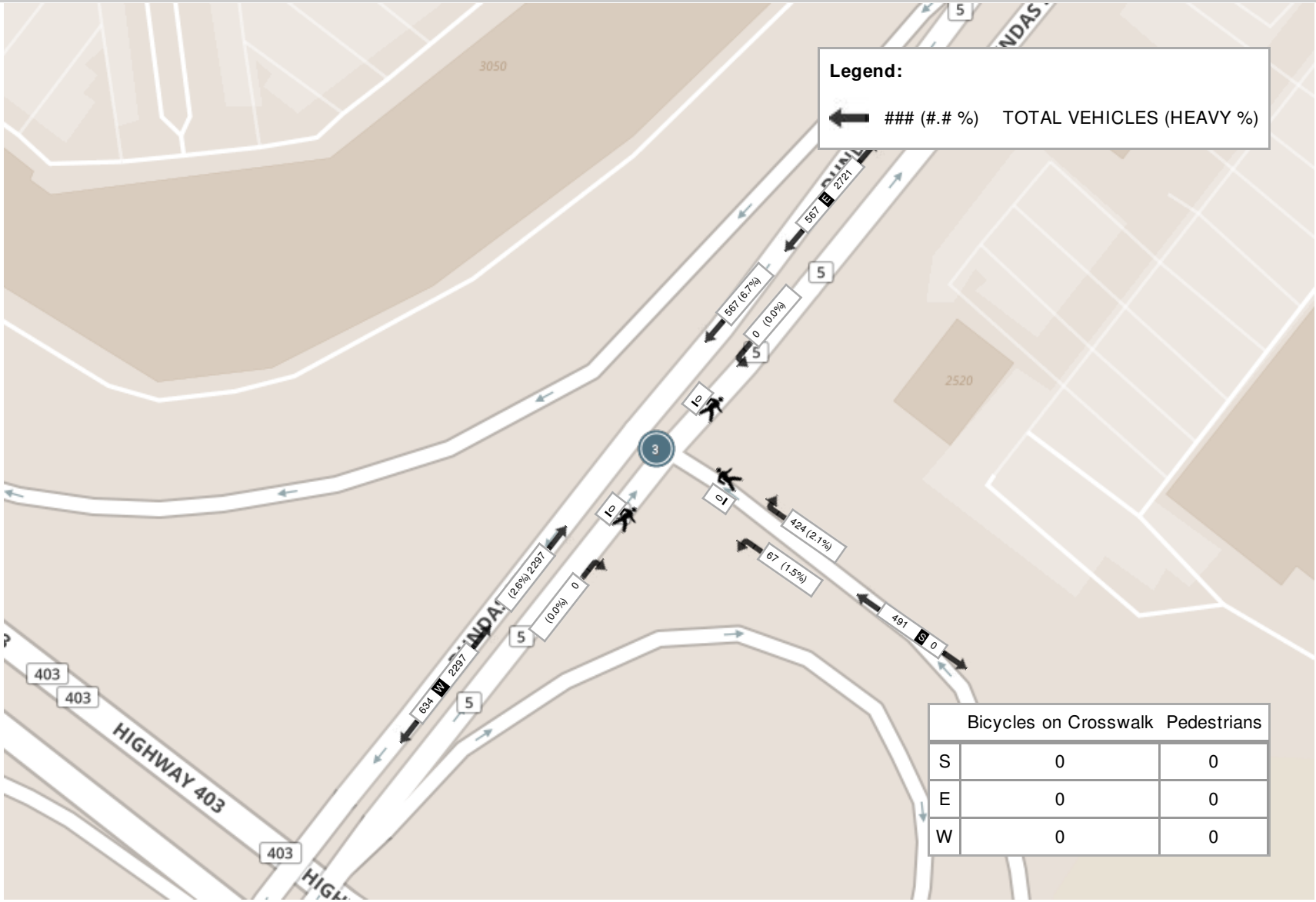
Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)

Start Time	E Approach DUNDAS ST E					S Approach HWY 403 E OFF RAMP TERMINAL					W Approach DUNDAS ST E					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
07:45:00	125	0	0	0	125	124	9	0	0	133	0	562	1	0	563	821
08:00:00	150	0	0	0	150	97	28	0	0	125	0	588	0	0	588	863
08:15:00	145	0	0	0	145	117	23	0	0	140	0	602	0	0	602	887
08:30:00	147	0	0	0	147	86	7	0	0	93	0	545	0	0	545	785
Grand Total	567	0	0	0	567	424	67	0	0	491	0	2297	1	0	2298	**3356**
Approach%	100%	0%	0%		-	86.4%	13.6%	0%		-	0%	100%	0%		-	-
Totals %	16.9%	0%	0%		16.9%	12.6%	2%	0%		14.6%	0%	68.4%	0%		68.5%	-
PHF	0.95	0	0		0.95	0.85	0.6	0		0.88	0	0.95	0.25		0.95	-
Heavy	38	0	0		38	9	1	0		10	0	60	0		60	-
Heavy %	6.7%	0%	0%		6.7%	2.1%	1.5%	0%		2%	0%	2.6%	0%		2.6%	-
Lights	529	0	0		529	415	66	0		481	0	2237	1		2238	-
Lights %	93.3%	0%	0%		93.3%	97.9%	98.5%	0%		98%	0%	97.4%	100%		97.4%	-
Single-Unit Trucks	29	0	0		29	5	1	0		6	0	37	0		37	-
Single-Unit Trucks %	5.1%	0%	0%		5.1%	1.2%	1.5%	0%		1.2%	0%	1.6%	0%		1.6%	-
Buses	3	0	0		3	0	0	0		0	0	5	0		5	-
Buses %	0.5%	0%	0%		0.5%	0%	0%	0%		0%	0%	0.2%	0%		0.2%	-
Articulated Trucks	6	0	0		6	4	0	0		4	0	18	0		18	-
Articulated Trucks %	1.1%	0%	0%		1.1%	0.9%	0%	0%		0.8%	0%	0.8%	0%		0.8%	-
Bicycles on Road	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%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)

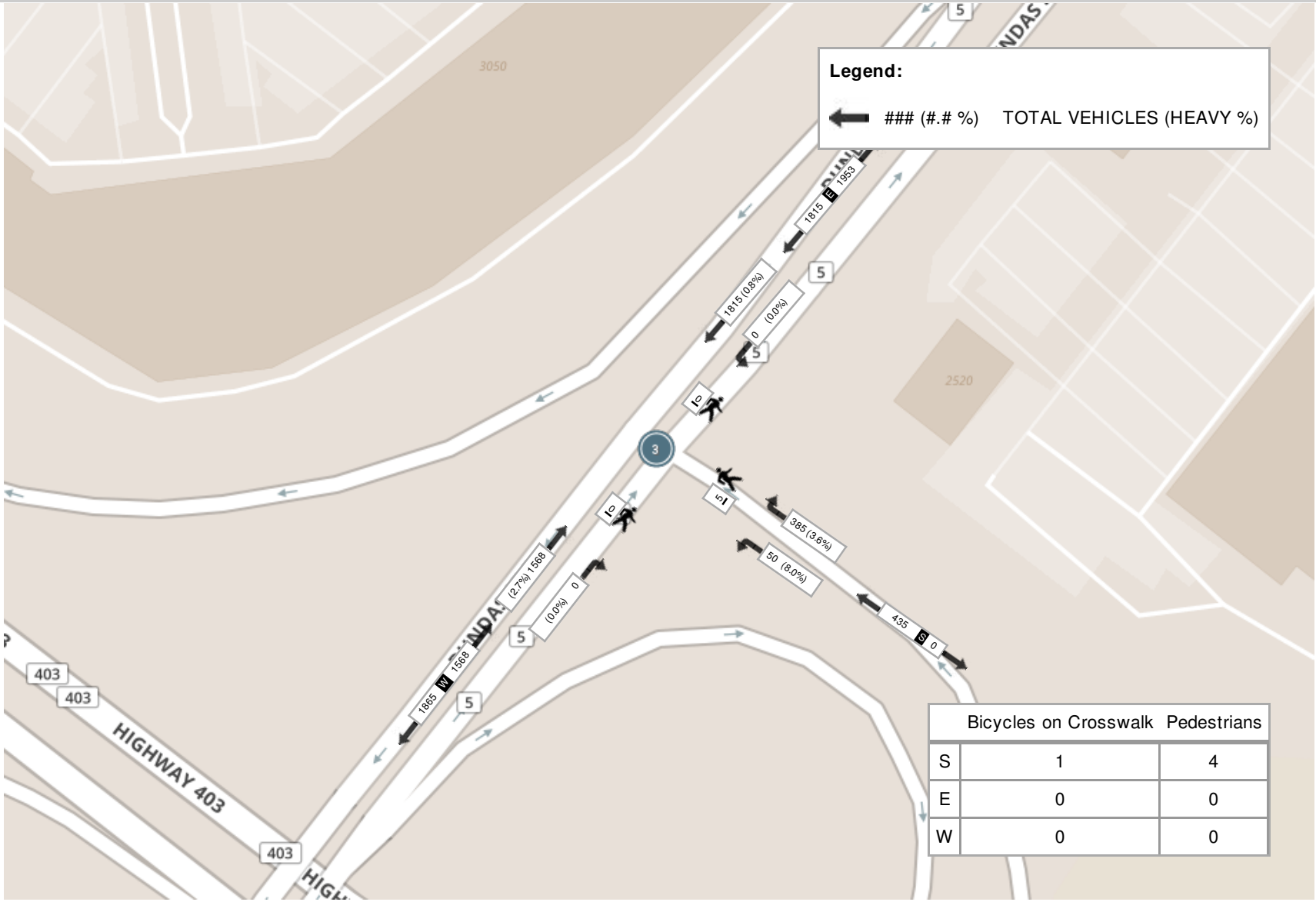
Start Time	E Approach DUNDAS ST E					S Approach HWY 403 E OFF RAMP TERMINAL					W Approach DUNDAS ST E					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
16:45:00	431	0	0	0	431	93	12	0	4	105	0	388	0	0	388	924
17:00:00	473	0	1	0	474	116	11	0	0	127	0	382	0	0	382	983
17:15:00	448	0	1	0	449	90	13	0	1	103	0	375	0	0	375	927
17:30:00	463	0	0	0	463	86	14	0	0	100	0	423	0	0	423	986
Grand Total	1815	0	2	0	1817	385	50	0	5	435	0	1568	0	0	1568	**3820**
Approach%	99.9%	0%	0.1%		-	88.5%	11.5%	0%		-	0%	100%	0%		-	-
Totals %	47.5%	0%	0.1%		47.6%	10.1%	1.3%	0%		11.4%	0%	41%	0%		41%	-
PHF	0.96	0	0.5		0.96	0.83	0.89	0		0.86	0	0.93	0		0.93	-
Heavy	14	0	0		14	14	4	0		18	0	42	0		42	-
Heavy %	0.8%	0%	0%		0.8%	3.6%	8%	0%		4.1%	0%	2.7%	0%		2.7%	-
Lights	1801	0	2		1803	371	46	0		417	0	1526	0		1526	-
Lights %	99.2%	0%	100%		99.2%	96.4%	92%	0%		95.9%	0%	97.3%	0%		97.3%	-
Single-Unit Trucks	8	0	0		8	9	2	0		11	0	24	0		24	-
Single-Unit Trucks %	0.4%	0%	0%		0.4%	2.3%	4%	0%		2.5%	0%	1.5%	0%		1.5%	-
Buses	6	0	0		6	1	0	0		1	0	4	0		4	-
Buses %	0.3%	0%	0%		0.3%	0.3%	0%	0%		0.2%	0%	0.3%	0%		0.3%	-
Articulated Trucks	0	0	0		0	4	2	0		6	0	14	0		14	-
Articulated Trucks %	0%	0%	0%		0%	1%	4%	0%		1.4%	0%	0.9%	0%		0.9%	-
Bicycles on Road	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%	-
Pedestrians	-	-	-	0	-	-	-	-	4	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%		-	-	-	80%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	20%		-	-	-	0%		-

Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)



	Bicycles on Crosswalk	Pedestrians
S	0	0
E	0	0
W	0	0

Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)



	Bicycles on Crosswalk	Pedestrians
S	1	4
E	0	0
W	0	0

Turning Movement Count (3 . DUNDAS ST E & HWY 403 E RAMP TERMINAL)

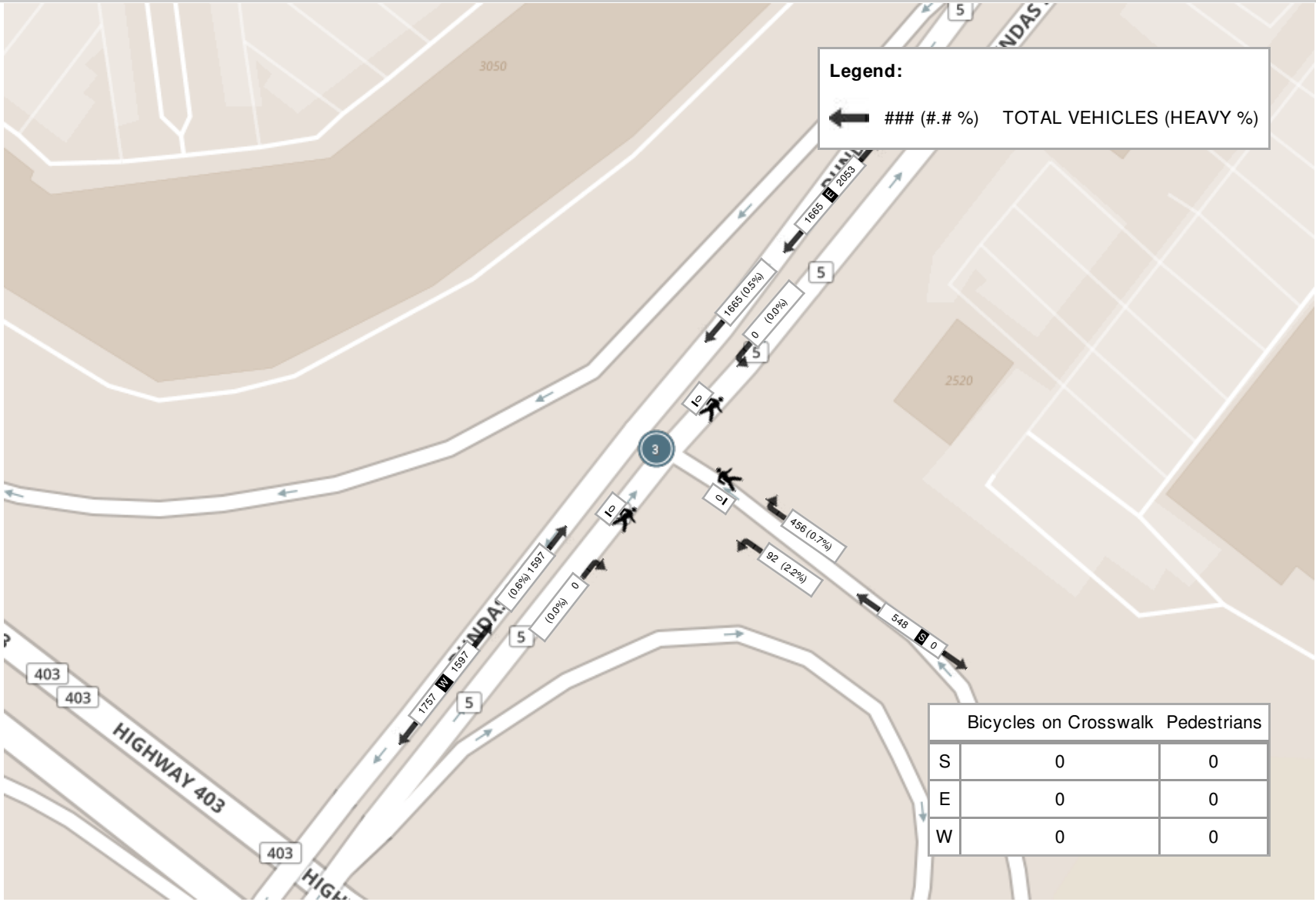
Start Time	E Approach DUNDAS ST E					S Approach HWY 403 E OFF RAMP TERMINAL					W Approach DUNDAS ST E					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	U-Turn W:W	Peds W:	Approach Total		
10:00:00	230	0	0	0	230	89	13	0	0	102	0	326	0	0	326	658	
10:15:00	266	0	0	2	266	90	12	0	0	102	0	340	0	0	340	708	
10:30:00	267	0	0	0	267	102	15	0	0	117	0	323	0	0	323	707	
10:45:00	297	0	0	0	297	110	15	0	0	125	0	368	0	0	368	790	2863
11:00:00	361	0	0	0	361	104	19	0	0	123	0	372	0	0	372	856	3061
11:15:00	318	0	0	0	318	108	17	0	0	125	0	345	0	0	345	788	3141
11:30:00	382	0	0	0	382	97	19	0	0	116	0	366	0	0	366	864	3298
11:45:00	382	0	0	0	382	134	15	0	0	149	0	368	0	0	368	899	3407
12:00:00	338	0	0	0	338	103	22	0	0	125	0	352	0	0	352	815	3366
12:15:00	426	0	0	0	426	104	28	0	0	132	0	419	0	0	419	977	3555
12:30:00	393	0	0	0	393	119	22	0	0	141	0	384	0	0	384	918	3609
12:45:00	399	0	0	0	399	106	22	0	0	128	0	402	0	0	402	929	3639
13:00:00	447	0	0	0	447	127	20	0	0	147	0	392	0	0	392	986	3810
13:15:00	377	0	0	0	377	112	16	0	0	128	0	380	0	0	380	885	3718
13:30:00	398	0	0	0	398	103	20	0	0	123	0	369	0	0	369	890	3690
13:45:00	416	0	0	0	416	124	11	0	0	135	0	387	0	0	387	938	3699
14:00:00	410	0	0	0	410	130	21	0	0	151	0	339	0	0	339	900	3613
14:15:00	435	0	0	0	435	115	21	0	0	136	0	393	0	0	393	964	3692
14:30:00	435	0	0	0	435	103	12	0	0	115	0	372	0	0	372	922	3724
14:45:00	419	0	0	0	419	78	14	0	0	92	0	408	0	0	408	919	3705
15:00:00	450	0	0	0	450	96	16	0	1	112	0	353	0	0	353	915	3720
15:15:00	429	0	0	0	429	111	17	0	0	128	0	362	0	0	362	919	3675
15:30:00	452	0	0	0	452	86	14	0	0	100	0	378	0	0	378	930	3683

15:45:00	400	0	1	0	401	85	12	0	0	97	0	353	0	0	353	851	3615
16:00:00	410	0	0	0	410	90	14	0	0	104	0	357	1	0	358	872	3572
16:15:00	431	0	0	0	431	95	16	0	0	111	0	392	0	0	392	934	3587
16:30:00	383	0	0	0	383	108	20	0	0	128	0	350	0	0	350	861	3518
16:45:00	405	0	0	0	405	106	23	0	0	129	0	288	0	0	288	822	3489
Grand Total	10756	0	1	2	10757	2935	486	0	1	3421	0	10238	1	0	10239	**24417**	-
Approach%	100%	0%	0%		-	85.8%	14.2%	0%		-	0%	100%	0%		-	**-**	-
Totals %	44.1%	0%	0%		44.1%	12%	2%	0%		14%	0%	41.9%	0%		41.9%	**-**	-
Heavy	48	0	0		-	26	14	0		-	0	79	0		-	**-**	-
Heavy %	0.4%	0%	0%		-	0.9%	2.9%	0%		-	0%	0.8%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	E Approach DUNDAS ST E					S Approach HWY 403 E OFF RAMP TERMINAL					W Approach DUNDAS ST E					Int. Total (15 min)
	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	Right	Thru	U-Turn	Peds	Approach Total	
12:15:00	426	0	0	0	426	104	28	0	0	132	0	419	0	0	419	977
12:30:00	393	0	0	0	393	119	22	0	0	141	0	384	0	0	384	918
12:45:00	399	0	0	0	399	106	22	0	0	128	0	402	0	0	402	929
13:00:00	447	0	0	0	447	127	20	0	0	147	0	392	0	0	392	986
Grand Total	1665	0	0	0	1665	456	92	0	0	548	0	1597	0	0	1597	**3810**
Approach%	100%	0%	0%		-	83.2%	16.8%	0%		-	0%	100%	0%		-	-
Totals %	43.7%	0%	0%		43.7%	12%	2.4%	0%		14.4%	0%	41.9%	0%		41.9%	-
PHF	0.93	0	0		0.93	0.9	0.82	0		0.93	0	0.95	0		0.95	-
Heavy	9	0	0		9	3	2	0		5	0	9	0		9	-
Heavy %	0.5%	0%	0%		0.5%	0.7%	2.2%	0%		0.9%	0%	0.6%	0%		0.6%	-
Lights	1656	0	0		1656	453	90	0		543	0	1588	0		1588	-
Lights %	99.5%	0%	0%		99.5%	99.3%	97.8%	0%		99.1%	0%	99.4%	0%		99.4%	-
Single-Unit Trucks	6	0	0		6	0	1	0		1	0	6	0		6	-
Single-Unit Trucks %	0.4%	0%	0%		0.4%	0%	1.1%	0%		0.2%	0%	0.4%	0%		0.4%	-
Buses	3	0	0		3	1	0	0		1	0	2	0		2	-
Buses %	0.2%	0%	0%		0.2%	0.2%	0%	0%		0.2%	0%	0.1%	0%		0.1%	-
Articulated Trucks	0	0	0		0	2	1	0		3	0	1	0		1	-
Articulated Trucks %	0%	0%	0%		0%	0.4%	1.1%	0%		0.5%	0%	0.1%	0%		0.1%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%		-	-	-	0%		-	-	-	0%		-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)



	Bicycles on Crosswalk	Pedestrians
S	0	0
E	0	0
W	0	0

Turning Movement Count (4 . NINTH LINE & GLEN OAKS FUNERAL HOME ACCESS)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	0	57	0	0	57	21	0	0	0	21	0	0	0	0	0	78	
06:15:00	0	80	0	0	80	33	0	0	0	33	0	0	0	0	0	113	
06:30:00	0	114	0	0	114	41	0	0	0	41	1	0	0	0	1	156	
06:45:00	0	111	0	0	111	54	1	0	0	55	0	0	0	0	0	166	513
07:00:00	0	123	0	0	123	77	0	0	0	77	0	0	0	0	0	200	635
07:15:00	1	150	0	0	151	114	4	0	0	118	0	0	0	0	0	269	791
07:30:00	0	209	0	0	209	162	6	0	0	168	1	0	0	0	1	378	1013
07:45:00	1	233	0	0	234	157	6	0	0	163	0	0	0	0	0	397	1244
08:00:00	0	215	0	0	215	153	2	1	0	156	1	0	0	0	1	372	1416
08:15:00	0	225	0	0	225	208	1	0	0	209	1	0	0	0	1	435	1582
08:30:00	0	225	0	0	225	134	8	1	0	143	1	0	0	0	1	369	1573
08:45:00	3	189	0	0	192	124	9	0	0	133	5	1	0	0	6	331	1507
BREAK																	
15:00:00	2	100	0	0	102	184	8	0	0	192	8	3	0	0	11	305	
15:15:00	2	134	0	0	136	162	4	1	0	167	11	1	0	0	12	315	
15:30:00	0	139	0	0	139	199	5	0	0	204	6	1	0	0	7	350	
15:45:00	1	128	0	0	129	219	4	1	0	224	3	1	0	0	4	357	1327
16:00:00	0	169	0	0	169	202	6	0	0	208	7	3	0	0	10	387	1409
16:15:00	2	136	0	0	138	224	3	0	0	227	7	3	0	0	10	375	1469
16:30:00	2	145	0	0	147	192	2	1	0	195	16	0	0	0	16	358	1477
16:45:00	1	168	0	0	169	236	1	0	0	237	5	1	0	0	6	412	1532
17:00:00	1	160	0	0	161	228	5	1	0	234	2	0	0	0	2	397	1542
17:15:00	0	186	0	0	186	255	2	1	0	258	0	0	0	0	0	444	1611
17:30:00	0	143	0	0	143	246	7	1	0	254	5	0	0	0	5	402	1655

17:45:00	5	149	0	0	154	226	4	0	0	230	2	0	0	0	2	386	1629
18:00:00	0	155	0	0	155	202	6	0	0	208	10	2	0	0	12	375	1607
18:15:00	4	121	0	0	125	151	6	0	0	157	2	0	0	0	2	284	1447
18:30:00	3	112	0	0	115	140	4	0	0	144	5	0	0	0	5	264	1309
18:45:00	6	88	0	0	94	144	10	1	0	155	5	1	0	0	6	255	1178
Grand Total	34	4164	0	0	4198	4488	114	9	0	4611	104	17	0	0	121	**8930**	-
Approach%	0.8%	99.2%	0%		-	97.3%	2.5%	0.2%		-	86%	14%	0%		-	**-**	-
Totals %	0.4%	46.6%	0%		47%	50.3%	1.3%	0.1%		51.6%	1.2%	0.2%	0%		1.4%	**-**	-
Heavy	0	95	0		-	111	2	0		-	3	0	0		-	**-**	-
Heavy %	0%	2.3%	0%		-	2.5%	1.8%	0%		-	2.9%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

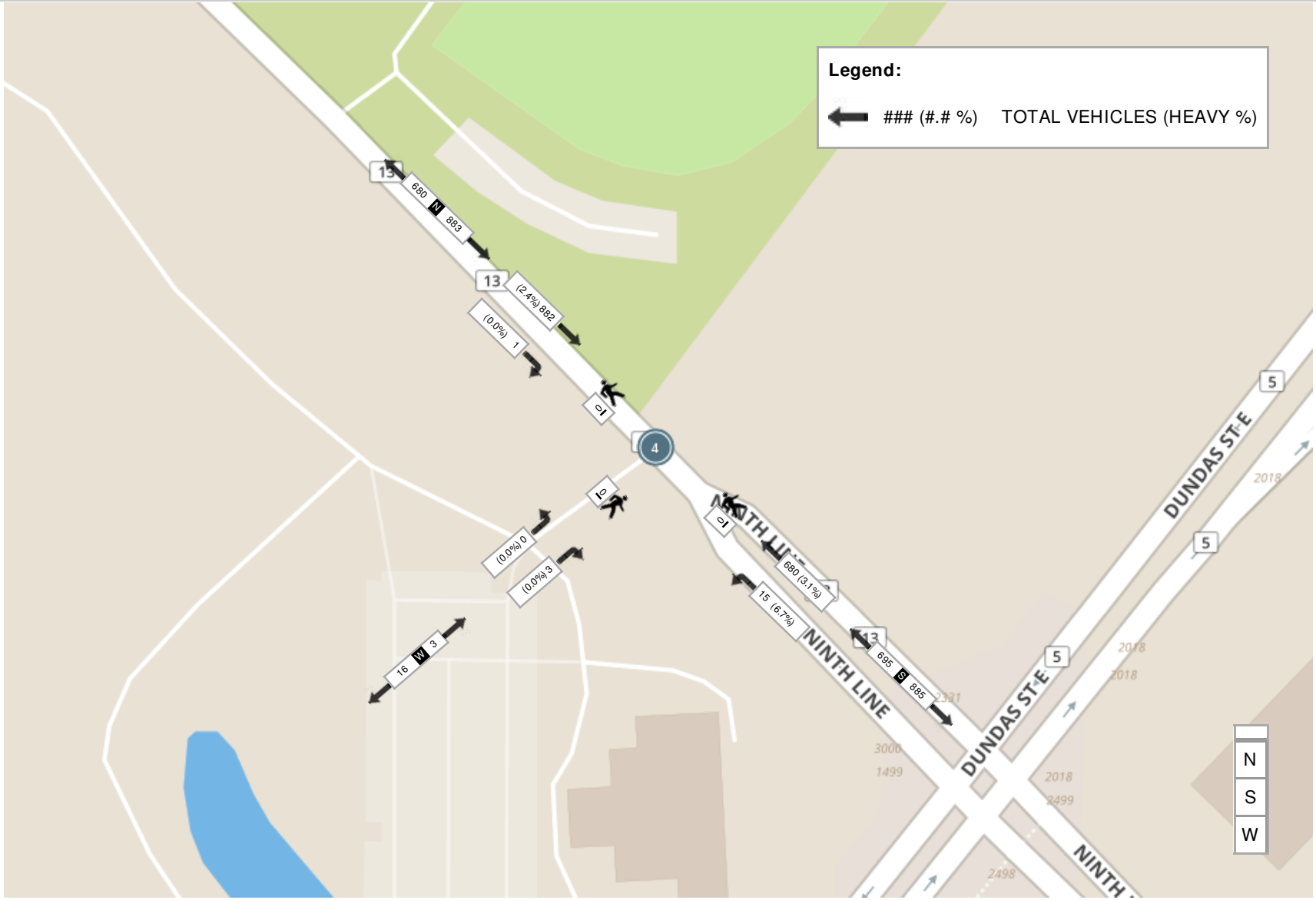
Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
07:30:00	0	209	0	0	209	162	6	0	0	168	1	0	0	0	1	378
07:45:00	1	233	0	0	234	157	6	0	0	163	0	0	0	0	0	397
08:00:00	0	215	0	0	215	153	2	1	0	156	1	0	0	0	1	372
08:15:00	0	225	0	0	225	208	1	0	0	209	1	0	0	0	1	435
Grand Total	1	882	0	0	883	680	15	1	0	696	3	0	0	0	3	**1582**
Approach%	0.1%	99.9%	0%		-	97.7%	2.2%	0.1%		-	100%	0%	0%		-	**-**
Totals %	0.1%	55.8%	0%		55.8%	43%	0.9%	0.1%		44%	0.2%	0%	0%		0.2%	**-**
PHF	0.25	0.95	0		0.94	0.82	0.63	0.25		0.83	0.75	0	0		0.75	**-**
Heavy	0	21	0		21	21	1	0		22	0	0	0		0	**-**
Heavy %	0%	2.4%	0%		2.4%	3.1%	6.7%	0%		3.2%	0%	0%	0%		0%	**-**
Lights	1	860	0		861	659	14	1		674	3	0	0		3	**-**
Lights %	100%	97.5%	0%		97.5%	96.9%	93.3%	100%		96.8%	100%	0%	0%		100%	**-**
Single-Unit Trucks	0	10	0		10	10	1	0		11	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.1%	0%		1.1%	1.5%	6.7%	0%		1.6%	0%	0%	0%		0%	**-**
Buses	0	7	0		7	5	0	0		5	0	0	0		0	**-**
Buses %	0%	0.8%	0%		0.8%	0.7%	0%	0%		0.7%	0%	0%	0%		0%	**-**
Articulated Trucks	0	4	0		4	6	0	0		6	0	0	0		0	**-**
Articulated Trucks %	0%	0.5%	0%		0.5%	0.9%	0%	0%		0.9%	0%	0%	0%		0%	**-**
Bicycles on Road	0	1	0		1	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	0.1%	0%		0.1%	0%	0%	0%		0%	0%	0%	0%		0%	**-**

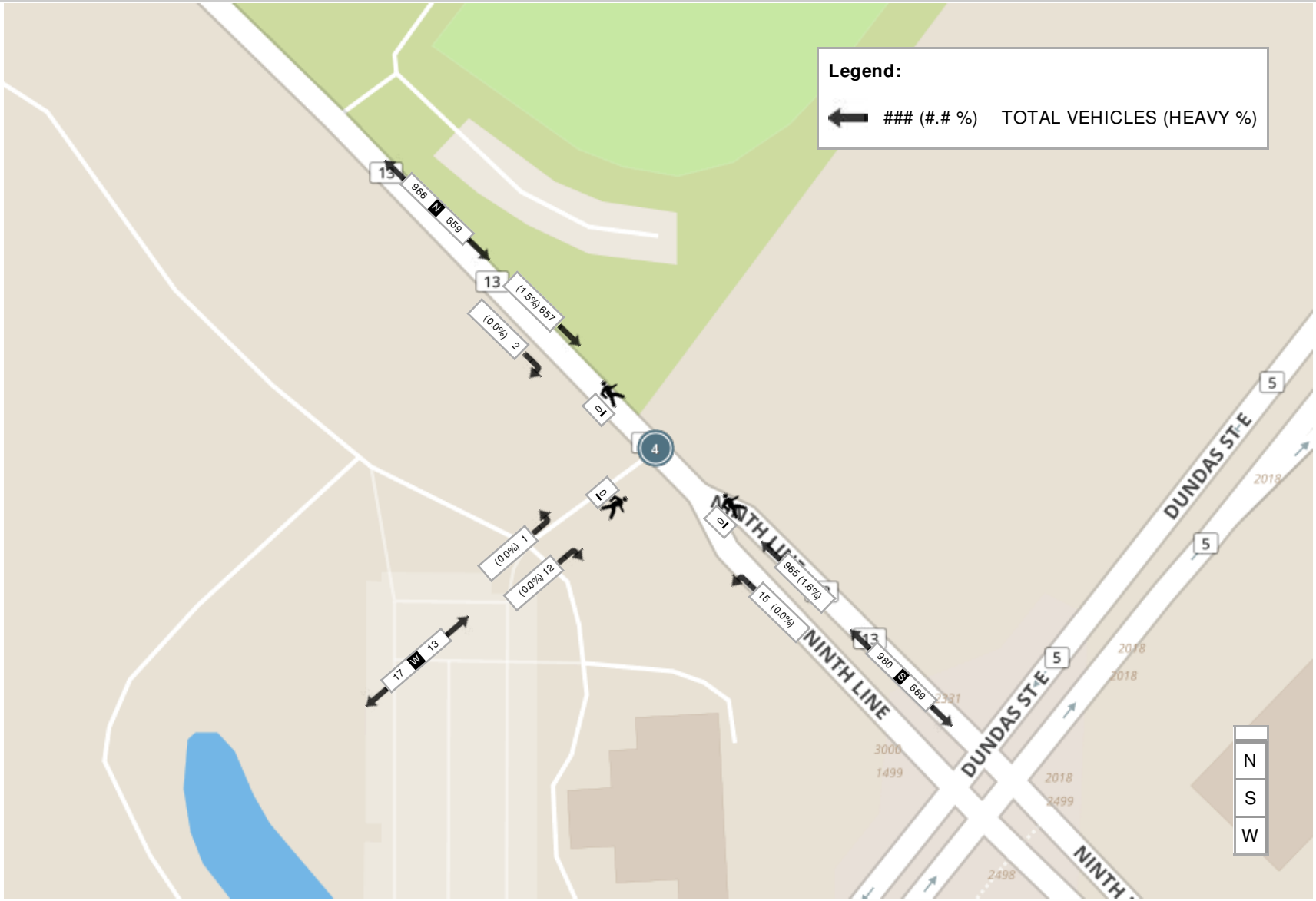
Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
16:45:00	1	168	0	0	169	236	1	0	0	237	5	1	0	0	6	412
17:00:00	1	160	0	0	161	228	5	1	0	234	2	0	0	0	2	397
17:15:00	0	186	0	0	186	255	2	1	0	258	0	0	0	0	0	444
17:30:00	0	143	0	0	143	246	7	1	0	254	5	0	0	0	5	402
Grand Total	2	657	0	0	659	965	15	3	0	983	12	1	0	0	13	**1655**
Approach%	0.3%	99.7%	0%		-	98.2%	1.5%	0.3%		-	92.3%	7.7%	0%		-	-
Totals %	0.1%	39.7%	0%		39.8%	58.3%	0.9%	0.2%		59.4%	0.7%	0.1%	0%		0.8%	-
PHF	0.5	0.88	0		0.89	0.95	0.54	0.75		0.95	0.6	0.25	0		0.54	-
Heavy	0	10	0		10	15	0	0		15	0	0	0		0	-
Heavy %	0%	1.5%	0%		1.5%	1.6%	0%	0%		1.5%	0%	0%	0%		0%	-
Lights	2	647	0		649	950	15	3		968	12	1	0		13	-
Lights %	100%	98.5%	0%		98.5%	98.4%	100%	100%		98.5%	100%	100%	0%		100%	-
Single-Unit Trucks	0	7	0		7	10	0	0		10	0	0	0		0	-
Single-Unit Trucks %	0%	1.1%	0%		1.1%	1%	0%	0%		1%	0%	0%	0%		0%	-
Buses	0	1	0		1	0	0	0		0	0	0	0		0	-
Buses %	0%	0.2%	0%		0.2%	0%	0%	0%		0%	0%	0%	0%		0%	-
Articulated Trucks	0	2	0		2	5	0	0		5	0	0	0		0	-
Articulated Trucks %	0%	0.3%	0%		0.3%	0.5%	0%	0%		0.5%	0%	0%	0%		0%	-
Bicycles on Road	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%	-

Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast (7.4 °C)



Turning Movement Count (4 . NINTH LINE & GLEN OAKS FUNERAL HOME ACCESS)

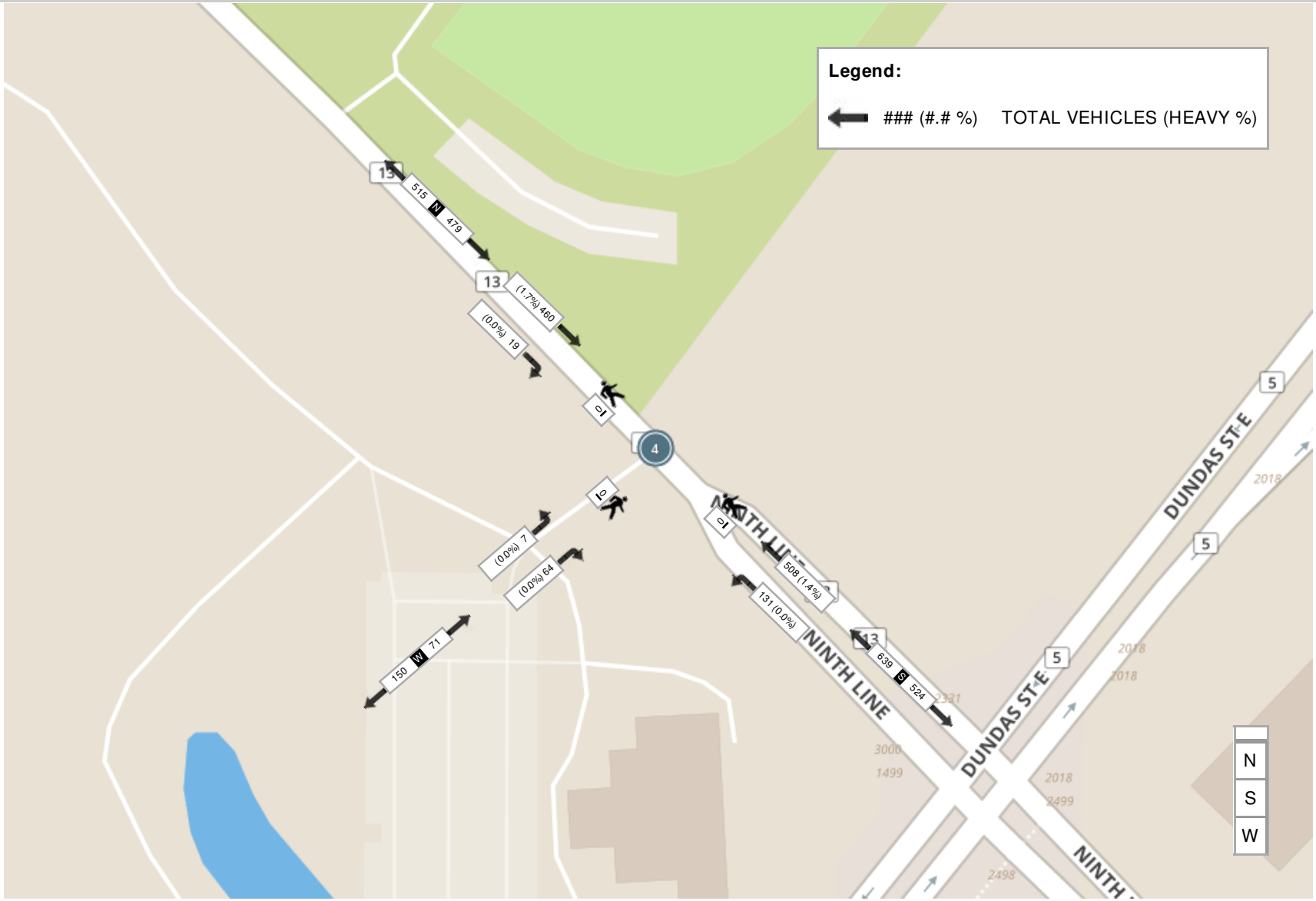
Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	U-Turn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	0	117	0	0	117	83	5	1	0	89	2	1	0	0	3	209	
10:15:00	1	85	0	0	86	64	6	0	0	70	4	1	0	0	5	161	
10:30:00	1	88	0	0	89	92	4	0	0	96	0	1	0	0	1	186	
10:45:00	3	94	0	0	97	101	7	0	0	108	7	1	0	0	8	213	769
11:00:00	0	102	0	0	102	90	2	0	0	92	0	1	0	0	1	195	755
11:15:00	1	77	0	0	78	99	1	0	0	100	3	0	0	0	3	181	775
11:30:00	1	106	0	0	107	97	4	2	0	103	4	0	0	0	4	214	803
11:45:00	2	99	0	0	101	134	9	0	0	143	2	0	0	0	2	246	836
12:00:00	4	124	0	0	128	116	36	1	0	153	3	0	0	0	3	284	925
12:15:00	2	110	0	0	112	121	31	0	0	152	5	0	0	0	5	269	1013
12:30:00	8	114	0	0	122	132	47	1	0	180	7	1	0	0	8	310	1109
12:45:00	5	112	0	0	117	138	40	0	0	178	15	0	0	0	15	310	1173
13:00:00	4	124	0	0	128	117	13	0	0	130	37	6	0	0	43	301	1190
13:15:00	1	99	0	0	100	110	7	0	0	117	3	1	0	0	4	221	1142
13:30:00	2	106	0	0	108	102	2	0	0	104	5	1	0	0	6	218	1050
13:45:00	3	94	0	0	97	110	6	0	0	116	7	3	0	0	10	223	963
14:00:00	9	129	0	0	138	139	9	0	0	148	13	3	0	0	16	302	964
14:15:00	2	100	0	0	102	134	9	0	0	143	71	0	0	0	71	316	1059
14:30:00	1	103	0	0	104	111	5	1	0	117	42	4	0	0	46	267	1108
14:45:00	1	103	0	0	104	114	9	0	0	123	31	4	0	0	35	262	1147
15:00:00	1	106	0	0	107	130	9	0	0	139	25	5	0	0	30	276	1121
15:15:00	0	101	0	0	101	135	2	0	0	137	21	2	0	0	23	261	1066
15:30:00	0	83	0	0	83	114	4	0	0	118	12	1	0	0	13	214	1013

15:45:00	1	104	0	0	105	124	6	0	0	130	4	0	0	0	4	239	990
16:00:00	0	76	0	0	76	124	5	0	0	129	4	0	0	0	4	209	923
16:15:00	0	112	0	0	112	134	2	0	0	136	10	0	0	0	10	258	920
16:30:00	0	108	0	0	108	151	1	0	0	152	11	1	0	0	12	272	978
16:45:00	2	99	0	0	101	129	4	0	0	133	5	3	0	0	8	242	981
Grand Total	55	2875	0	0	2930	3245	285	6	0	3536	353	40	0	0	393	**6859**	-
Approach%	1.9%	98.1%	0%		-	91.8%	8.1%	0.2%		-	89.8%	10.2%	0%		-	**-**	-
Totals %	0.8%	41.9%	0%		42.7%	47.3%	4.2%	0.1%		51.6%	5.1%	0.6%	0%		5.7%	**-**	-
Heavy	1	25	0		-	32	5	0		-	5	0	0		-	**-**	-
Heavy %	1.8%	0.9%	0%		-	1%	1.8%	0%		-	1.4%	0%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)

Start Time	N Approach NINTH LINE					S Approach NINTH LINE					W Approach GLEN OAKS FUNERAL HOME ACCESS					Int. Total (15 min)
	Right	Thru	U-Turn	Peds	Approach Total	Thru	Left	U-Turn	Peds	Approach Total	Right	Left	U-Turn	Peds	Approach Total	
12:15:00	2	110	0	0	112	121	31	0	0	152	5	0	0	0	5	269
12:30:00	8	114	0	0	122	132	47	1	0	180	7	1	0	0	8	310
12:45:00	5	112	0	0	117	138	40	0	0	178	15	0	0	0	15	310
13:00:00	4	124	0	0	128	117	13	0	0	130	37	6	0	0	43	301
Grand Total	19	460	0	0	479	508	131	1	0	640	64	7	0	0	71	**1190**
Approach%	4%	96%	0%		-	79.4%	20.5%	0.2%		-	90.1%	9.9%	0%		-	**-**
Totals %	1.6%	38.7%	0%		40.3%	42.7%	11%	0.1%		53.8%	5.4%	0.6%	0%		6%	**-**
PHF	0.59	0.93	0		0.94	0.92	0.7	0.25		0.89	0.43	0.29	0		0.41	**-**
Heavy	0	8	0		8	7	0	0		7	0	0	0		0	**-**
Heavy %	0%	1.7%	0%		1.7%	1.4%	0%	0%		1.1%	0%	0%	0%		0%	**-**
Lights	19	452	0		471	501	131	1		633	64	7	0		71	**-**
Lights %	100%	98.3%	0%		98.3%	98.6%	100%	100%		98.9%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	8	0		8	6	0	0		6	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.7%	0%		1.7%	1.2%	0%	0%		0.9%	0%	0%	0%		0%	**-**
Buses	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%	**-**
Articulated Trucks	0	0	0		0	1	0	0		1	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%		0%	0.2%	0%	0%		0.2%	0%	0%	0%		0%	**-**

Peak Hour: 12:15 PM - 01:15 PM Weather: Rain (3.2 °C)



Turning Movement Count (5 . NINTH LINE & BURNHAMTHROPE RD WEST)

Start Time	N Approach NINTH LINE						E Approach BURNHAMTHROPE RD W						S Approach NINTH LINE						W Approach BURNHAMTHROPE RD W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	1	43	9	0	0	53	2	6	6	0	0	14	2	12	6	0	0	20	11	34	0	0	0	45	132	
06:15:00	0	55	10	0	0	65	5	17	8	0	0	30	5	23	4	0	0	32	22	58	1	0	0	81	208	
06:30:00	9	100	29	0	0	138	8	29	6	0	0	43	7	25	6	0	0	38	18	66	0	0	0	84	303	
06:45:00	4	85	30	0	0	119	13	32	2	0	0	47	7	39	7	0	0	53	24	101	7	0	0	132	351	994
07:00:00	0	96	33	0	0	129	9	40	9	0	0	58	15	44	9	0	0	68	21	98	11	0	0	130	385	1247
07:15:00	2	123	40	0	0	165	9	36	14	0	0	59	24	87	8	0	0	119	29	130	13	0	0	172	515	1554
07:30:00	2	169	42	0	0	213	11	49	16	0	0	76	22	100	4	0	0	126	22	155	21	0	0	198	613	1864
07:45:00	7	168	53	0	0	228	27	51	11	0	0	89	20	105	11	0	0	136	35	126	16	0	0	177	630	2143
08:00:00	4	157	37	0	0	198	28	48	24	0	0	100	16	107	4	1	0	128	23	144	22	0	0	189	615	2373
08:15:00	8	140	45	0	0	193	22	43	21	0	0	86	14	92	8	0	0	114	29	179	23	0	0	231	624	2482
08:30:00	14	147	43	0	0	204	38	74	25	0	0	137	36	86	9	0	0	131	13	166	20	0	0	199	671	2540
08:45:00	9	150	54	0	0	213	26	47	19	0	0	92	38	80	6	0	0	124	13	159	15	0	0	187	616	2526
BREAK																										
15:00:00	8	74	20	0	0	102	33	93	24	0	0	150	22	105	28	0	0	155	8	50	5	0	0	63	470	
15:15:00	10	82	26	0	0	118	41	103	25	0	0	169	12	111	28	0	0	151	9	53	1	0	0	63	501	
15:30:00	11	73	19	0	0	103	58	96	30	0	0	184	21	112	16	0	0	149	12	69	14	0	0	95	531	
15:45:00	11	72	36	0	0	119	62	106	13	0	0	181	39	145	18	0	0	202	14	91	12	0	0	117	619	2121
16:00:00	8	89	23	0	0	120	67	128	27	0	0	222	23	139	22	0	0	184	17	77	5	0	0	99	625	2276
16:15:00	11	77	35	0	0	123	44	106	25	0	0	175	35	164	32	0	0	231	14	72	2	0	0	88	617	2392
16:30:00	8	87	40	0	0	135	57	143	28	0	0	228	27	154	32	0	0	213	17	70	5	0	0	92	668	2529
16:45:00	6	106	34	0	0	146	39	113	37	0	0	189	40	149	24	0	0	213	18	74	4	0	0	96	644	2554
17:00:00	7	105	42	0	0	154	55	131	28	0	0	214	46	133	25	0	0	204	21	100	7	0	0	128	700	2629
17:15:00	11	98	38	0	0	147	64	142	31	0	0	237	43	152	16	0	0	211	15	121	10	0	0	146	741	2753
17:30:00	3	87	35	0	0	125	41	121	23	0	0	185	50	135	25	0	0	210	18	135	8	0	0	161	681	2766
17:45:00	7	110	41	0	0	158	34	111	31	0	0	176	53	146	17	0	0	216	13	132	4	0	0	149	699	2821
18:00:00	10	81	30	0	0	121	33	84	26	0	1	143	40	144	25	0	1	209	19	82	5	0	0	106	579	2700
18:15:00	6	89	50	0	0	145	48	100	19	1	0	168	24	160	23	0	0	207	12	83	7	0	0	102	622	2581
18:30:00	9	76	22	0	0	107	42	109	20	0	0	171	19	105	16	0	0	140	15	80	4	0	0	99	517	2417
18:45:00	8	67	45	0	0	120	33	94	15	0	0	142	22	74	24	0	0	120	4	53	6	0	0	63	445	2163
Grand Total	194	2806	961	0	0	3961	949	2252	563	1	1	3765	722	2928	453	1	1	4104	486	2758	248	0	0	3492	**15322**	-
Approach%	4.9%	70.8%	24.3%	0%		-	25.2%	59.8%	15%	0%		-	17.6%	71.3%	11%	0%		-	13.9%	79%	7.1%	0%		-	**-**	-

Totals %	1.3%	18.3%	6.3%	0%	25.9%	6.2%	14.7%	3.7%	0%	24.6%	4.7%	19.1%	3%	0%	26.8%	3.2%	18%	1.6%	0%	22.8%	-	-
Heavy	2	60	15	0	-	20	20	8	0	-	17	71	12	0	-	14	26	1	0	-	-	-
Heavy %	1%	2.1%	1.6%	0%	-	2.1%	0.9%	1.4%	0%	-	2.4%	2.4%	2.6%	0%	-	2.9%	0.9%	0.4%	0%	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

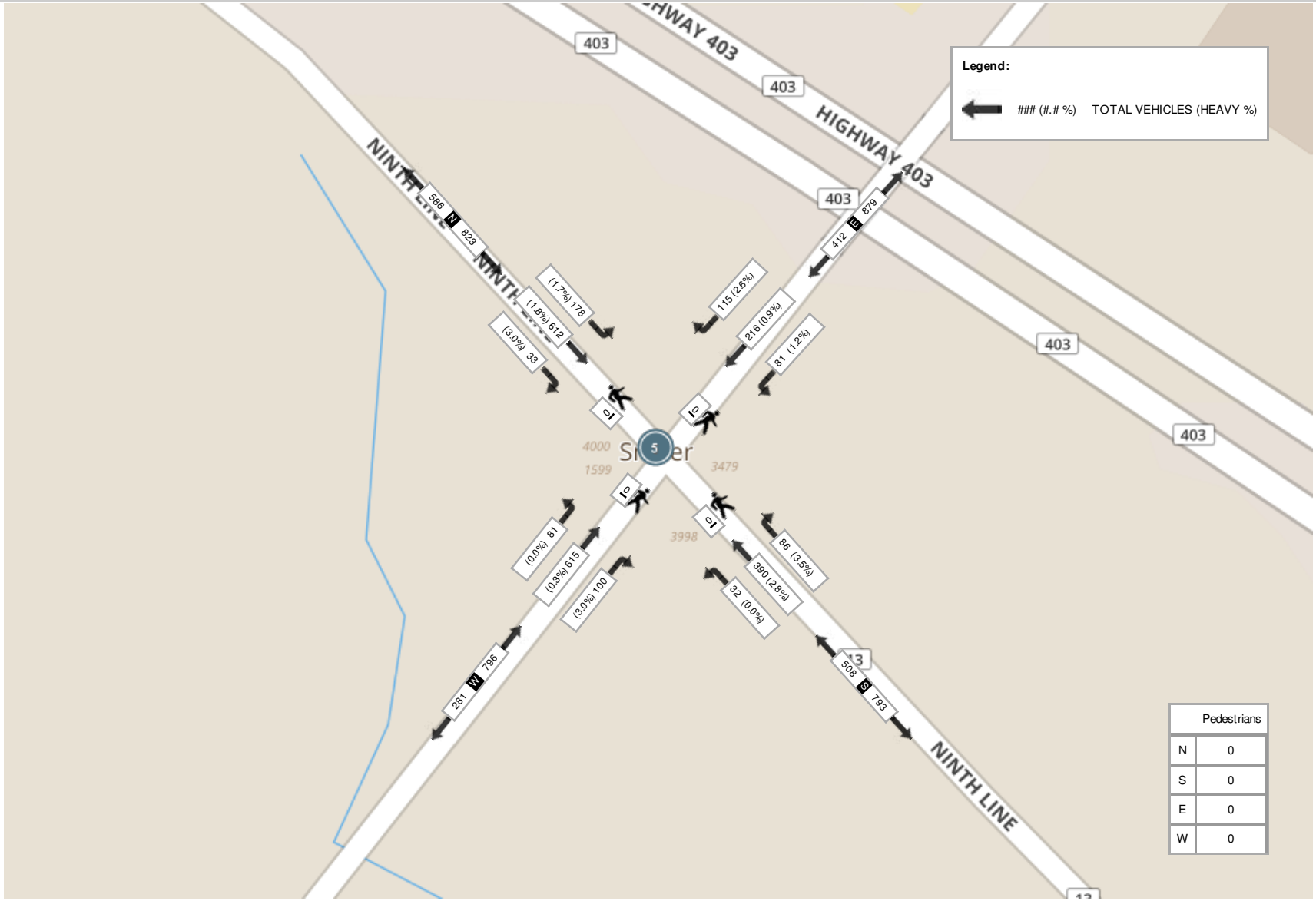
Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)

Start Time	N Approach NINTH LINE						E Approach BURNHAMTHROPE RD W						S Approach NINTH LINE						W Approach BURNHAMTHROPE RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:45:00	7	168	53	0	0	228	27	51	11	0	0	89	20	105	11	0	0	136	35	126	16	0	0	177	630
08:00:00	4	157	37	0	0	198	28	48	24	0	0	100	16	107	4	1	0	128	23	144	22	0	0	189	615
08:15:00	8	140	45	0	0	193	22	43	21	0	0	86	14	92	8	0	0	114	29	179	23	0	0	231	624
08:30:00	14	147	43	0	0	204	38	74	25	0	0	137	36	86	9	0	0	131	13	166	20	0	0	199	671
Grand Total	33	612	178	0	0	823	115	216	81	0	0	412	86	390	32	1	0	509	100	615	81	0	0	796	**2540**
Approach%	4%	74.4%	21.6%	0%		-	27.9%	52.4%	19.7%	0%		-	16.9%	76.6%	6.3%	0.2%		-	12.6%	77.3%	10.2%	0%		-	**-**
Totals %	1.3%	24.1%	7%	0%		32.4%	4.5%	8.5%	3.2%	0%		16.2%	3.4%	15.4%	1.3%	0%		20%	3.9%	24.2%	3.2%	0%		31.3%	**-**
PHF	0.59	0.91	0.84	0		0.9	0.76	0.73	0.81	0		0.75	0.6	0.91	0.73	0.25		0.94	0.71	0.86	0.88	0		0.86	**-**
Heavy	1	11	3	0		15	3	2	1	0		6	3	11	0	0		14	3	2	0	0		5	**-**
Heavy %	3%	1.8%	1.7%	0%		1.8%	2.6%	0.9%	1.2%	0%		1.5%	3.5%	2.8%	0%	0%		2.8%	3%	0.3%	0%	0%		0.6%	**-**
Lights	32	601	175	0		808	112	213	80	0		405	83	379	32	0		494	97	613	81	0		791	**-**
Lights %	97%	98.2%	98.3%	0%		98.2%	97.4%	98.6%	98.8%	0%		98.3%	96.5%	97.2%	100%	0%		97.1%	97%	99.7%	100%	0%		99.4%	**-**
Single-Unit Trucks	1	8	1	0		10	0	2	0	0		2	1	6	0	0		7	3	1	0	0		4	**-**
Single-Unit Trucks %	3%	1.3%	0.6%	0%		1.2%	0%	0.9%	0%	0%		0.5%	1.2%	1.5%	0%	0%		1.4%	3%	0.2%	0%	0%		0.5%	**-**
Buses	0	2	0	0		2	3	0	0	0		3	0	1	0	0		1	0	0	0	0		0	**-**
Buses %	0%	0.3%	0%	0%		0.2%	2.6%	0%	0%	0%		0.7%	0%	0.3%	0%	0%		0.2%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	1	2	0		3	0	0	1	0		1	2	4	0	0		6	0	1	0	0		1	**-**
Articulated Trucks %	0%	0.2%	1.1%	0%		0.4%	0%	0%	1.2%	0%		0.2%	2.3%	1%	0%	0%		1.2%	0%	0.2%	0%	0%		0.1%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	1		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.2%	0%	0%	0%	100%		0.2%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

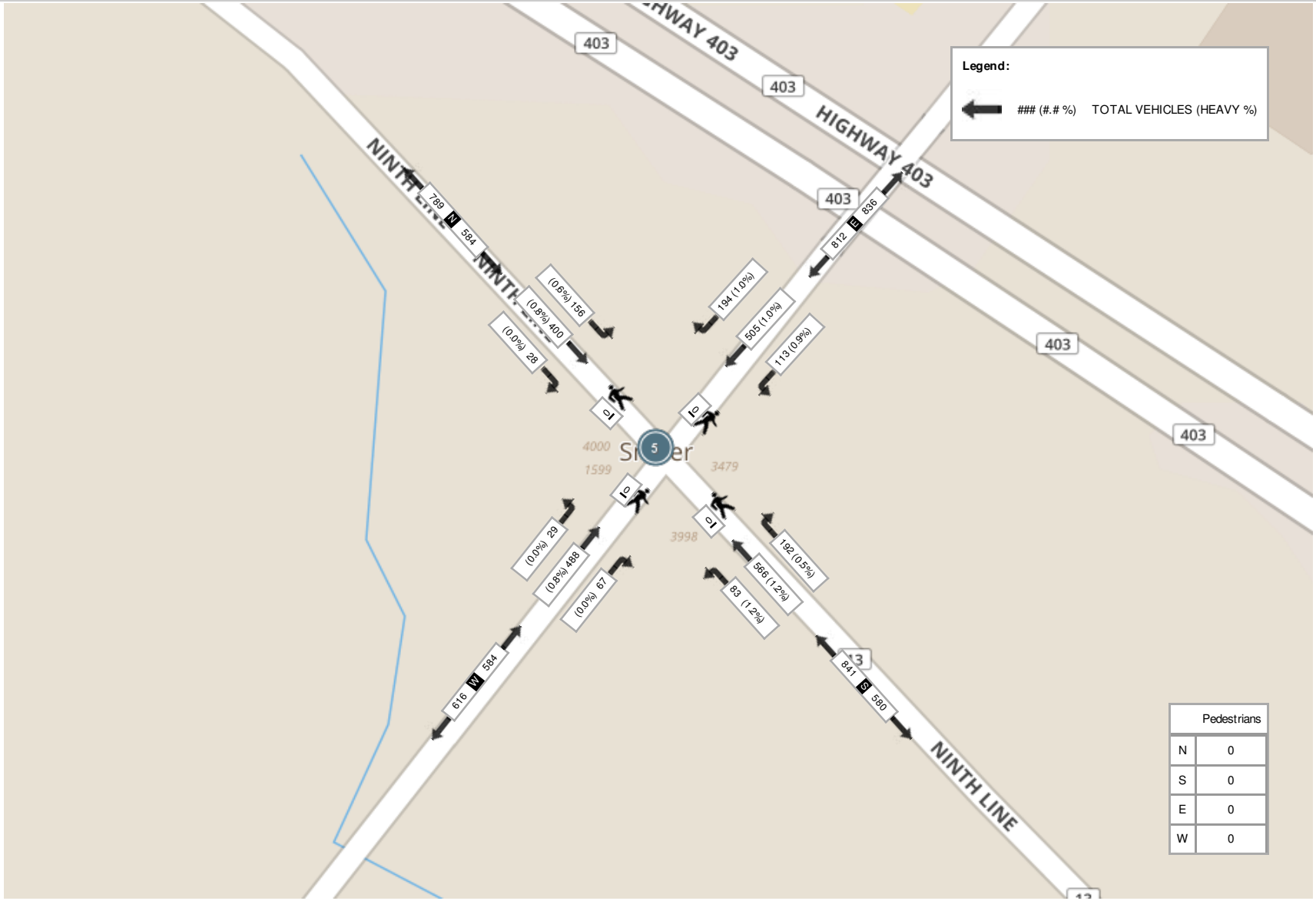
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast (7.4 °C)

Start Time	N Approach NINTH LINE						E Approach BURNHAMTHROPE RD W						S Approach NINTH LINE						W Approach BURNHAMTHROPE RD W						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
17:00:00	7	105	42	0	0	154	55	131	28	0	0	214	46	133	25	0	0	204	21	100	7	0	0	128	700
17:15:00	11	98	38	0	0	147	64	142	31	0	0	237	43	152	16	0	0	211	15	121	10	0	0	146	741
17:30:00	3	87	35	0	0	125	41	121	23	0	0	185	50	135	25	0	0	210	18	135	8	0	0	161	681
17:45:00	7	110	41	0	0	158	34	111	31	0	0	176	53	146	17	0	0	216	13	132	4	0	0	149	699
Grand Total	28	400	156	0	0	584	194	505	113	0	0	812	192	566	83	0	0	841	67	488	29	0	0	584	**2821**
Approach%	4.8%	68.5%	26.7%	0%		-	23.9%	62.2%	13.9%	0%		-	22.8%	67.3%	9.9%	0%		-	11.5%	83.6%	5%	0%		-	-
Totals %	1%	14.2%	5.5%	0%		20.7%	6.9%	17.9%	4%	0%		28.8%	6.8%	20.1%	2.9%	0%		29.8%	2.4%	17.3%	1%	0%		20.7%	-
PHF	0.64	0.91	0.93	0		0.92	0.76	0.89	0.91	0		0.86	0.91	0.93	0.83	0		0.97	0.8	0.9	0.73	0		0.91	-
Heavy	0	3	1	0		4	2	5	1	0		8	1	7	1	0		9	0	4	0	0		4	-
Heavy %	0%	0.8%	0.6%	0%		0.7%	1%	1%	0.9%	0%		1%	0.5%	1.2%	1.2%	0%		1.1%	0%	0.8%	0%	0%		0.7%	-
Lights	28	397	155	0		580	192	500	112	0		804	191	559	82	0		832	67	483	29	0		579	-
Lights %	100%	99.3%	99.4%	0%		99.3%	99%	99%	99.1%	0%		99%	99.5%	98.8%	98.8%	0%		98.9%	100%	99%	100%	0%		99.1%	-
Single-Unit Trucks	0	2	1	0		3	1	1	1	0		3	1	4	1	0		6	0	3	0	0		3	-
Single-Unit Trucks %	0%	0.5%	0.6%	0%		0.5%	0.5%	0.2%	0.9%	0%		0.4%	0.5%	0.7%	1.2%	0%		0.7%	0%	0.6%	0%	0%		0.5%	-
Buses	0	0	0	0		0	0	0	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%	-
Articulated Trucks	0	1	0	0		1	1	4	0	0		5	0	3	0	0		3	0	1	0	0		1	-
Articulated Trucks %	0%	0.3%	0%	0%		0.2%	0.5%	0.8%	0%	0%		0.6%	0%	0.5%	0%	0%		0.4%	0%	0.2%	0%	0%		0.2%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 07:45 AM - 08:45 AM Weather: Mostly Cloudy (2.8 °C)



Peak Hour: 05:00 PM - 06:00 PM **Weather: Overcast (7.4 °C)**



Turning Movement Count (5 . NINTH LINE & BURNHAMTHROPE RD WEST)

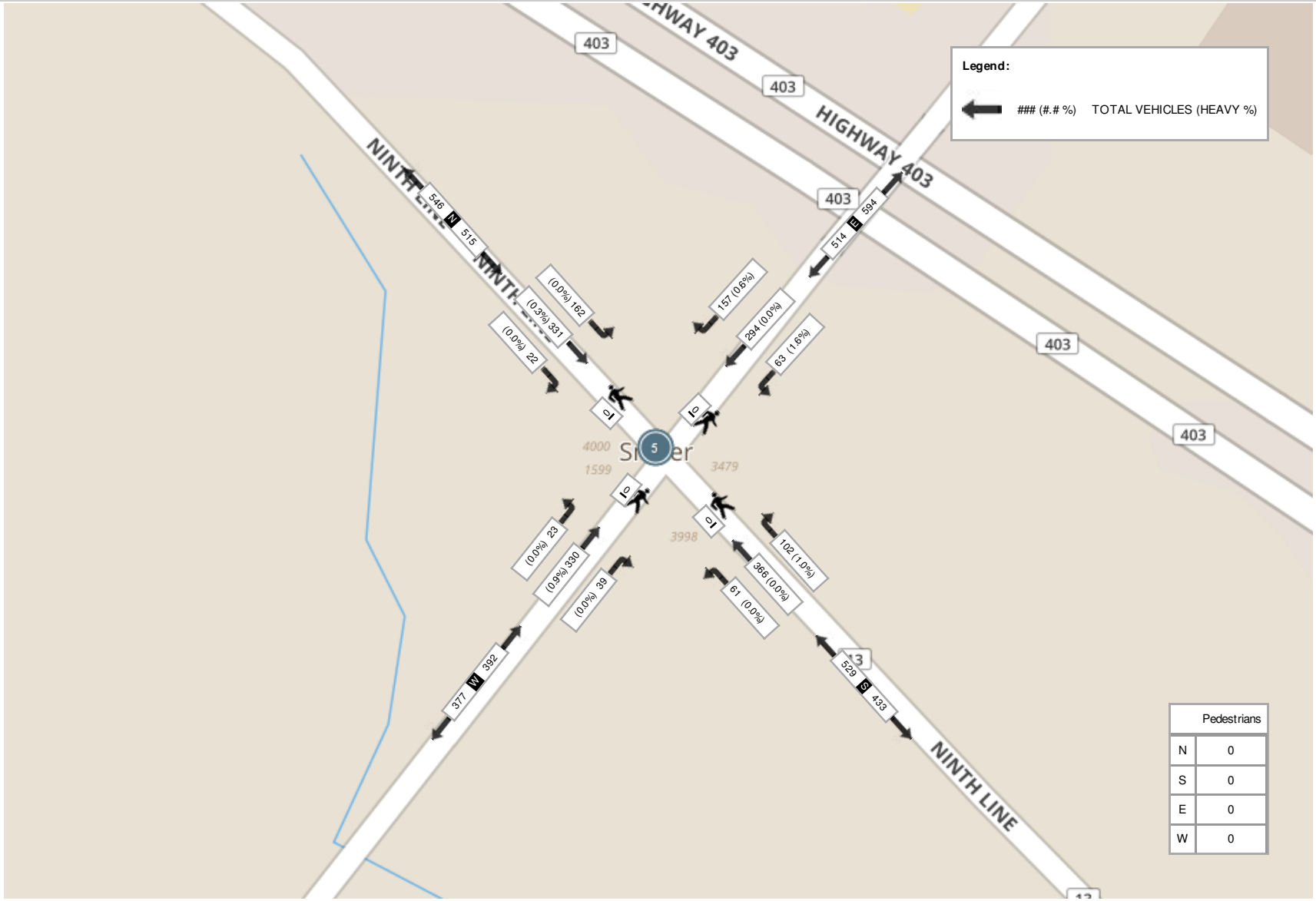
Start Time	N Approach NINTH LINE						E Approach BURNHAMTHROPE RD WEST						S Approach NINTH LINE						W Approach BURNHAMTHROPE RD WEST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
10:00:00	2	86	38	0	2	126	19	45	12	0	1	76	15	48	9	0	0	72	11	54	8	0	2	73	347	
10:15:00	3	61	40	0	0	104	24	30	9	0	0	63	13	37	9	0	0	59	8	66	6	0	0	80	306	
10:30:00	2	75	35	1	0	113	23	41	9	0	0	73	16	59	12	0	0	87	3	51	6	0	0	60	333	
10:45:00	11	79	48	0	0	138	23	67	17	0	0	107	27	60	17	0	0	104	10	66	4	0	0	80	429	1415
11:00:00	8	55	25	0	0	88	26	44	21	0	0	91	24	56	10	0	0	90	13	62	12	0	0	87	356	1424
11:15:00	6	64	30	0	0	100	29	59	14	0	0	102	17	77	8	0	0	102	3	67	10	0	0	80	384	1502
11:30:00	5	83	33	0	0	121	27	65	10	0	0	102	21	59	17	0	0	97	12	73	4	0	0	89	409	1578
11:45:00	8	63	50	0	0	121	32	59	13	0	0	104	21	66	17	0	0	104	18	68	6	0	0	92	421	1570
12:00:00	8	76	40	0	0	124	31	66	23	0	0	120	18	68	21	0	0	107	24	80	10	0	0	114	465	1679
12:15:00	6	86	50	0	0	142	27	73	15	0	0	115	15	76	10	0	0	101	8	78	3	1	0	90	448	1743
12:30:00	8	99	41	0	0	148	32	55	21	0	0	108	22	75	14	0	0	111	12	78	7	0	0	97	464	1798
12:45:00	12	95	44	0	0	151	38	74	19	0	0	131	30	77	23	0	0	130	10	79	10	0	0	99	511	1888
13:00:00	2	66	35	0	0	103	27	52	22	0	0	101	15	95	19	0	0	129	23	83	8	0	0	114	447	1870
13:15:00	1	77	31	0	0	109	35	72	15	0	0	122	19	74	18	0	0	111	10	74	3	0	0	87	429	1851
13:30:00	4	77	25	0	0	106	27	62	19	0	0	108	15	69	13	0	0	97	8	69	7	0	0	84	395	1782
13:45:00	3	67	32	0	0	102	33	61	12	0	0	106	19	72	12	0	0	103	9	52	7	0	0	68	379	1650
14:00:00	7	84	31	0	0	122	45	74	20	0	0	139	21	108	24	0	0	153	4	72	5	0	0	81	495	1698
14:15:00	7	75	28	0	0	110	25	75	15	0	0	115	17	86	18	0	0	121	7	83	4	0	0	94	440	1709
14:30:00	4	75	37	0	0	116	37	77	16	0	0	130	16	75	20	0	0	111	7	72	9	0	0	88	445	1759
14:45:00	3	71	48	0	0	122	30	55	16	0	0	101	25	74	10	0	0	109	10	83	9	0	0	102	434	1814
15:00:00	3	73	31	0	0	107	31	58	14	0	0	103	21	92	11	0	0	124	10	57	7	0	0	74	408	1727
15:15:00	7	69	33	0	0	109	27	65	17	0	0	109	18	93	25	0	0	136	4	80	11	0	0	95	449	1736
15:30:00	5	73	35	0	0	113	36	74	12	0	0	122	21	84	13	0	0	118	6	77	9	0	0	92	445	1736
15:45:00	7	73	34	0	0	114	30	83	11	0	0	124	29	83	15	0	0	127	9	70	7	0	0	86	451	1753
16:00:00	2	60	37	0	0	99	45	74	16	0	0	135	23	85	13	0	0	121	10	92	6	0	0	108	463	1808
16:15:00	8	109	43	0	0	160	33	73	21	0	0	127	23	98	15	0	0	136	9	71	6	0	0	86	509	1868
16:30:00	4	88	43	0	0	135	36	79	13	0	0	128	23	101	19	0	0	143	8	80	6	0	0	94	500	1923
16:45:00	8	74	39	0	0	121	43	68	13	0	0	124	33	82	14	0	0	129	12	87	5	0	0	104	478	1950
Grand Total	154	2133	1036	1	2	3324	871	1780	435	0	1	3086	577	2129	426	0	0	3132	278	2024	195	1	2	2498	**12040**	-
Approach%	4.6%	64.2%	31.2%	0%		-	28.2%	57.7%	14.1%	0%		-	18.4%	68%	13.6%	0%		-	11.1%	81%	7.8%	0%		-	**-**	-
Totals %	1.3%	17.7%	8.6%	0%		27.6%	7.2%	14.8%	3.6%	0%		25.6%	4.8%	17.7%	3.5%	0%		26%	2.3%	16.8%	1.6%	0%		20.7%	**-**	-

Heavy	0	22	1	0	-	2	5	5	0	-	1	25	3	0	-	2	11	0	0	-	-	-	
Heavy %	0%	1%	0.1%	0%	-	0.2%	0.3%	1.1%	0%	-	0.2%	1.2%	0.7%	0%	-	0.7%	0.5%	0%	0%	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Peak Hour: 04:00 PM - 05:00 PM Weather: Rain (3.2 °C)

Start Time	N Approach NINTH LINE						E Approach BURNHAMTHROPE RD WEST						S Approach NINTH LINE						W Approach BURNHAMTHROPE RD WEST						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:00:00	2	60	37	0	0	99	45	74	16	0	0	135	23	85	13	0	0	121	10	92	6	0	0	108	463
16:15:00	8	109	43	0	0	160	33	73	21	0	0	127	23	98	15	0	0	136	9	71	6	0	0	86	509
16:30:00	4	88	43	0	0	135	36	79	13	0	0	128	23	101	19	0	0	143	8	80	6	0	0	94	500
16:45:00	8	74	39	0	0	121	43	68	13	0	0	124	33	82	14	0	0	129	12	87	5	0	0	104	478
Grand Total	22	331	162	0	0	515	157	294	63	0	0	514	102	366	61	0	0	529	39	330	23	0	0	392	**1950**
Approach%	4.3%	64.3%	31.5%	0%		-	30.5%	57.2%	12.3%	0%		-	19.3%	69.2%	11.5%	0%		-	9.9%	84.2%	5.9%	0%		-	**-**
Totals %	1.1%	17%	8.3%	0%		26.4%	8.1%	15.1%	3.2%	0%		26.4%	5.2%	18.8%	3.1%	0%		27.1%	2%	16.9%	1.2%	0%		20.1%	**-**
PHF	0.69	0.76	0.94	0		0.8	0.87	0.93	0.75	0		0.95	0.77	0.91	0.8	0		0.92	0.81	0.9	0.96	0		0.91	**-**
Heavy	0	1	0	0		1	1	0	1	0		2	1	0	0	0		1	0	3	0	0		3	**-**
Heavy %	0%	0.3%	0%	0%		0.2%	0.6%	0%	1.6%	0%		0.4%	1%	0%	0%	0%		0.2%	0%	0.9%	0%	0%		0.8%	**-**
Lights	22	330	162	0		514	156	294	62	0		512	101	366	61	0		528	39	327	23	0		389	**-**
Lights %	100%	99.7%	100%	0%		99.8%	99.4%	100%	98.4%	0%		99.6%	99%	100%	100%	0%		99.8%	100%	99.1%	100%	0%		99.2%	**-**
Single-Unit Trucks	0	1	0	0		1	1	0	1	0		2	1	0	0	0		1	0	3	0	0		3	**-**
Single-Unit Trucks %	0%	0.3%	0%	0%		0.2%	0.6%	0%	1.6%	0%		0.4%	1%	0%	0%	0%		0.2%	0%	0.9%	0%	0%		0.8%	**-**
Buses	0	0	0	0		0	0	0	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%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	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 Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 04:00 PM - 05:00 PM **Weather: Rain (3.2 °C)**



File: CA.13.SIG
Signal Timing Request
RT.07.5902
RT.07.5904
RT.07.5903

October 25, 2018

C.F. Crozier & Associates
40 Huron Street, Suite 301
Collingwood, ON, L9Y 4R3

Dear Darren Loro:

Re: Traffic Signal Timing

Please find the attached traffic signal timing for the intersections of:

Dundas Street W at Ninth Line West
Dundas Street W at Highway 403 / Off Ramp - East Terminal
Dundas Street W at Highway 403 / Off Ramp - West Terminal

The side street phases (4, 8) is actuated; meaning a vehicle or pedestrian must be present on the side street before the side street is given a green indication. Vehicle presence on the side street would result in a possible green time of between the minimum and maximum time noted, depending on demand. Similarly, phases (1, 3, 5, 7) are also actuated. Pedestrian "Walk" and flashing "Don't Walk" time on the side street, as noted, would be used in the event that the pedestrian push button is activated. During the side street pedestrian indications, the side street vehicle green is concurrently displayed. Should there be no demand on the actuated phases, the signals would result in a green indication on the major street (2, 6).

Note: All times recorded in seconds, based on full demand.

The time of day plan is used for system control operation. In the event that the coordination pattern has a cycle length, offset and split value identified, the cycle length split and offset values, as noted, would be used. However, when the time of day plan is programed using

'Action' 8, the mode is 'Free', meaning no cycle length, split and offset values are given and the intersection operates using the phase timings provided in the report.

Should you require further information, please contact Ken Moore, at 905-615-3200 ext. 4054.

Sincerely,

Ken Moore
Coordinator, Traffic Systems and ITS
Traffic Signals and Street Lighting
Transportation and Works Department
City of Mississauga
905-615-3200 ext. 4054
Ken.moore@mississauga.ca

c: Javed Khan, Manager, Traffic Signals and Street Lighting
Jim Kartsomanis, Supervisor, Traffic Systems and ITS

JK:kl

Signal Timing Report

Runtime: 10/24/2018 15:31:07

Device: 5902

Region: Mississauga **Signal ID:** 5902 **Location:** DUNDAS STREET E at Ninth Line

Phase	Units	1	2	3	4	5		7	8
Walk	Sec	0	7	0	7	0	7	0	7
Ped Clear	Sec	0	32	0	34	0	32	0	34
Min Green	Sec	7	20	7	10	7	20	7	10
Passage	Sec	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5
Maximum 1	Sec	20	55	20	35	20	55	20	35
Maximum 2	Sec	20	60	20	40	20	60	20	40
Yellow Change	Sec	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7
Red Clearance	Sec	1.0	2.6	1.0	2.8	2.0	2.6	1.0	2.8
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	phaseNotOn	redClear	phaseNotOn	phaseNotOn	phaseNotOn	redClear	phaseNotOn	phaseNotOn
[P2] Options	Bit	Enabled Non Lock Det	Enabled Non-Actuated 1 Non Lock Det Min Veh Recall Dual Entry Act Rest In Walk	Enabled Non Lock Det	Enabled Non Lock Det Dual Entry	Enabled Non Lock Det	Enabled Non-Actuated 1 Non Lock Det Min Veh Recall Dual Entry Act Rest In Walk	Enabled Non Lock Det	Enabled Non Lock Det Dual Entry
[P2] Ring	Ring	1	1	1	1	2	2	2	2
[P2] Concurrency	Phase (,)	(5,6)	(5,6)	(7,8)	(7,8)	(1,2)	(1,2)	(3,4)	(3,4)

Coord Pattern	Units	1	2	3	4	5		7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	10	106	158	0	0	0	0	0
Split	Split	1	2	3	0	0	0	0	0
Sequence	Sequence	1	1	1	0	0	0	0	0

Coord Split	Units	1	2	3	4	5		7	8
Split 1 - Mode	Enum	none	other	none	none	none	other	none	none
Split 1 - Time	Sec	13	86	18	43	13	86	18	43
Split 1 - Coord	Enum	false	true	false	false	false	true	false	false
Split 2 - Mode	Enum	none	other	phaseOmitted	none	none	other	phaseOmitted	none
Split 2 - Time	Sec	14	85	0	61	14	85	0	61
Split 2 - Coord	Enum	false	true	false	false	false	true	false	false
Split 3 - Mode	Enum	none	other	none	none	none	other	none	none
Split 3 - Time	Sec	13	86	18	43	13	86	18	43
Split 3 - Coord	Enum	false	true	false	false	false	true	false	false

TB Schedule	Units	1	2	3	4	5		7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	--M--------	----M------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	12345678901234 56789012345678 901	12345678901234 56789012345678 901	12345678901234 56789012345678 901	1---------- --------	----------9---- --------	---------- -------0-	----------1-- --------	-2---------- -------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13		15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	-----6---------- -------	--3---------- -------	-------8-------- --------	---------- 5------	---------- -6-----	---------- -4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5		7	8
Plan 1 Hour	Hour	0	6	9	15	19	0	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	0	0	0
Plan 2 Hour	Hour	0	7	0	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	0	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	0	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	0	0	0	0	0

TB Action	Units	1	2	3	4	5		7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern 7	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	Special Func 2 Special Func 4

Signal Timing Report

Runtime: 10/24/2018 15:35:45

Device: 5903

Region: Mississauga **Signal ID:** 5903 **Location:** DUNDAS STREET E at Hwy 403 West Terminal

Phase	Units	1	2	3	4	5		7	8
Walk	Sec	0	8	0	0	0	0	0	0
Ped Clear	Sec	0	10	0	0	0	0	0	0
Min Green	Sec	0	8	0	8	0	0	0	0
Passage	Sec	0.0	2.0	0.0	4.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	0	45	0	45	0	0	0	0
Maximum 2	Sec	0	45	0	45	0	0	0	0
Yellow Change	Sec	3.0	5.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit	0	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Act Rest In Walk	0	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	0	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()

Coord Pattern	Units	1	2	3	4	5		7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	14	109	139	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1

Coord Split	Units	1	2	3	4	5		7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	115	0	45	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	102	0	58	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	90	0	70	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false

TB Schedule	Units	1	2	3	4	5		7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	--M--------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	123456789012345678901234567890 1	123456789012345678901234567890 1	123456789012345678901234567890 1	1------	----------9---- -------	------0-	----------1---- ------	-2---------- ------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13		15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	-----6---------- ------	--3---------- ------	-------8---------- ------	---------- 5------	---------- 6-----	---------- 4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5		7	8
Plan 1 Hour	Hour	0	6	9	15	19	0	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	0	0	0
Plan 2 Hour	Hour	0	7	0	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	0	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	0	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	0	0	0	0	0

TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern 7	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

Signal Timing Report

Runtime: 10/24/2018 15:33:28

Device: 5904

Region: Mississauga **Signal ID:** 5904 **Location:** DUNDAS STREET E at Hwy 403 East Terminal

Phase	Units	1	2	3	4	5		7	8
Walk	Sec	0	8	0	0	0	0	0	0
Ped Clear	Sec	0	9	0	0	0	0	0	0
Min Green	Sec	0	8	0	8	0	0	0	0
Passage	Sec	0.0	4.0	0.0	4.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	0	60	0	40	0	0	0	0
Maximum 2	Sec	0	60	0	40	0	0	0	0
Yellow Change	Sec	3.0	5.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	other	phaseNotOn	other	other	other	other
[P2] Options	Bit	0	Enabled Non-Actuated 1 Max Veh Recall Ped Recall Act Rest In Walk	0	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	0	1	0	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()

Coord Pattern	Units	1	2	3	4	5		7	8
Cycle Time	Sec	160	160	160	0	0	0	0	0
Offset	Sec	32	10	50	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1

Coord Split	Units	1	2	3	4	5		7	8
Split 1 - Mode	Enum	none	none	none	none	none	none	none	none
Split 1 - Time	Sec	0	115	0	45	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	112	0	48	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	none	none	none	none	none	none	none	none
Split 3 - Time	Sec	0	107	0	53	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false

TB Schedule	Units	1	2	3	4	5		7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F---------	--M--------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	123456789012345678901234567890 1	123456789012345678901234567890 1	123456789012345678901234567890 1	1---------- ------	----------9---- -------	---------- ------0-	----------1---- ------	-2---------- ------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13		15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	-----6---------- ------	--3---------- ------	-------8---------- ------	---------- 5------	---------- 6-----	---------- 4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5		7	8
Plan 1 Hour	Hour	0	6	9	15	19	0	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	2	3	2	0	0	0
Plan 2 Hour	Hour	0	7	0	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	2	0	0	0	0	0	0
Plan 3 Hour	Hour	0	8	23	0	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	2	8	0	0	0	0	0

TB Action	Units	1	2	3	4	5	6	7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern 7	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

File: CA.13.SIG
Signal Timing Request
RT.07.5805

October 29, 2018

C.F. Crozier & Associates
40 Huron Street, Suite 301
Collingwood, ON, L9Y 4R3

Dear Darren Loro:

Re: Traffic Signal Timing

Please find the attached traffic signal timing for the intersections of:

Burnhamthorpe Road W at Ninth Line West

The side street phase (4) is actuated; meaning a vehicle or pedestrian must be present on the side street before the side street is given a green indication. Vehicle presence on the side street would result in a possible green time of between the minimum and maximum time noted, depending on demand. Similarly, phase (3) is also actuated. Pedestrian "Walk" and flashing "Don't Walk" time on the side street, as noted, would be used in the event that the pedestrian push button is activated. During the side street pedestrian indications, the side street vehicle green is concurrently displayed. Should there be no demand on the actuated phases, the signals would result in a green indication on the major street (2).

Note: All times recorded in seconds, based on full demand.

The time of day plan is used for system control operation. In the event that the coordination pattern has a cycle length, offset and split value identified, the cycle length split and offset values, as noted, would be used. However, when the time of day plan is programed using 'Action' 8, the mode is 'Free', meaning no cycle length, split and offset values are given and the intersection operates using the phase timings provided in the report.

Should you require further information, please contact Ken Moore, at 905-615-3200 ext. 4054.

Sincerely,

Ken Moore
Coordinator, Traffic Systems and ITS
Traffic Signals and Street Lighting
Transportation and Works Department
City of Mississauga
905-615-3200 ext. 4054
Ken.moore@mississauga.ca

c: Javed Khan, Manager, Traffic Signals and Street Lighting
Jim Kartsomanis, Supervisor, Traffic Systems and ITS

JK:kl

Signal Timing Report

Runtime: 10/29/2018 12:45:31

Device: 5805

Region: Mississauga **Signal ID:** 5805 **Location:** BURNHAMTHORPE ROAD E at Ninth Line

Phase	Units	1	2	3	4	5		7	8
Walk	Sec	0	8	0	9	0	0	0	0
Ped Clear	Sec	0	13	0	17	0	0	0	0
Min Green	Sec	0	8	5	8	0	0	0	0
Passage	Sec	0.0	3.0	2.0	4.0	0.0	0.0	0.0	0.0
Maximum 1	Sec	0	30	10	25	0	0	0	0
Maximum 2	Sec	0	30	10	25	0	0	0	0
Yellow Change	Sec	3.0	4.0	3.0	5.0	3.0	4.0	3.0	4.0
Red Clearance	Sec	0.0	3.0	0.0	3.0	0.0	0.0	0.0	0.0
Red Revert	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Added Initial	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	Sec	0	0	0	0	0	0	0	0
Time Before	Sec	0	0	0	0	0	0	0	0
Cars Before	Veh	0	0	0	0	0	0	0	0
Time To Reduce	Sec	0	0	0	0	0	0	0	0
Reduce By	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dynamic Max Limit	Sec	0	0	0	0	0	0	0	0
Dynamic Max Step	Sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
[P2] Start Up	Enum	other	redClear	phaseNotOn	phaseNotOn	other	other	other	other
[P2] Options	Bit	0	Enabled Non Lock Det Min Veh Recall Max Veh Recall	Enabled Non Lock Det	Enabled Non Lock Det	0	0	0	0
[P2] Ring	Ring	0	1	1	1	0	0	0	0
[P2] Concurrency	Phase (,)	()	()	()	()	()	()	()	()

Coord Pattern	Units	1	2	3	4	5		7	8
Cycle Time	Sec	115	0	115	0	0	0	0	0
Offset	Sec	32	0	107	0	0	0	0	0
Split	Split	1	2	3	4	5	6	7	8
Sequence	Sequence	1	1	1	1	1	1	1	1

Coord Split	Units	1	2	3	4	5		7	8
Split 1 - Mode	Enum	none	other	none	none	none	none	none	none
Split 1 - Time	Sec	0	55	21	39	0	0	0	0
Split 1 - Coord	Enum	false	true	false	false	false	false	false	false
Split 2 - Mode	Enum	none	none	none	none	none	none	none	none
Split 2 - Time	Sec	0	0	0	0	0	0	0	0
Split 2 - Coord	Enum	false	true	false	false	false	false	false	false
Split 3 - Mode	Enum	none	other	none	none	none	none	none	none
Split 3 - Time	Sec	0	40	10	65	0	0	0	0
Split 3 - Coord	Enum	false	true	false	false	false	false	false	false

TB Schedule	Units	1	2	3	4	5		7	8
Month	Bit	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	J----------	-F----------	--M---------	----M-------	------J-----
Day of Week	Bit	-MTWTF-	S------	------S	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	123456789012345678901234567890 1	123456789012345678901234567890 1	123456789012345678901234567890 1	1---------- ------	----------9---- -------	---------- ------0-	----------1---- ------	-2---------- ------
Day Plan	Number	1	3	2	3	3	3	3	3

TB Schedule	Units	9	10	11	12	13		15	16
Month	Bit	-------A----	--------S---	---------O--	----------D	----------D	----------D	0	0
Day of Week	Bit	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS	SMTWTFS
Day of Month	Bit	-----6---------- ------	--3---------- ------	-------8---------- ------	---------- 5------	---------- 6-----	---------- 4-------	0	0
Day Plan	Number	3	3	3	3	3	3	0	0

TB Dayplan	Units	1	2	3	4	5		7	8
Plan 1 Hour	Hour	0	6	9	15	19	0	0	0
Plan 1 Minute	Min	0	0	30	0	30	0	0	0
Plan 1 Action	Number	8	1	8	3	8	0	0	0
Plan 2 Hour	Hour	0	0	0	0	0	0	0	0
Plan 2 Minute	Min	0	0	0	0	0	0	0	0
Plan 2 Action	Number	8	0	0	0	0	0	0	0
Plan 3 Hour	Hour	0	0	0	0	0	0	0	0
Plan 3 Minute	Min	0	0	0	0	0	0	0	0
Plan 3 Action	Number	8	0	0	0	0	0	0	0

TB Action	Units	1	2	3	4	5		7	8
Pattern	Enum	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern 7	Free
Aux. Functions	Bit	0	0	0	0	0	0	0	0
Spec. Functions	Bit	0	0	0	0	0	0	0	0

APPENDIX E

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

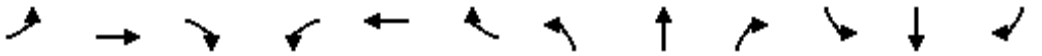
Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX F

Detailed Capacity Analysis Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	2269	347	110	848	128	120	311	148	199	548	116
Future Volume (vph)	232	2269	347	110	848	128	120	311	148	199	548	116
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1640	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1227	1633	3500	1263
Flt Permitted	0.272			0.048			0.194			0.412		
Satd. Flow (perm)	484	5136	1263	82	4673	1300	315	3400	1227	708	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			197			132			141			109
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	239	2339	358	113	874	132	124	321	153	205	565	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	2339	358	113	874	132	124	321	153	205	565	120
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.31	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

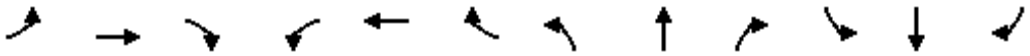
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	47.5	11.5	47.5	47.5
Total Split (s)	13.0	86.0	86.0	13.0	86.0	86.0	18.0	43.0	43.0	18.0	43.0	43.0
Total Split (%)	8.1%	53.8%	53.8%	8.1%	53.8%	53.8%	11.3%	26.9%	26.9%	11.3%	26.9%	26.9%
Maximum Green (s)	9.0	79.7	79.7	9.0	79.7	79.7	14.0	36.5	36.5	14.0	36.5	36.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-1.5	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	97.4	81.4	81.4	96.9	81.1	81.1	50.6	30.7	30.7	52.0	31.6	31.6
Actuated g/C Ratio	0.64	0.53	0.53	0.63	0.53	0.53	0.33	0.20	0.20	0.34	0.21	0.21
v/c Ratio	0.59	0.85	0.47	0.66	0.35	0.18	0.53	0.47	0.43	0.60	0.78	0.35
Control Delay	19.0	35.5	12.1	50.9	21.8	3.6	44.0	55.9	13.0	45.2	65.5	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	35.5	12.1	50.9	21.8	3.6	44.0	55.9	13.0	45.2	65.5	13.3
LOS	B	D	B	D	C	A	D	E	B	D	E	B
Approach Delay		31.3			22.6			42.5			53.8	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 152.8
Natural Cycle: 140
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 87.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East

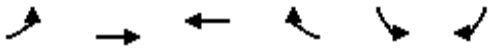




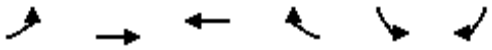
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	2339	358	113	874	132	124	321	153	205	565	120
v/c Ratio	0.59	0.85	0.47	0.66	0.35	0.18	0.53	0.47	0.43	0.60	0.78	0.35
Control Delay	19.0	35.5	12.1	50.9	21.8	3.6	44.0	55.9	13.0	45.2	65.5	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	35.5	12.1	50.9	21.8	3.6	44.0	55.9	13.0	45.2	65.5	13.3
Queue Length 50th (m)	31.4	236.9	30.2	20.3	59.2	0.0	28.2	48.1	3.1	49.0	91.4	2.9
Queue Length 95th (m)	50.0	277.2	61.3	#49.3	75.1	11.6	45.3	64.1	24.3	72.2	113.4	21.3
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	403	2737	765	173	2481	752	243	847	411	344	871	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.85	0.47	0.65	0.35	0.18	0.51	0.38	0.37	0.60	0.65	0.30

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2628	533	0	687	679
Future Volume (vph)	0	2628	533	0	687	679
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					32	385
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	2738	555	0	716	707
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	2738	555	0	978	445
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

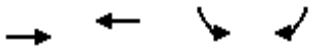


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		115.0	115.0		45.0	45.0
Total Split (%)		71.9%	71.9%		28.1%	28.1%
Maximum Green (s)		108.0	108.0		39.0	39.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		110.0	110.0		40.0	40.0
Actuated g/C Ratio		0.69	0.69		0.25	0.25
v/c Ratio		0.78	0.17		1.18	0.72
Control Delay		18.7	8.9		143.4	16.1
Queue Delay		0.5	0.0		0.0	0.0
Total Delay		19.2	8.9		143.4	16.1
LOS		B	A		F	B
Approach Delay		19.2	8.9		103.6	
Approach LOS		B	A		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2738	555	978	445
v/c Ratio	0.78	0.17	1.18	0.72
Control Delay	18.7	8.9	143.4	16.1
Queue Delay	0.5	0.0	0.0	0.0
Total Delay	19.2	8.9	143.4	16.1
Queue Length 50th (m)	210.0	22.4	~197.9	17.4
Queue Length 95th (m)	226.1	27.5	#242.1	69.3
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3531	3363	827	614
Starvation Cap Reductn	340	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.17	1.18	0.72

Intersection Summary

~ 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.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2297	0	0	567	67	424
Future Volume (vph)	2297	0	0	567	67	424
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					9	9
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2418	0	0	597	71	446
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2418	0	0	597	294	223
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	115.0			115.0	45.0	45.0
Total Split (%)	71.9%			71.9%	28.1%	28.1%
Maximum Green (s)	108.0			108.0	39.0	39.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	99.3			99.3	28.1	28.1
Actuated g/C Ratio	0.72			0.72	0.20	0.20
v/c Ratio	0.67			0.17	0.44	0.73
Control Delay	12.0			6.7	49.9	65.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	12.0			6.7	49.9	65.7
LOS	B			A	D	E
Approach Delay	12.0			6.7	56.7	
Approach LOS	B			A	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 137.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			

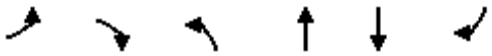
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





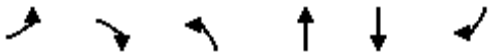
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2418	597	294	223
v/c Ratio	0.67	0.17	0.44	0.73
Control Delay	12.0	6.7	49.9	65.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.0	6.7	49.9	65.7
Queue Length 50th (m)	124.6	18.2	40.9	70.2
Queue Length 95th (m)	180.9	29.7	55.7	104.5
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	4021	3871	967	442
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	0.60	0.15	0.30	0.50

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	15	680	882	1
Future Volume (vph)	0	3	15	680	882	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1570	0	1631	3466	1842	0
Flt Permitted			0.950			
Satd. Flow (perm)	1570	0	1631	3466	1842	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	1995.9	
Travel Time (s)	3.8			9.0	119.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	7%	3%	2%	0%
Adj. Flow (vph)	0	3	16	747	969	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	16	747	970	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

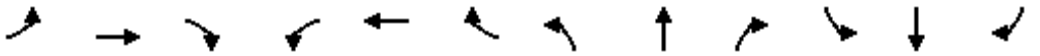
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	15	680	882	1
Future Volume (Veh/h)	0	3	15	680	882	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	3	16	747	969	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.92					
vC, conflicting volume	1375	970	970			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1240	970	970			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	99	98			
cM capacity (veh/h)	153	257	676			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	3	16	374	374	970
Volume Left	0	16	0	0	0
Volume Right	3	0	0	0	1
cSH	257	676	1700	1700	1700
Volume to Capacity	0.01	0.02	0.22	0.22	0.57
Queue Length 95th (m)	0.3	0.6	0.0	0.0	0.0
Control Delay (s)	19.2	10.5	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	19.2	0.2			0.0
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

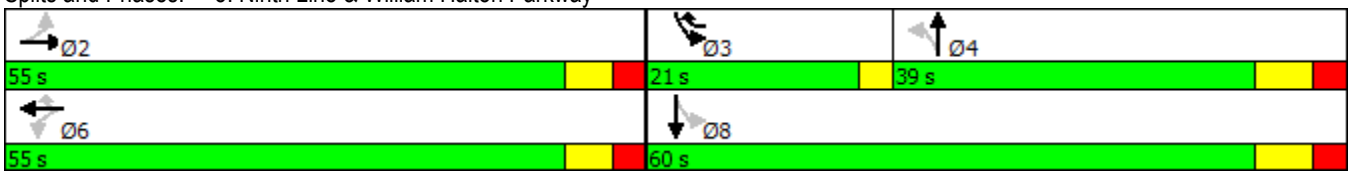


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	615	100	19	216	115	32	390	86	178	612	33
Future Volume (vph)	81	615	100	19	216	115	32	390	86	178	612	33
Ideal Flow (vphpl)	1640	1900	1900	1640	1900	1640	1640	1900	1900	1860	1900	1900
Lane Width (m)	3.3	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	20.0		0.0	120.0		120.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	70.0			50.0			55.0			70.0		
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		0.979				0.850		0.973			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1506	1832	0	1491	1860	1308	1506	1775	0	1675	1826	0
Flt Permitted	0.571			0.084			0.229			0.145		
Satd. Flow (perm)	905	1832	0	132	1860	1308	363	1775	0	256	1826	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				121		10			3	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			233.1			1995.9			218.8	
Travel Time (s)		8.7			14.0			119.8			13.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	3%	1%	1%	3%	0%	3%	3%	2%	2%	3%
Adj. Flow (vph)	85	647	105	20	227	121	34	411	91	187	644	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	752	0	20	227	121	34	502	0	187	679	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.26	1.01	1.01	1.26	1.01	1.26	1.26	1.01	1.01	1.07	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template												
Leading Detector (m)	8.0	10.0		8.0	10.0	8.0	7.0	10.0		7.0	10.0	
Trailing Detector (m)	-0.2	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Position(m)	-0.2	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Size(m)	8.2	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2			6	3		4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	3	4	4		3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	5.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	9.5	34.0	34.0		9.5	34.0	
Total Split (s)	55.0	55.0		55.0	55.0	21.0	39.0	39.0		21.0	60.0	
Total Split (%)	47.8%	47.8%		47.8%	47.8%	18.3%	33.9%	33.9%		18.3%	52.2%	
Maximum Green (s)	48.0	48.0		48.0	48.0	18.0	31.0	31.0		18.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	3.0	5.0	5.0		3.0	5.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	0.0	3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	1.0	5.0	5.0		1.0	5.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	4.0	4.0		2.0	4.0	
Recall Mode	Min	Min		Min	Min	None	None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		9.0	9.0			9.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0			17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	47.7	47.7		47.7	47.7	66.7	34.5	34.5		53.5	49.4	
Actuated g/C Ratio	0.44	0.44		0.44	0.44	0.62	0.32	0.32		0.50	0.46	
v/c Ratio	0.21	0.92		0.34	0.27	0.14	0.29	0.87		0.60	0.81	
Control Delay	21.1	46.0		41.1	20.6	1.8	38.2	51.8		25.0	33.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.1	46.0		41.1	20.6	1.8	38.2	51.8		25.0	33.8	
LOS	C	D		D	C	A	D	D		C	C	
Approach Delay		43.5			15.5			51.0			31.9	
Approach LOS		D			B			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 107.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization 102.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	752	20	227	121	34	502	187	679
v/c Ratio	0.21	0.92	0.34	0.27	0.14	0.29	0.87	0.60	0.81
Control Delay	21.1	46.0	41.1	20.6	1.8	38.2	51.8	25.0	33.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	46.0	41.1	20.6	1.8	38.2	51.8	25.0	33.8
Queue Length 50th (m)	11.1	149.1	2.8	30.6	0.0	5.7	104.5	23.4	129.2
Queue Length 95th (m)	24.2	#248.0	12.4	52.4	6.4	16.8	#182.3	40.4	180.7
Internal Link Dist (m)		121.1		209.1			1971.9		194.8
Turn Bay Length (m)	20.0		120.0		120.0	30.0		30.0	
Base Capacity (vph)	425	865	62	874	928	119	588	394	945
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	0.20	0.87	0.32	0.26	0.13	0.29	0.85	0.47	0.72

Intersection Summary

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	1439	152	121	2600	144	286	716	671	86	296	230
Future Volume (vph)	104	1439	152	121	2600	144	286	716	671	86	296	230
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1640	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00					0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1227	1633	3535	1301
Flt Permitted	0.048			0.112			0.451			0.123		
Satd. Flow (perm)	85	5036	1283	197	5136	1313	768	3535	1211	211	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			78			178			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	106	1468	155	123	2653	147	292	731	685	88	302	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	1468	155	123	2653	147	292	731	685	88	302	235
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.31	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

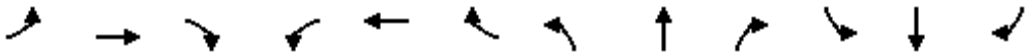
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	47.5	11.5	47.5	47.5
Total Split (s)	13.0	86.0	86.0	13.0	86.0	86.0	18.0	43.0	43.0	18.0	43.0	43.0
Total Split (%)	8.1%	53.8%	53.8%	8.1%	53.8%	53.8%	11.3%	26.9%	26.9%	11.3%	26.9%	26.9%
Maximum Green (s)	9.0	79.7	79.7	9.0	79.7	79.7	14.0	36.5	36.5	14.0	36.5	36.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-1.5	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	96.7	81.0	81.0	96.9	81.1	81.1	57.1	38.0	38.0	53.6	35.3	35.3
Actuated g/C Ratio	0.62	0.52	0.52	0.62	0.52	0.52	0.36	0.24	0.24	0.34	0.22	0.22
v/c Ratio	0.62	0.57	0.21	0.53	1.00	0.21	0.79	0.85	1.60	0.44	0.38	0.61
Control Delay	46.0	27.3	5.0	21.0	55.2	10.6	56.5	68.0	309.6	40.5	53.1	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	27.3	5.0	21.0	55.2	10.6	56.5	68.0	309.6	40.5	53.1	32.2
LOS	D	C	A	C	E	B	E	E	F	D	D	C
Approach Delay		26.5			51.5			162.9			43.5	
Approach LOS		C			D			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 157.1
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.60
Intersection Signal Delay: 71.8 Intersection LOS: E
Intersection Capacity Utilization 98.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



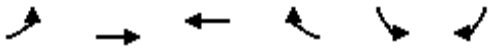


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	106	1468	155	123	2653	147	292	731	685	88	302	235
v/c Ratio	0.62	0.57	0.21	0.53	1.00	0.21	0.79	0.85	1.60	0.44	0.38	0.61
Control Delay	46.0	27.3	5.0	21.0	55.2	10.6	56.5	68.0	309.6	40.5	53.1	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	27.3	5.0	21.0	55.2	10.6	56.5	68.0	309.6	40.5	53.1	32.2
Queue Length 50th (m)	18.0	119.0	3.0	15.8	~318.9	11.4	74.5	122.4	~276.9	19.4	44.7	32.9
Queue Length 95th (m)	40.7	138.1	15.9	26.5	#368.3	26.0	#109.1	#153.4	#363.1	33.3	60.2	64.8
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	175	2596	727	234	2652	715	371	855	427	229	855	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.57	0.21	0.53	1.00	0.21	0.79	0.85	1.60	0.38	0.35	0.58

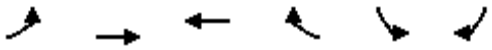
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2049	1494	0	325	1268
Future Volume (vph)	0	2049	1494	0	325	1268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					20	20
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2134	1556	0	339	1321
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2134	1556	0	1000	660
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						



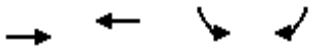
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		90.0	90.0		70.0	70.0
Total Split (%)		56.3%	56.3%		43.8%	43.8%
Maximum Green (s)		83.0	83.0		64.0	64.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		85.0	85.0		65.0	65.0
Actuated g/C Ratio		0.53	0.53		0.41	0.41
v/c Ratio		0.81	0.57		0.99dr	1.08
Control Delay		33.8	26.3		44.3	104.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		33.8	26.3		44.3	104.2
LOS		C	C		D	F
Approach Delay		33.8	26.3		68.1	
Approach LOS		C	C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 42.2		Intersection LOS: D	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2134	1556	1000	660
v/c Ratio	0.81	0.57	0.99dr	1.08
Control Delay	33.8	26.3	44.3	104.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.8	26.3	44.3	104.2
Queue Length 50th (m)	209.5	125.3	144.6	~266.5
Queue Length 95th (m)	229.4	139.9	172.0	#354.6
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2649	2728	1322	609
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	0.81	0.57	0.76	1.08

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

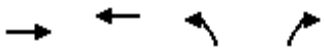
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1568	0	0	1815	50	385
Future Volume (vph)	1568	0	0	1815	50	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.881	0.850
Flt Protected					0.990	
Satd. Flow (prot)	5036	0	0	5136	3101	1429
Flt Permitted					0.990	
Satd. Flow (perm)	5036	0	0	5136	3101	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					35	35
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1616	0	0	1871	52	397
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1616	0	0	1871	251	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	107.0			107.0	53.0	53.0
Total Split (%)	66.9%			66.9%	33.1%	33.1%
Maximum Green (s)	100.0			100.0	47.0	47.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	99.6			99.6	22.9	22.9
Actuated g/C Ratio	0.75			0.75	0.17	0.17
v/c Ratio	0.43			0.48	0.45	0.72
Control Delay	7.0			7.5	44.5	57.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	7.0			7.5	44.5	57.8
LOS	A			A	D	E
Approach Delay	7.0			7.5	50.4	
Approach LOS	A			A	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 132.5			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

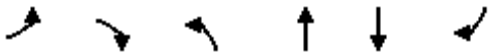
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





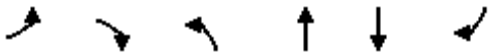
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1616	1871	251	198
v/c Ratio	0.43	0.48	0.45	0.72
Control Delay	7.0	7.5	44.5	57.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.0	7.5	44.5	57.8
Queue Length 50th (m)	51.7	64.0	28.2	48.3
Queue Length 95th (m)	82.1	100.5	41.8	79.0
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3904	3982	1153	543
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	0.41	0.47	0.22	0.36

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	12	15	965	657	2
Future Volume (vph)	1	12	15	965	657	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.875					
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1582	0	1745	3500	1842	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1582	0	1745	3500	1842	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	1995.9	
Travel Time (s)	3.8			9.0	119.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	1	13	16	1038	706	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	16	1038	708	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

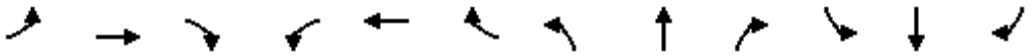
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	12	15	965	657	2
Future Volume (Veh/h)	1	12	15	965	657	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	13	16	1038	706	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.80					
vC, conflicting volume	1258	707	708			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	833	707	708			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	98			
cM capacity (veh/h)	246	382	900			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	14	16	519	519	708
Volume Left	1	16	0	0	0
Volume Right	13	0	0	0	2
cSH	368	900	1700	1700	1700
Volume to Capacity	0.04	0.02	0.31	0.31	0.42
Queue Length 95th (m)	0.9	0.4	0.0	0.0	0.0
Control Delay (s)	15.2	9.1	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	15.2	0.1			0.0
Approach LOS	C				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

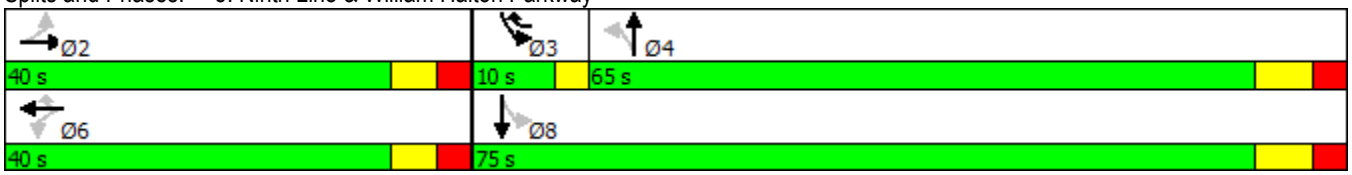


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	488	67	51	505	194	83	566	192	156	400	28
Future Volume (vph)	29	488	67	51	505	194	83	566	192	156	400	28
Ideal Flow (vphpl)	1640	1900	1900	1640	1900	1640	1640	1900	1900	1860	1900	1900
Lane Width (m)	3.3	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	20.0		0.0	120.0		120.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	70.0			50.0			55.0			70.0		
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		0.982				0.850		0.962			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1506	1829	0	1491	1860	1334	1491	1790	0	1691	1843	0
Flt Permitted	0.120			0.114			0.501			0.097		
Satd. Flow (perm)	190	1829	0	179	1860	1334	786	1790	0	173	1843	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				204		22			6	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			233.1			1995.9			218.8	
Travel Time (s)		8.7			14.0			119.8			13.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	1%	1%	1%	1%	1%	1%	1%	1%	0%
Adj. Flow (vph)	31	514	71	54	532	204	87	596	202	164	421	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	585	0	54	532	204	87	798	0	164	450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.26	1.01	1.01	1.26	1.01	1.26	1.26	1.01	1.01	1.07	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template												
Leading Detector (m)	8.0	10.0		8.0	10.0	8.0	7.0	10.0		7.0	10.0	
Trailing Detector (m)	-0.2	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Position(m)	-0.2	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Size(m)	8.2	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2			6	3		4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	3	4	4		3	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	5.0	8.0	8.0		5.0	8.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	9.5	34.0	34.0		9.5	34.0	
Total Split (s)	40.0	40.0		40.0	40.0	10.0	65.0	65.0		10.0	75.0	
Total Split (%)	34.8%	34.8%		34.8%	34.8%	8.7%	56.5%	56.5%		8.7%	65.2%	
Maximum Green (s)	33.0	33.0		33.0	33.0	7.0	57.0	57.0		7.0	67.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	3.0	5.0	5.0		3.0	5.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	0.0	3.0	3.0		0.0	3.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-2.0	-3.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	1.0	5.0	5.0		1.0	5.0	
Lead/Lag						Lead	Lag	Lag		Lead		
Lead-Lag Optimize?						Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	4.0	4.0		2.0	4.0	
Recall Mode	Min	Min		Min	Min	None	None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		9.0	9.0			9.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0		17.0	17.0			17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	35.2	35.2		35.2	35.2	49.1	54.3	54.3		68.3	64.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32	0.45	0.50	0.50		0.62	0.59	
v/c Ratio	0.52	0.99		0.95	0.89	0.29	0.22	0.89		0.71	0.42	
Control Delay	66.1	73.0		149.0	55.4	3.9	16.9	37.3		31.7	13.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	66.1	73.0		149.0	55.4	3.9	16.9	37.3		31.7	13.3	
LOS	E	E		F	E	A	B	D		C	B	
Approach Delay		72.6			48.5			35.3			18.2	
Approach LOS		E			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 109.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 43.2		Intersection LOS: D	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & William Halton Parkway



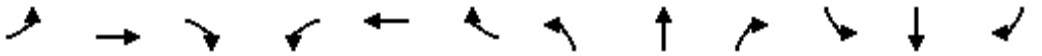


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	31	585	54	532	204	87	798	164	450
v/c Ratio	0.52	0.99	0.95	0.89	0.29	0.22	0.89	0.71	0.42
Control Delay	66.1	73.0	149.0	55.4	3.9	16.9	37.3	31.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	73.0	149.0	55.4	3.9	16.9	37.3	31.7	13.3
Queue Length 50th (m)	6.1	~149.5	12.7	122.5	0.0	10.7	152.2	14.2	50.9
Queue Length 95th (m)	#22.3	#220.8	#40.9	#191.0	14.1	21.2	#220.2	#43.8	72.8
Internal Link Dist (m)		121.1		209.1			1971.9		194.8
Turn Bay Length (m)	20.0		120.0		120.0	30.0		30.0	
Base Capacity (vph)	60	591	57	598	712	433	996	233	1187
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	0.52	0.99	0.95	0.89	0.29	0.20	0.80	0.70	0.38

Intersection Summary

~ 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.



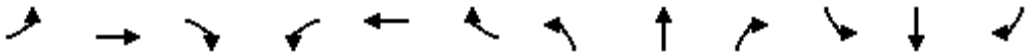
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	1712	209	132	1551	247	146	264	125	171	188	161
Future Volume (vph)	142	1712	209	132	1551	247	146	264	125	171	188	161
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1640	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1426	3500	1301
Flt Permitted	0.103			0.079			0.609			0.522		
Satd. Flow (perm)	185	5136	1324	139	5136	1311	923	3535	1301	783	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			191			129			135
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	146	1765	215	136	1599	255	151	272	129	176	194	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	1765	215	136	1599	255	151	272	129	176	194	166
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.31	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	47.5	47.5	47.5
Total Split (s)	14.0	85.0	85.0	14.0	85.0	85.0	61.0	61.0	61.0	61.0	61.0	61.0
Total Split (%)	8.8%	53.1%	53.1%	8.8%	53.1%	53.1%	38.1%	38.1%	38.1%	38.1%	38.1%	38.1%
Maximum Green (s)	10.0	78.7	78.7	10.0	78.7	78.7	54.5	54.5	54.5	54.5	54.5	54.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	96.9	80.6	80.6	97.1	80.8	80.8	37.4	37.4	37.4	37.4	37.4	37.4
Actuated g/C Ratio	0.69	0.57	0.57	0.69	0.57	0.57	0.26	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.57	0.60	0.26	0.60	0.55	0.31	0.62	0.29	0.29	0.85	0.21	0.37
Control Delay	21.2	22.7	6.6	29.2	21.5	6.3	56.5	41.2	7.3	82.6	39.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	22.7	6.6	29.2	21.5	6.3	56.5	41.2	7.3	82.6	39.9	11.9
LOS	C	C	A	C	C	A	E	D	A	F	D	B
Approach Delay		21.0			20.0			37.5			45.3	
Approach LOS		C			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 141.4			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

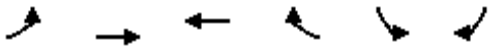
Splits and Phases: 1: Ninth Line & Dundas Street East



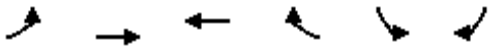


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	146	1765	215	136	1599	255	151	272	129	176	194	166
v/c Ratio	0.57	0.60	0.26	0.60	0.55	0.31	0.62	0.29	0.29	0.85	0.21	0.37
Control Delay	21.2	22.7	6.6	29.2	21.5	6.3	56.5	41.2	7.3	82.6	39.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	22.7	6.6	29.2	21.5	6.3	56.5	41.2	7.3	82.6	39.9	11.9
Queue Length 50th (m)	13.2	120.9	7.7	12.3	104.3	8.3	39.3	33.7	0.0	49.5	23.5	6.9
Queue Length 95th (m)	37.9	179.1	27.2	43.3	155.7	30.2	63.7	46.1	15.4	81.0	33.9	25.8
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	268	2929	821	238	2933	830	368	1411	596	312	1397	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.60	0.26	0.57	0.55	0.31	0.41	0.19	0.22	0.56	0.14	0.28

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1915	1355	0	304	612
Future Volume (vph)	0	1915	1355	0	304	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.925	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3331	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3331	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					48	48
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	1995	1411	0	317	638
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	1995	1411	0	636	319
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

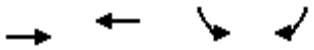


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		102.0	102.0		58.0	58.0
Total Split (%)		63.8%	63.8%		36.3%	36.3%
Maximum Green (s)		95.0	95.0		52.0	52.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		97.4	97.4		36.5	36.5
Actuated g/C Ratio		0.68	0.68		0.25	0.25
v/c Ratio		0.57	0.41		0.72	0.78
Control Delay		14.2	11.7		49.8	55.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		14.2	11.7		49.8	55.6
LOS		B	B		D	E
Approach Delay		14.2	11.7		51.7	
Approach LOS		B	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 144			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 21.6		Intersection LOS: C	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1995	1411	636	319
v/c Ratio	0.57	0.41	0.72	0.78
Control Delay	14.2	11.7	49.8	55.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.2	11.7	49.8	55.6
Queue Length 50th (m)	104.6	62.4	83.7	84.5
Queue Length 95th (m)	162.4	99.4	104.6	124.2
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3474	3474	1261	574
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	0.57	0.41	0.50	0.56

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1597	0	0	1665	92	456
Future Volume (vph)	1597	0	0	1665	92	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.893	0.850
Flt Protected					0.986	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.986	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					40	40
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1646	0	0	1716	95	470
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1646	0	0	1716	330	235
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	112.0			112.0	48.0	48.0
Total Split (%)	70.0%			70.0%	30.0%	30.0%
Maximum Green (s)	105.0			105.0	42.0	42.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	101.5			101.5	26.4	26.4
Actuated g/C Ratio	0.73			0.73	0.19	0.19
v/c Ratio	0.44			0.45	0.51	0.75
Control Delay	8.2			8.3	46.9	59.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	8.2			8.3	46.9	59.6
LOS	A			A	D	E
Approach Delay	8.2			8.3	52.2	
Approach LOS	A			A	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.1			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

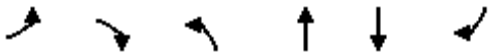
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





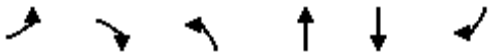
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1646	1716	330	235
v/c Ratio	0.44	0.45	0.51	0.75
Control Delay	8.2	8.3	46.9	59.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.2	8.3	46.9	59.6
Queue Length 50th (m)	60.2	64.0	40.7	62.1
Queue Length 95th (m)	94.1	99.9	56.3	96.2
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	4025	4025	1057	494
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	0.41	0.43	0.31	0.48

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	64	131	508	460	19
Future Volume (vph)	7	64	131	508	460	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.878				0.995	
Flt Protected	0.995		0.950			
Satd. Flow (prot)	1586	0	1745	3535	1834	0
Flt Permitted	0.995		0.950			
Satd. Flow (perm)	1586	0	1745	3535	1834	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	1995.9	
Travel Time (s)	3.8			9.0	119.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	7	67	136	529	479	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	136	529	499	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

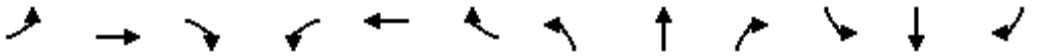
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	64	131	508	460	19
Future Volume (Veh/h)	7	64	131	508	460	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	67	136	529	479	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.96					
vC, conflicting volume	1026	489	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	938	489	499			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	87	87			
cM capacity (veh/h)	223	530	1075			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	74	136	264	264	499
Volume Left	7	136	0	0	0
Volume Right	67	0	0	0	20
cSH	469	1075	1700	1700	1700
Volume to Capacity	0.16	0.13	0.16	0.16	0.29
Queue Length 95th (m)	4.4	3.5	0.0	0.0	0.0
Control Delay (s)	14.1	8.8	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.1	1.8			0.0
Approach LOS	B				

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

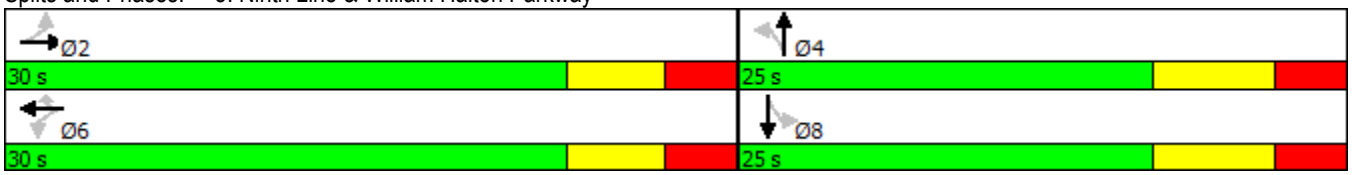


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	330	39	63	294	157	61	366	102	162	331	22
Future Volume (vph)	23	330	39	63	294	157	61	366	102	162	331	22
Ideal Flow (vphpl)	1640	1900	1900	1640	1900	1640	1640	1900	1900	1640	1900	1900
Lane Width (m)	3.3	3.5	3.5	3.3	3.5	3.3	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	20.0		0.0	120.0		120.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	70.0			50.0			55.0			70.0		
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		0.984				0.850		0.967			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1506	1832	0	1477	1879	1334	1506	1813	0	1506	1862	0
Flt Permitted	0.533			0.431			0.493			0.369		
Satd. Flow (perm)	845	1832	0	670	1879	1334	782	1813	0	585	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				164		29			7	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			233.1			1995.9			218.8	
Travel Time (s)		8.7			14.0			119.8			13.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	2%	0%	1%	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	24	344	41	66	306	164	64	381	106	169	345	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	385	0	66	306	164	64	487	0	169	368	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.26	1.01	1.01	1.26	1.01	1.26	1.26	1.01	1.01	1.26	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template												
Leading Detector (m)	8.0	10.0		8.0	10.0	8.0	7.0	10.0		7.0	10.0	
Trailing Detector (m)	-2.0	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Position(m)	-2.0	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Detector 1 Size(m)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	34.0	34.0		34.0	34.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	25.0	25.0		25.0	25.0	
Total Split (%)	54.5%	54.5%		54.5%	54.5%	54.5%	45.5%	45.5%		45.5%	45.5%	
Maximum Green (s)	23.0	23.0		23.0	23.0	23.0	17.0	17.0		17.0	17.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0		5.0	5.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-3.0	-3.0		-3.0	-3.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0		4.0	4.0	
Recall Mode	Min	Min		Min	Min	Min	None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	9.0	9.0		9.0	9.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	16.5	16.5		16.5	16.5	16.5	20.2	20.2		20.2	20.2	
Actuated g/C Ratio	0.35	0.35		0.35	0.35	0.35	0.43	0.43		0.43	0.43	
v/c Ratio	0.08	0.59		0.28	0.46	0.28	0.19	0.61		0.67	0.46	
Control Delay	10.0	15.6		13.7	13.8	3.5	11.9	15.2		31.4	12.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	10.0	15.6		13.7	13.8	3.5	11.9	15.2		31.4	12.8	
LOS	B	B		B	B	A	B	B		C	B	
Approach Delay		15.2			10.7			14.8			18.6	
Approach LOS		B			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 46.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 5: Ninth Line & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	385	66	306	164	64	487	169	368
v/c Ratio	0.08	0.59	0.28	0.46	0.28	0.19	0.61	0.67	0.46
Control Delay	10.0	15.6	13.7	13.8	3.5	11.9	15.2	31.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	15.6	13.7	13.8	3.5	11.9	15.2	31.4	12.8
Queue Length 50th (m)	1.3	24.8	3.9	19.6	0.0	3.2	27.9	10.8	20.4
Queue Length 95th (m)	4.8	44.5	11.1	35.2	8.3	11.8	#69.6	#44.2	48.7
Internal Link Dist (m)		121.1		209.1			1971.9		194.8
Turn Bay Length (m)	20.0		120.0		120.0	30.0		30.0	
Base Capacity (vph)	455	993	360	1012	794	337	797	252	806
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	0.05	0.39	0.18	0.30	0.21	0.19	0.61	0.67	0.46

Intersection Summary

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

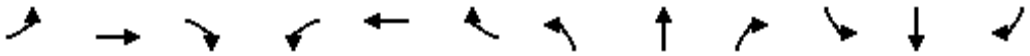
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	2385	365	126	936	141	124	319	152	211	576	122
Future Volume (vph)	244	2385	365	126	936	141	124	319	152	211	576	122
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.235			0.051			0.186			0.430		
Satd. Flow (perm)	418	5136	1263	87	4673	1300	302	3400	1392	739	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			145			77			113
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	252	2459	376	130	965	145	128	329	157	218	594	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	2459	376	130	965	145	128	329	157	218	594	126
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	23.2	87.8	87.8	13.0	77.6	77.6	11.5	47.5	13.0	11.7	47.7	47.7
Total Split (%)	14.5%	54.9%	54.9%	8.1%	48.5%	48.5%	7.2%	29.7%	8.1%	7.3%	29.8%	29.8%
Maximum Green (s)	19.2	81.5	81.5	9.0	71.3	71.3	7.5	41.0	9.0	7.7	41.2	41.2
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	99.8	82.9	82.9	93.0	77.1	77.1	47.6	33.0	50.0	48.0	33.2	33.2
Actuated g/C Ratio	0.66	0.55	0.55	0.62	0.51	0.51	0.32	0.22	0.33	0.32	0.22	0.22
v/c Ratio	0.59	0.87	0.48	0.74	0.40	0.20	0.71	0.44	0.31	0.73	0.77	0.34
Control Delay	16.8	34.2	11.6	60.6	24.3	4.1	59.5	52.4	19.7	56.7	62.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	34.2	11.6	60.6	24.3	4.1	59.5	52.4	19.7	56.7	62.2	12.6
LOS	B	C	B	E	C	A	E	D	B	E	E	B
Approach Delay		30.0			25.8			45.5			54.3	
Approach LOS		C			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 150.6			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 91.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East

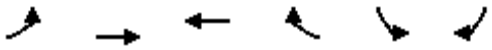




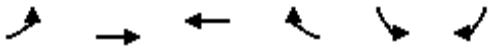
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	252	2459	376	130	965	145	128	329	157	218	594	126
v/c Ratio	0.59	0.87	0.48	0.74	0.40	0.20	0.71	0.44	0.31	0.73	0.77	0.34
Control Delay	16.8	34.2	11.6	60.6	24.3	4.1	59.5	52.4	19.7	56.7	62.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	34.2	11.6	60.6	24.3	4.1	59.5	52.4	19.7	56.7	62.2	12.6
Queue Length 50th (m)	29.4	237.1	30.2	24.6	66.8	0.0	29.7	47.5	17.8	53.6	93.1	3.3
Queue Length 95th (m)	50.3	293.9	64.4	#64.8	93.2	13.3	#49.4	63.1	37.3	78.3	115.3	21.6
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	465	2827	786	176	2391	735	181	960	514	298	993	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.87	0.48	0.74	0.40	0.20	0.71	0.34	0.31	0.73	0.60	0.29

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2762	588	0	777	768
Future Volume (vph)	0	2762	588	0	777	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					37	281
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	2877	613	0	809	800
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	2877	613	0	1105	504
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

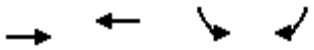


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		99.0	99.0		61.0	61.0
Total Split (%)		61.9%	61.9%		38.1%	38.1%
Maximum Green (s)		92.0	92.0		55.0	55.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		94.0	94.0		56.0	56.0
Actuated g/C Ratio		0.59	0.59		0.35	0.35
v/c Ratio		0.95	0.21		0.96	0.79
Control Delay		39.8	15.8		67.9	30.0
Queue Delay		3.5	0.0		0.0	0.0
Total Delay		43.3	15.8		67.9	30.0
LOS		D	B		E	C
Approach Delay		43.3	15.8		56.0	
Approach LOS		D	B		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2877	613	1105	504
v/c Ratio	0.95	0.21	0.96	0.79
Control Delay	39.8	15.8	67.9	30.0
Queue Delay	3.5	0.0	0.0	0.0
Total Delay	43.3	15.8	67.9	30.0
Queue Length 50th (m)	319.5	34.2	182.3	80.3
Queue Length 95th (m)	343.1	41.5	#229.5	140.8
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3017	2874	1148	638
Starvation Cap Reductn	104	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	0.21	0.96	0.79

Intersection Summary

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2414	0	0	626	76	480
Future Volume (vph)	2414	0	0	626	76	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					5	5
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2541	0	0	659	80	505
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2541	0	0	659	333	252
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	111.0			111.0	49.0	49.0
Total Split (%)	69.4%			69.4%	30.6%	30.6%
Maximum Green (s)	104.0			104.0	43.0	43.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	102.1			102.1	32.0	32.0
Actuated g/C Ratio	0.71			0.71	0.22	0.22
v/c Ratio	0.71			0.19	0.47	0.77
Control Delay	14.7			7.8	50.3	68.5
Queue Delay	0.1			0.0	0.0	0.0
Total Delay	14.8			7.8	50.3	68.5
LOS	B			A	D	E
Approach Delay	14.8			7.8	58.2	
Approach LOS	B			A	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 144.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

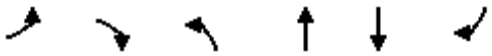
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





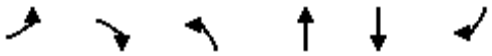
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2541	659	333	252
v/c Ratio	0.71	0.19	0.47	0.77
Control Delay	14.7	7.8	50.3	68.5
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	14.8	7.8	50.3	68.5
Queue Length 50th (m)	150.0	22.3	46.0	80.1
Queue Length 95th (m)	217.0	35.9	61.4	116.4
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3749	3609	994	453
Starvation Cap Reductn	217	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.18	0.34	0.56

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	15	697	927	1
Future Volume (vph)	0	3	15	697	927	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1570	0	1631	3466	1842	0
Flt Permitted			0.950			
Satd. Flow (perm)	1570	0	1631	3466	1842	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	7%	3%	2%	0%
Adj. Flow (vph)	0	3	16	766	1019	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	16	766	1020	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	15	697	927	1
Future Volume (Veh/h)	0	3	15	697	927	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	3	16	766	1019	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.92					
vC, conflicting volume	1434	1020	1020			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1304	1020	1020			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	99	98			
cM capacity (veh/h)	139	238	647			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	3	16	383	383	1020
Volume Left	0	16	0	0	0
Volume Right	3	0	0	0	1
cSH	238	647	1700	1700	1700
Volume to Capacity	0.01	0.02	0.23	0.23	0.60
Queue Length 95th (m)	0.3	0.6	0.0	0.0	0.0
Control Delay (s)	20.3	10.7	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	20.3	0.2			0.0
Approach LOS	C				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1628	172	127	2733	151	312	771	723	89	303	236
Future Volume (vph)	123	1628	172	127	2733	151	312	771	723	89	303	236
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.068			0.067			0.462			0.105		
Satd. Flow (perm)	121	5036	1283	118	5136	1313	786	3535	1374	180	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			78			50			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	126	1661	176	130	2789	154	318	787	738	91	309	241
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1661	176	130	2789	154	318	787	738	91	309	241
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

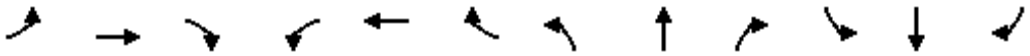
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	11.5	61.7	61.7	38.4	88.6	88.6	12.4	48.4	38.4	11.5	47.5	47.5
Total Split (%)	7.2%	38.6%	38.6%	24.0%	55.4%	55.4%	7.8%	30.3%	24.0%	7.2%	29.7%	29.7%
Maximum Green (s)	7.5	55.4	55.4	34.4	82.3	82.3	8.4	41.9	34.4	7.5	41.0	41.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	71.3	56.7	56.7	99.2	83.7	83.7	55.9	40.5	81.9	54.1	39.6	39.6
Actuated g/C Ratio	0.45	0.36	0.36	0.63	0.53	0.53	0.36	0.26	0.52	0.34	0.25	0.25
v/c Ratio	0.79	0.91	0.33	0.29	1.02	0.21	0.94	0.86	0.99	0.57	0.35	0.60
Control Delay	71.5	56.8	16.7	21.8	58.8	10.4	80.2	66.6	65.3	48.8	49.2	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	56.8	16.7	21.8	58.8	10.4	80.2	66.6	65.3	48.8	49.2	35.1
LOS	E	E	B	C	E	B	F	E	E	D	D	D
Approach Delay		54.2			54.8			68.4			43.8	
Approach LOS		D			D			E			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 157.2
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 57.1 — Intersection LOS: E
Intersection Capacity Utilization 102.3% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



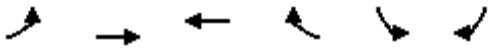


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	1661	176	130	2789	154	318	787	738	91	309	241
v/c Ratio	0.79	0.91	0.33	0.29	1.02	0.21	0.94	0.86	0.99	0.57	0.35	0.60
Control Delay	71.5	56.8	16.7	21.8	58.8	10.4	80.2	66.6	65.3	48.8	49.2	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	56.8	16.7	21.8	58.8	10.4	80.2	66.6	65.3	48.8	49.2	35.1
Queue Length 50th (m)	25.7	195.5	16.0	18.9	~365.8	12.6	83.7	130.9	220.6	20.4	44.1	40.0
Queue Length 95th (m)	#63.5	218.2	37.6	39.5	#391.0	26.8	#144.8	157.4	#323.5	34.7	59.0	71.6
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	159	1817	531	445	2733	735	339	976	744	159	956	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.91	0.33	0.29	1.02	0.21	0.94	0.81	0.99	0.57	0.32	0.56

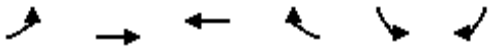
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2318	1570	0	368	1435
Future Volume (vph)	0	2318	1570	0	368	1435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					9	9
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2415	1635	0	383	1495
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2415	1635	0	1131	747
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

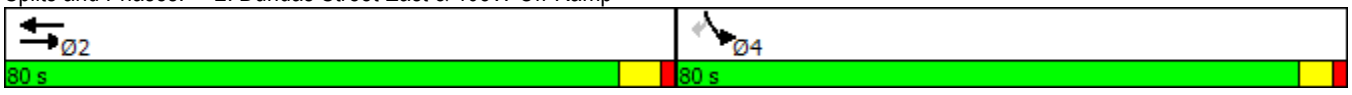


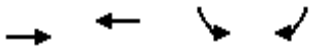
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		80.0	80.0		80.0	80.0
Total Split (%)		50.0%	50.0%		50.0%	50.0%
Maximum Green (s)		73.0	73.0		74.0	74.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		75.0	75.0		75.0	75.0
Actuated g/C Ratio		0.47	0.47		0.47	0.47
v/c Ratio		1.03	0.68		0.98dr	1.08
Control Delay		69.1	34.9		38.2	96.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		69.1	34.9		38.2	96.4
LOS		E	C		D	F
Approach Delay		69.1	34.9		61.4	
Approach LOS		E	C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 57.2		Intersection LOS: E	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2415	1635	1131	747
v/c Ratio	1.03	0.68	0.98dr	1.08
Control Delay	69.1	34.9	38.2	96.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	69.1	34.9	38.2	96.4
Queue Length 50th (m)	~316.5	154.1	156.3	~303.4
Queue Length 95th (m)	#342.7	171.6	184.2	#393.7
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2338	2407	1516	694
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.68	0.75	1.08

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

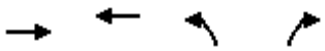
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1774	0	0	1908	57	436
Future Volume (vph)	1774	0	0	1908	57	436
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.881	0.850
Flt Protected					0.990	
Satd. Flow (prot)	5036	0	0	5136	3101	1429
Flt Permitted					0.990	
Satd. Flow (perm)	5036	0	0	5136	3101	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					20	20
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1829	0	0	1967	59	449
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1829	0	0	1967	284	224
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	105.0			105.0	55.0	55.0
Total Split (%)	65.6%			65.6%	34.4%	34.4%
Maximum Green (s)	98.0			98.0	49.0	49.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	100.3			100.3	26.9	26.9
Actuated g/C Ratio	0.73			0.73	0.20	0.20
v/c Ratio	0.50			0.52	0.46	0.76
Control Delay	9.1			9.4	46.9	63.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	9.1			9.4	46.9	63.4
LOS	A			A	D	E
Approach Delay	9.1			9.4	54.2	
Approach LOS	A			A	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 137.2			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

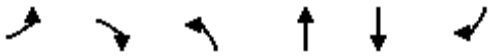
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





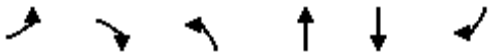
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1829	1967	284	224
v/c Ratio	0.50	0.52	0.46	0.76
Control Delay	9.1	9.4	46.9	63.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.1	9.4	46.9	63.4
Queue Length 50th (m)	71.8	79.6	34.4	61.0
Queue Length 95th (m)	110.8	122.2	48.4	94.1
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3680	3753	1145	534
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	0.50	0.52	0.25	0.42

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	12	15	1040	674	2
Future Volume (vph)	1	12	15	1040	674	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.875					
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1582	0	1745	3500	1842	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1582	0	1745	3500	1842	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	1	13	16	1118	725	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	16	1118	727	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
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			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	12	15	1040	674	2
Future Volume (Veh/h)	1	12	15	1040	674	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	13	16	1118	725	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.79					
vC, conflicting volume	1317	726	727			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	726	727			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	98			
cM capacity (veh/h)	230	372	886			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	14	16	559	559	727
Volume Left	1	16	0	0	0
Volume Right	13	0	0	0	2
cSH	356	886	1700	1700	1700
Volume to Capacity	0.04	0.02	0.33	0.33	0.43
Queue Length 95th (m)	1.0	0.4	0.0	0.0	0.0
Control Delay (s)	15.5	9.1	0.0	0.0	0.0
Lane LOS	C	A			
Approach Delay (s)	15.5	0.1			0.0
Approach LOS	C				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	1937	236	139	1630	260	157	284	135	175	193	165
Future Volume (vph)	161	1937	236	139	1630	260	157	284	135	175	193	165
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1640	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1426	3500	1301
Flt Permitted	0.081			0.052			0.605			0.505		
Satd. Flow (perm)	146	5136	1324	92	5136	1311	917	3535	1301	758	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			174			139			170
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	166	1997	243	143	1680	268	162	293	139	180	199	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	1997	243	143	1680	268	162	293	139	180	199	170
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.31	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

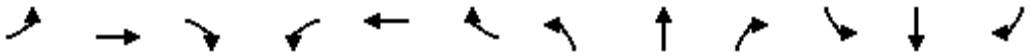
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	47.5	47.5	47.5
Total Split (s)	22.0	81.0	81.0	18.0	77.0	77.0	61.0	61.0	61.0	61.0	61.0	61.0
Total Split (%)	13.8%	50.6%	50.6%	11.3%	48.1%	48.1%	38.1%	38.1%	38.1%	38.1%	38.1%	38.1%
Maximum Green (s)	18.0	74.7	74.7	14.0	70.7	70.7	54.5	54.5	54.5	54.5	54.5	54.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	96.4	76.8	76.8	93.6	74.9	74.9	38.8	38.8	38.8	38.8	38.8	38.8
Actuated g/C Ratio	0.68	0.54	0.54	0.66	0.53	0.53	0.27	0.27	0.27	0.27	0.27	0.27
v/c Ratio	0.59	0.72	0.31	0.64	0.62	0.35	0.65	0.30	0.30	0.87	0.21	0.35
Control Delay	29.7	28.2	9.5	46.2	26.9	9.7	57.1	40.6	7.1	84.6	39.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	28.2	9.5	46.2	26.9	9.7	57.1	40.6	7.1	84.6	39.0	6.9
LOS	C	C	A	D	C	A	E	D	A	F	D	A
Approach Delay		26.4			26.1			37.2			44.0	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 141.4
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 80.7% ICU Level of Service D
Analysis Period (min) 15

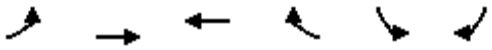
Splits and Phases: 1: Ninth Line & Dundas Street East



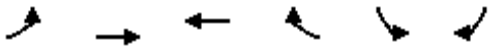


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	166	1997	243	143	1680	268	162	293	139	180	199	170
v/c Ratio	0.59	0.72	0.31	0.64	0.62	0.35	0.65	0.30	0.30	0.87	0.21	0.35
Control Delay	29.7	28.2	9.5	46.2	26.9	9.7	57.1	40.6	7.1	84.6	39.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	28.2	9.5	46.2	26.9	9.7	57.1	40.6	7.1	84.6	39.0	6.9
Queue Length 50th (m)	20.1	161.9	13.9	24.2	125.8	13.9	42.6	36.4	0.0	51.2	24.0	0.0
Queue Length 95th (m)	53.5	227.6	39.1	56.1	184.9	42.4	68.9	49.3	15.9	84.7	34.6	17.3
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	334	2790	787	253	2720	776	367	1415	604	303	1401	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.72	0.31	0.57	0.62	0.35	0.44	0.21	0.23	0.59	0.14	0.27

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↰↰	↱
Traffic Volume (vph)	0	2167	1424	0	344	692
Future Volume (vph)	0	2167	1424	0	344	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.925	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3331	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3331	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					35	35
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2257	1483	0	358	721
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2257	1483	0	719	360
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

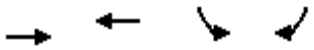


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		98.0	98.0		62.0	62.0
Total Split (%)		61.3%	61.3%		38.8%	38.8%
Maximum Green (s)		91.0	91.0		56.0	56.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		93.4	93.4		41.6	41.6
Actuated g/C Ratio		0.64	0.64		0.29	0.29
v/c Ratio		0.68	0.45		0.73	0.81
Control Delay		19.1	14.5		48.6	57.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		19.1	14.5		48.6	57.2
LOS		B	B		D	E
Approach Delay		19.1	14.5		51.5	
Approach LOS		B	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 145.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2257	1483	719	360
v/c Ratio	0.68	0.45	0.73	0.81
Control Delay	19.1	14.5	48.6	57.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.1	14.5	48.6	57.2
Queue Length 50th (m)	149.4	77.4	96.6	101.3
Queue Length 95th (m)	217.6	115.9	118.3	144.2
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3306	3306	1335	601
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	0.68	0.45	0.54	0.60

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1807	0	0	1750	104	516
Future Volume (vph)	1807	0	0	1750	104	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.893	0.850
Flt Protected					0.986	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.986	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					15	15
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1863	0	0	1804	107	532
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1863	0	0	1804	373	266
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	100.0			100.0	60.0	60.0
Total Split (%)	62.5%			62.5%	37.5%	37.5%
Maximum Green (s)	93.0			93.0	54.0	54.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	95.4			95.4	30.9	30.9
Actuated g/C Ratio	0.70			0.70	0.23	0.23
v/c Ratio	0.52			0.50	0.50	0.77
Control Delay	11.1			10.9	45.8	61.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	11.1			10.9	45.8	61.6
LOS	B			B	D	E
Approach Delay	11.1			10.9	52.4	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 136.3			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

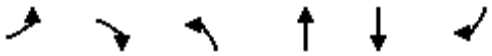
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





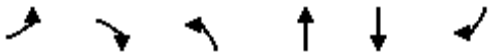
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1863	1804	373	266
v/c Ratio	0.52	0.50	0.50	0.77
Control Delay	11.1	10.9	45.8	61.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.1	10.9	45.8	61.6
Queue Length 50th (m)	83.4	79.5	45.7	73.8
Queue Length 95th (m)	126.4	120.6	61.1	109.3
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3593	3593	1321	604
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.50	0.28	0.44

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	66	134	547	472	19
Future Volume (vph)	7	66	134	547	472	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Frt	0.877				0.995	
Flt Protected	0.995		0.950			
Satd. Flow (prot)	1584	0	1745	3535	1834	0
Flt Permitted	0.995		0.950			
Satd. Flow (perm)	1584	0	1745	3535	1834	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	7	69	140	570	492	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	140	570	512	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	66	134	547	472	19
Future Volume (Veh/h)	7	66	134	547	472	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	69	140	570	492	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.95					
vC, conflicting volume	1067	502	512			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	973	502	512			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	87	87			
cM capacity (veh/h)	210	520	1064			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1
Volume Total	76	140	285	285	512
Volume Left	7	140	0	0	0
Volume Right	69	0	0	0	20
cSH	458	1064	1700	1700	1700
Volume to Capacity	0.17	0.13	0.17	0.17	0.30
Queue Length 95th (m)	4.7	3.6	0.0	0.0	0.0
Control Delay (s)	14.4	8.9	0.0	0.0	0.0
Lane LOS	B	A			
Approach Delay (s)	14.4	1.8			0.0
Approach LOS	B				

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

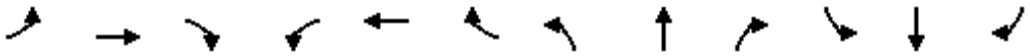
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	2445	374	130	960	145	141	427	168	238	735	135
Future Volume (vph)	250	2445	374	130	960	145	141	427	168	238	735	135
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.217			0.053			0.120			0.337		
Satd. Flow (perm)	386	5136	1263	91	4673	1300	195	3400	1392	579	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			149			77			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	258	2521	386	134	990	149	145	440	173	245	758	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	2521	386	134	990	149	145	440	173	245	758	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	24.7	87.5	87.5	12.0	74.8	74.8	12.0	47.5	12.0	13.0	48.5	48.5
Total Split (%)	15.4%	54.7%	54.7%	7.5%	46.8%	46.8%	7.5%	29.7%	7.5%	8.1%	30.3%	30.3%
Maximum Green (s)	20.7	81.2	81.2	8.0	68.5	68.5	8.0	41.0	8.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	98.5	82.5	82.5	89.2	74.2	74.2	54.1	39.0	55.1	56.1	40.0	40.0
Actuated g/C Ratio	0.63	0.53	0.53	0.57	0.47	0.47	0.35	0.25	0.35	0.36	0.26	0.26
v/c Ratio	0.64	0.93	0.51	0.84	0.45	0.21	0.90	0.52	0.32	0.85	0.85	0.35
Control Delay	20.9	42.3	14.0	77.8	29.2	4.4	86.3	53.0	21.5	67.2	65.3	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	42.3	14.0	77.8	29.2	4.4	86.3	53.0	21.5	67.2	65.3	16.3
LOS	C	D	B	E	C	A	F	D	C	E	E	B
Approach Delay		37.1			31.4			52.1			59.7	
Approach LOS		D			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 156.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 41.8		Intersection LOS: D	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East

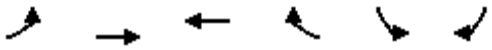




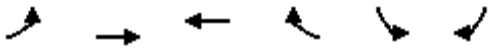
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	258	2521	386	134	990	149	145	440	173	245	758	139
v/c Ratio	0.64	0.93	0.51	0.84	0.45	0.21	0.90	0.52	0.32	0.85	0.85	0.35
Control Delay	20.9	42.3	14.0	77.8	29.2	4.4	86.3	53.0	21.5	67.2	65.3	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	42.3	14.0	77.8	29.2	4.4	86.3	53.0	21.5	67.2	65.3	16.3
Queue Length 50th (m)	37.1	285.5	39.9	29.1	81.5	0.0	33.6	65.8	22.1	60.6	125.1	8.9
Queue Length 95th (m)	53.5	311.9	70.9	#72.3	100.0	14.1	#73.1	84.4	42.9	#101.9	150.9	28.9
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	440	2707	757	159	2213	694	161	923	539	288	972	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.93	0.51	0.84	0.45	0.21	0.90	0.48	0.32	0.85	0.78	0.33

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2832	603	0	879	869
Future Volume (vph)	0	2832	603	0	879	869
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					39	259
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	2950	628	0	916	905
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	2950	628	0	1251	570
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

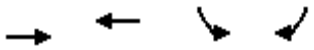


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		96.0	96.0		64.0	64.0
Total Split (%)		60.0%	60.0%		40.0%	40.0%
Maximum Green (s)		89.0	89.0		58.0	58.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		91.0	91.0		59.0	59.0
Actuated g/C Ratio		0.57	0.57		0.37	0.37
v/c Ratio		1.01	0.23		1.03	0.89
Control Delay		53.2	17.3		82.4	42.1
Queue Delay		7.3	0.0		0.0	0.0
Total Delay		60.5	17.3		82.4	42.1
LOS		E	B		F	D
Approach Delay		60.5	17.3		69.8	
Approach LOS		E	B		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 58.6		Intersection LOS: E	
Intersection Capacity Utilization 97.2%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2950	628	1251	570
v/c Ratio	1.01	0.23	1.03	0.89
Control Delay	53.2	17.3	82.4	42.1
Queue Delay	7.3	0.0	0.0	0.0
Total Delay	60.5	17.3	82.4	42.1
Queue Length 50th (m)	~364.1	36.9	~226.6	121.6
Queue Length 95th (m)	#400.5	44.8	#271.1	#209.3
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2921	2782	1209	643
Starvation Cap Reductn	62	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.23	1.03	0.89

Intersection Summary

~ 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.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2475	0	0	642	86	543
Future Volume (vph)	2475	0	0	642	86	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					4	4
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2605	0	0	676	91	572
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2605	0	0	676	377	286
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	109.0			109.0	51.0	51.0
Total Split (%)	68.1%			68.1%	31.9%	31.9%
Maximum Green (s)	102.0			102.0	45.0	45.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	102.3			102.3	35.5	35.5
Actuated g/C Ratio	0.69			0.69	0.24	0.24
v/c Ratio	0.75			0.20	0.49	0.81
Control Delay	17.3			9.0	49.8	70.6
Queue Delay	0.1			0.0	0.0	0.0
Total Delay	17.4			9.0	49.8	70.6
LOS	B			A	D	E
Approach Delay	17.4			9.0	58.8	
Approach LOS	B			A	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 147.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 97.2%		ICU Level of Service F	
Analysis Period (min) 15			

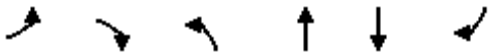
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





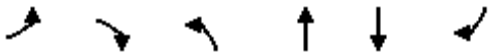
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2605	676	377	286
v/c Ratio	0.75	0.20	0.49	0.81
Control Delay	17.3	9.0	49.8	70.6
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	17.4	9.0	49.8	70.6
Queue Length 50th (m)	178.8	26.0	52.2	92.5
Queue Length 95th (m)	237.5	38.4	68.6	132.1
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3564	3431	1006	458
Starvation Cap Reductn	179	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.20	0.37	0.62

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	15	933	1183	1
Future Volume (vph)	0	3	15	933	1183	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1570	0	1631	3466	3500	0
Flt Permitted			0.950			
Satd. Flow (perm)	1570	0	1631	3466	3500	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	7%	3%	2%	0%
Adj. Flow (vph)	0	3	16	1025	1300	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	16	1025	1301	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

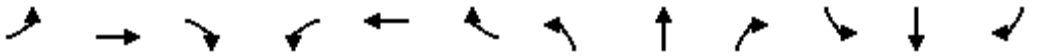
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	15	933	1183	1
Future Volume (Veh/h)	0	3	15	933	1183	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	3	16	1025	1300	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.89					
vC, conflicting volume	1845	650	1301			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1708	650	1301			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	99	97			
cM capacity (veh/h)	72	416	502			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	3	16	512	512	867	434
Volume Left	0	16	0	0	0	0
Volume Right	3	0	0	0	0	1
cSH	416	502	1700	1700	1700	1700
Volume to Capacity	0.01	0.03	0.30	0.30	0.51	0.26
Queue Length 95th (m)	0.2	0.8	0.0	0.0	0.0	0.0
Control Delay (s)	13.7	12.4	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	13.7	0.2			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1669	176	133	2872	159	349	1032	798	103	425	261
Future Volume (vph)	127	1669	176	133	2872	159	349	1032	798	103	425	261
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.071			0.069			0.354			0.091		
Satd. Flow (perm)	126	5036	1283	122	5136	1313	602	3535	1374	156	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			106			50			132
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	130	1703	180	136	2931	162	356	1053	814	105	434	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	1703	180	136	2931	162	356	1053	814	105	434	266
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

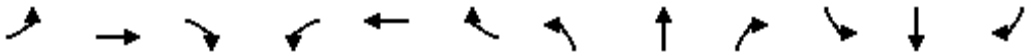
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	11.5	59.9	59.9	36.6	85.0	85.0	16.0	52.0	36.6	11.5	47.5	47.5
Total Split (%)	7.2%	37.4%	37.4%	22.9%	53.1%	53.1%	10.0%	32.5%	22.9%	7.2%	29.7%	29.7%
Maximum Green (s)	7.5	53.6	53.6	32.6	78.7	78.7	12.0	45.5	32.6	7.5	41.0	41.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	69.4	54.9	54.9	95.5	80.0	80.0	62.5	47.0	86.6	57.0	42.5	42.5
Actuated g/C Ratio	0.43	0.34	0.34	0.60	0.50	0.50	0.39	0.29	0.54	0.36	0.27	0.27
v/c Ratio	0.83	0.99	0.34	0.33	1.14	0.23	1.08	1.01	1.06	0.69	0.46	0.60
Control Delay	77.0	70.3	13.0	24.5	106.1	8.8	112.0	86.6	81.7	57.0	51.1	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	70.3	13.0	24.5	106.1	8.8	112.0	86.6	81.7	57.0	51.1	31.4
LOS	E	E	B	C	F	A	F	F	F	E	D	C
Approach Delay		65.6			97.7			88.9			45.4	
Approach LOS		E			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 82.4 — Intersection LOS: F
Intersection Capacity Utilization 112.2% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



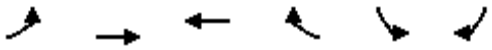


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	1703	180	136	2931	162	356	1053	814	105	434	266
v/c Ratio	0.83	0.99	0.34	0.33	1.14	0.23	1.08	1.01	1.06	0.69	0.46	0.60
Control Delay	77.0	70.3	13.0	24.5	106.1	8.8	112.0	86.6	81.7	57.0	51.1	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	70.3	13.0	24.5	106.1	8.8	112.0	86.6	81.7	57.0	51.1	31.4
Queue Length 50th (m)	27.0	207.5	10.8	21.3	~418.4	9.6	~103.8	~194.8	~289.7	22.8	64.5	39.6
Queue Length 95th (m)	#65.9	#243.6	32.0	42.6	#440.5	24.1	#185.0	#239.3	#263.0	#47.0	82.5	73.2
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	157	1727	527	418	2568	709	330	1038	770	152	938	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.99	0.34	0.33	1.14	0.23	1.08	1.01	1.06	0.69	0.46	0.60

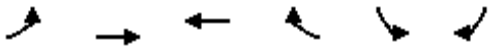
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↰↰	↱
Traffic Volume (vph)	0	2377	1650	0	416	1624
Future Volume (vph)	0	2377	1650	0	416	1624
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					6	6
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2476	1719	0	433	1692
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2476	1719	0	1279	846
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

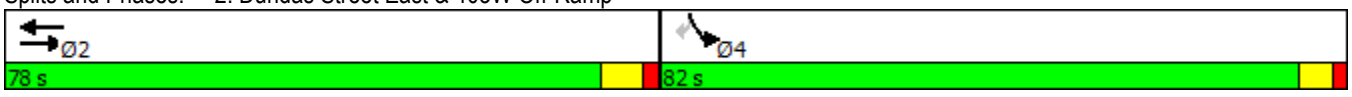


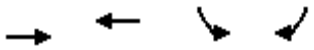
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		78.0	78.0		82.0	82.0
Total Split (%)		48.8%	48.8%		51.3%	51.3%
Maximum Green (s)		71.0	71.0		76.0	76.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		73.0	73.0		77.0	77.0
Actuated g/C Ratio		0.46	0.46		0.48	0.48
v/c Ratio		1.09	0.73		1.08dr	1.19
Control Delay		88.9	37.9		41.0	136.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		88.9	37.9		41.0	136.1
LOS		F	D		D	F
Approach Delay		88.9	37.9		78.9	
Approach LOS		F	D		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 71.6		Intersection LOS: E	
Intersection Capacity Utilization 107.3%		ICU Level of Service G	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2476	1719	1279	846
v/c Ratio	1.09	0.73	1.08dr	1.19
Control Delay	88.9	37.9	41.0	136.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	88.9	37.9	41.0	136.1
Queue Length 50th (m)	~339.9	170.3	186.0	~373.9
Queue Length 95th (m)	#365.8	188.9	217.7	#466.4
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2275	2343	1555	711
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.09	0.73	0.82	1.19

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1819	0	0	2005	64	493
Future Volume (vph)	1819	0	0	2005	64	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.881	0.850
Flt Protected					0.990	
Satd. Flow (prot)	5036	0	0	5136	3101	1429
Flt Permitted					0.990	
Satd. Flow (perm)	5036	0	0	5136	3101	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					16	16
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1875	0	0	2067	66	508
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1875	0	0	2067	320	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	103.0			103.0	57.0	57.0
Total Split (%)	64.4%			64.4%	35.6%	35.6%
Maximum Green (s)	96.0			96.0	51.0	51.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	98.4			98.4	30.5	30.5
Actuated g/C Ratio	0.71			0.71	0.22	0.22
v/c Ratio	0.53			0.57	0.46	0.78
Control Delay	10.9			11.5	46.2	64.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	10.9			11.5	46.2	64.1
LOS	B			B	D	E
Approach Delay	10.9			11.5	54.1	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.9			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 107.3%		ICU Level of Service G	
Analysis Period (min) 15			

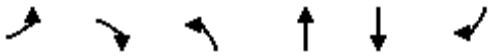
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





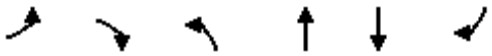
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1875	2067	320	254
v/c Ratio	0.53	0.57	0.46	0.78
Control Delay	10.9	11.5	46.2	64.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.9	11.5	46.2	64.1
Queue Length 50th (m)	82.8	95.8	39.4	71.7
Queue Length 95th (m)	127.4	146.3	54.1	107.2
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3566	3637	1175	546
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	0.53	0.57	0.27	0.47

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	12	15	1392	945	2
Future Volume (vph)	1	12	15	1392	945	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.875					
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1582	0	1745	3500	3500	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1582	0	1745	3500	3500	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	1	13	16	1497	1016	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	16	1497	1018	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	12	15	1392	945	2
Future Volume (Veh/h)	1	12	15	1392	945	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	13	16	1497	1016	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.71					
vC, conflicting volume	1798	509	1018			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1308	509	1018			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	98			
cM capacity (veh/h)	107	515	689			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	16	748	748	677	341
Volume Left	1	16	0	0	0	0
Volume Right	13	0	0	0	0	2
cSH	404	689	1700	1700	1700	1700
Volume to Capacity	0.03	0.02	0.44	0.44	0.40	0.20
Queue Length 95th (m)	0.9	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	14.2	10.3	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	14.2	0.1			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1986	242	146	1713	273	173	380	149	193	271	182
Future Volume (vph)	165	1986	242	146	1713	273	173	380	149	193	271	182
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1640	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1426	3500	1301
Flt Permitted	0.060			0.054			0.535			0.437		
Satd. Flow (perm)	108	5136	1324	95	5136	1311	811	3535	1301	656	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			171			154			164
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	170	2047	249	151	1766	281	178	392	154	199	279	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	2047	249	151	1766	281	178	392	154	199	279	188
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.31	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

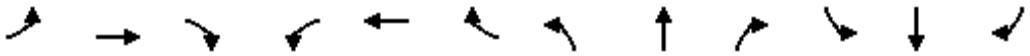
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	47.5	47.5	47.5
Total Split (s)	18.0	78.0	78.0	16.0	76.0	76.0	66.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	11.3%	48.8%	48.8%	10.0%	47.5%	47.5%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%
Maximum Green (s)	14.0	71.7	71.7	12.0	69.7	69.7	59.5	59.5	59.5	59.5	59.5	59.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	92.8	73.7	73.7	90.5	72.2	72.2	48.6	48.6	48.6	48.6	48.6	48.6
Actuated g/C Ratio	0.63	0.50	0.50	0.61	0.49	0.49	0.33	0.33	0.33	0.33	0.33	0.33
v/c Ratio	0.72	0.80	0.34	0.72	0.70	0.39	0.67	0.34	0.29	0.92	0.24	0.35
Control Delay	51.1	35.8	12.0	55.3	33.2	12.1	55.0	37.4	5.9	91.6	35.8	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	35.8	12.0	55.3	33.2	12.1	55.0	37.4	5.9	91.6	35.8	8.6
LOS	D	D	B	E	C	B	E	D	A	F	D	A
Approach Delay		34.4			32.0			35.0			44.8	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 147.6
Natural Cycle: 105
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 34.8 Intersection LOS: C
Intersection Capacity Utilization 85.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East

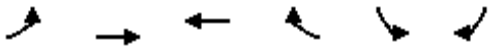




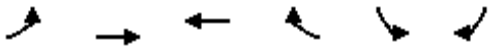
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	2047	249	151	1766	281	178	392	154	199	279	188
v/c Ratio	0.72	0.80	0.34	0.72	0.70	0.39	0.67	0.34	0.29	0.92	0.24	0.35
Control Delay	51.1	35.8	12.0	55.3	33.2	12.1	55.0	37.4	5.9	91.6	35.8	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	35.8	12.0	55.3	33.2	12.1	55.0	37.4	5.9	91.6	35.8	8.6
Queue Length 50th (m)	33.9	202.7	18.8	31.0	164.5	20.5	47.1	48.0	0.0	59.1	33.0	5.1
Queue Length 95th (m)	#71.1	245.8	43.7	#68.4	201.2	48.3	76.5	62.0	15.8	#106.1	44.7	23.8
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	253	2563	732	220	2514	728	338	1474	632	273	1459	638
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.80	0.34	0.69	0.70	0.39	0.53	0.27	0.24	0.73	0.19	0.29

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		⋎⋎	↱
Traffic Volume (vph)	0	2222	1497	0	389	783
Future Volume (vph)	0	2222	1497	0	389	783
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.925	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3331	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3331	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					25	25
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2315	1559	0	405	816
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2315	1559	0	813	408
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

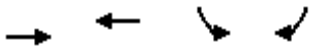


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		95.0	95.0		65.0	65.0
Total Split (%)		59.4%	59.4%		40.6%	40.6%
Maximum Green (s)		88.0	88.0		59.0	59.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		90.4	90.4		47.5	47.5
Actuated g/C Ratio		0.61	0.61		0.32	0.32
v/c Ratio		0.74	0.50		0.75	0.83
Control Delay		23.6	17.8		47.7	58.8
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		23.6	17.8		47.7	58.8
LOS		C	B		D	E
Approach Delay		23.6	17.8		51.4	
Approach LOS		C	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 148			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2315	1559	813	408
v/c Ratio	0.74	0.50	0.75	0.83
Control Delay	23.6	17.8	47.7	58.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.6	17.8	47.7	58.8
Queue Length 50th (m)	180.8	96.0	112.0	121.2
Queue Length 95th (m)	238.7	130.1	135.4	169.3
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3137	3137	1371	613
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.50	0.59	0.67

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1853	0	0	1839	118	584
Future Volume (vph)	1853	0	0	1839	118	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.893	0.850
Flt Protected					0.986	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.986	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					12	12
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1910	0	0	1896	122	602
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1910	0	0	1896	423	301
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	98.0			98.0	62.0	62.0
Total Split (%)	61.3%			61.3%	38.8%	38.8%
Maximum Green (s)	91.0			91.0	56.0	56.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	93.4			93.4	34.8	34.8
Actuated g/C Ratio	0.68			0.68	0.25	0.25
v/c Ratio	0.55			0.55	0.51	0.79
Control Delay	13.4			13.3	44.8	61.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	13.4			13.3	44.8	61.7
LOS	B			B	D	E
Approach Delay	13.4			13.3	51.8	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.3			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			

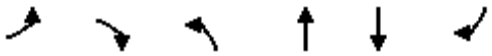
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





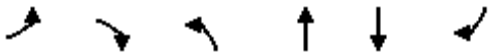
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1910	1896	423	301
v/c Ratio	0.55	0.55	0.51	0.79
Control Delay	13.4	13.3	44.8	61.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.4	13.3	44.8	61.7
Queue Length 50th (m)	96.1	94.9	52.4	85.9
Queue Length 95th (m)	145.2	143.6	68.5	124.1
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3468	3468	1348	616
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.55	0.31	0.49

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	68	137	732	662	19
Future Volume (vph)	7	68	137	732	662	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.877				0.996	
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1586	0	1745	3535	3488	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1586	0	1745	3535	3488	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	7	71	143	763	690	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	0	143	763	710	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

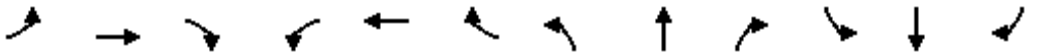
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	68	137	732	662	19
Future Volume (Veh/h)	7	68	137	732	662	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	71	143	763	690	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.93					
vC, conflicting volume	1368	355	710			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1243	355	710			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	89	84			
cM capacity (veh/h)	132	647	899			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	78	143	382	382	460	250
Volume Left	7	143	0	0	0	0
Volume Right	71	0	0	0	0	20
cSH	480	899	1700	1700	1700	1700
Volume to Capacity	0.16	0.16	0.22	0.22	0.27	0.15
Queue Length 95th (m)	4.6	4.5	0.0	0.0	0.0	0.0
Control Delay (s)	14.0	9.8	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	14.0	1.5			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		



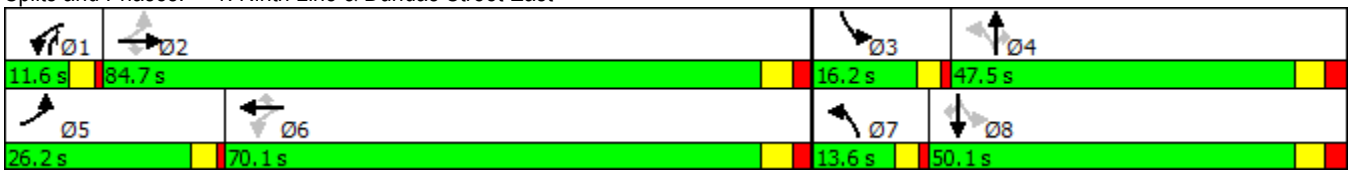
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	2507	383	134	984	149	160	571	185	267	938	149
Future Volume (vph)	256	2507	383	134	984	149	160	571	185	267	938	149
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.197			0.056			0.091			0.234		
Satd. Flow (perm)	351	5136	1263	96	4673	1300	148	3400	1392	402	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			154			77			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	264	2585	395	138	1014	154	165	589	191	275	967	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	264	2585	395	138	1014	154	165	589	191	275	967	154
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

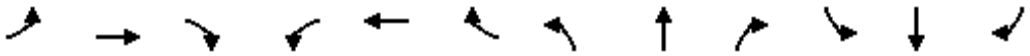
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	26.2	84.7	84.7	11.6	70.1	70.1	13.6	47.5	11.6	16.2	50.1	50.1
Total Split (%)	16.4%	52.9%	52.9%	7.3%	43.8%	43.8%	8.5%	29.7%	7.3%	10.1%	31.3%	31.3%
Maximum Green (s)	22.2	78.4	78.4	7.6	63.8	63.8	9.6	41.0	7.6	12.2	43.6	43.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	95.3	79.7	79.7	84.1	69.5	69.5	59.1	42.5	58.1	62.7	45.1	45.1
Actuated g/C Ratio	0.60	0.50	0.50	0.53	0.43	0.43	0.37	0.27	0.36	0.39	0.28	0.28
v/c Ratio	0.69	1.01	0.54	0.91	0.50	0.24	1.01	0.65	0.34	1.00	0.98	0.36
Control Delay	25.9	59.9	16.2	92.9	34.2	4.9	112.5	56.2	23.5	94.6	80.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	59.9	16.2	92.9	34.2	4.9	112.5	56.2	23.5	94.6	80.7	18.3
LOS	C	E	B	F	C	A	F	E	C	F	F	B
Approach Delay		51.8			36.9			59.4			76.6	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 55.1 Intersection LOS: E
Intersection Capacity Utilization 106.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



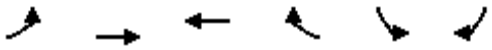


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	264	2585	395	138	1014	154	165	589	191	275	967	154
v/c Ratio	0.69	1.01	0.54	0.91	0.50	0.24	1.01	0.65	0.34	1.00	0.98	0.36
Control Delay	25.9	59.9	16.2	92.9	34.2	4.9	112.5	56.2	23.5	94.6	80.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	59.9	16.2	92.9	34.2	4.9	112.5	56.2	23.5	94.6	80.7	18.3
Queue Length 50th (m)	40.8	~321.7	44.5	30.9	89.2	0.0	~41.2	92.9	27.0	~67.3	170.1	12.6
Queue Length 95th (m)	58.2	#356.8	77.5	#77.6	108.6	15.1	#94.1	115.0	49.5	#133.5	#217.4	34.3
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	420	2558	726	151	2030	652	164	903	554	274	986	430
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	1.01	0.54	0.91	0.50	0.24	1.01	0.65	0.34	1.00	0.98	0.36

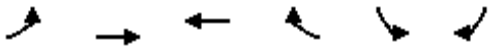
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2904	618	0	995	983
Future Volume (vph)	0	2904	618	0	995	983
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					40	237
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	3025	644	0	1036	1024
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	3025	644	0	1415	645
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

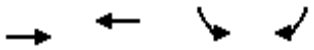


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		93.0	93.0		67.0	67.0
Total Split (%)		58.1%	58.1%		41.9%	41.9%
Maximum Green (s)		86.0	86.0		61.0	61.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		88.0	88.0		62.0	62.0
Actuated g/C Ratio		0.55	0.55		0.39	0.39
v/c Ratio		1.07	0.24		1.12	0.99
Control Delay		74.7	18.9		106.6	63.9
Queue Delay		3.6	0.0		0.0	0.0
Total Delay		78.3	18.9		106.6	63.9
LOS		E	B		F	E
Approach Delay		78.3	18.9		93.2	
Approach LOS		E	B		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 77.0		Intersection LOS: E	
Intersection Capacity Utilization 103.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	3025	644	1415	645
v/c Ratio	1.07	0.24	1.12	0.99
Control Delay	74.7	18.9	106.6	63.9
Queue Delay	3.6	0.0	0.0	0.0
Total Delay	78.3	18.9	106.6	63.9
Queue Length 50th (m)	~409.6	39.8	~275.0	174.7
Queue Length 95th (m)	#431.0	48.1	#319.5	#275.0
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2824	2691	1269	650
Starvation Cap Reductn	22	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.08	0.24	1.12	0.99

Intersection Summary

~ 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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2537	0	0	658	97	614
Future Volume (vph)	2537	0	0	658	97	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					3	3
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2671	0	0	693	102	646
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2671	0	0	693	425	323
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	106.0			106.0	54.0	54.0
Total Split (%)	66.3%			66.3%	33.8%	33.8%
Maximum Green (s)	99.0			99.0	48.0	48.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	101.3			101.3	39.6	39.6
Actuated g/C Ratio	0.67			0.67	0.26	0.26
v/c Ratio	0.79			0.21	0.50	0.84
Control Delay	20.8			10.4	48.7	71.6
Queue Delay	0.2			0.0	0.0	0.0
Total Delay	21.0			10.4	48.7	71.6
LOS	C			B	D	E
Approach Delay	21.0			10.4	58.6	
Approach LOS	C			B	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 150.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 103.1%		ICU Level of Service G	
Analysis Period (min) 15			

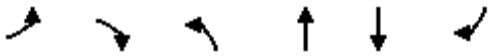
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





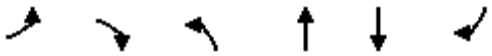
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2671	693	425	323
v/c Ratio	0.79	0.21	0.50	0.84
Control Delay	20.8	10.4	48.7	71.6
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	21.0	10.4	48.7	71.6
Queue Length 50th (m)	207.5	29.4	58.5	105.3
Queue Length 95th (m)	265.2	41.8	75.4	148.6
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3379	3253	1045	476
Starvation Cap Reductn	128	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.21	0.41	0.68

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	15	1249	1510	1
Future Volume (vph)	0	3	15	1249	1510	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1570	0	1631	3466	3500	0
Flt Permitted			0.950			
Satd. Flow (perm)	1570	0	1631	3466	3500	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	7%	3%	2%	0%
Adj. Flow (vph)	0	3	16	1373	1659	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	16	1373	1660	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

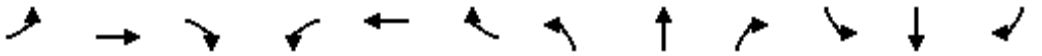
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	3	15	1249	1510	1
Future Volume (Veh/h)	0	3	15	1249	1510	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	3	16	1373	1659	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.85					
vC, conflicting volume	2378	830	1660			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2268	830	1660			
tC, single (s)	6.8	6.9	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	100	99	96			
cM capacity (veh/h)	29	317	362			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	3	16	686	686	1106	554
Volume Left	0	16	0	0	0	0
Volume Right	3	0	0	0	0	1
cSH	317	362	1700	1700	1700	1700
Volume to Capacity	0.01	0.04	0.40	0.40	0.65	0.33
Queue Length 95th (m)	0.2	1.1	0.0	0.0	0.0	0.0
Control Delay (s)	16.4	15.4	0.0	0.0	0.0	0.0
Lane LOS	C	C				
Approach Delay (s)	16.4	0.2			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

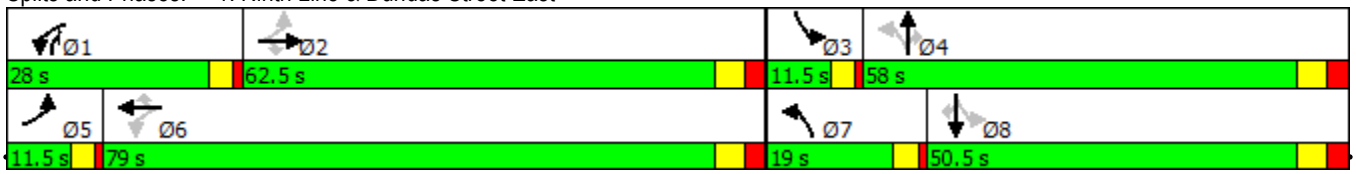


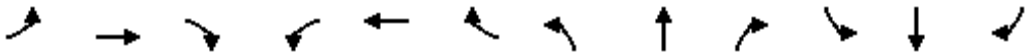
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	1711	180	140	3019	167	390	1381	881	118	596	288
Future Volume (vph)	131	1711	180	140	3019	167	390	1381	881	118	596	288
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99			
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.068			0.066			0.239			0.085		
Satd. Flow (perm)	121	5036	1283	116	5136	1313	407	3535	1374	146	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			106			50			132
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	134	1746	184	143	3081	170	398	1409	899	120	608	294
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1746	184	143	3081	170	398	1409	899	120	608	294
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	11.5	62.5	62.5	28.0	79.0	79.0	19.0	58.0	28.0	11.5	50.5	50.5
Total Split (%)	7.2%	39.1%	39.1%	17.5%	49.4%	49.4%	11.9%	36.3%	17.5%	7.2%	31.6%	31.6%
Maximum Green (s)	7.5	56.2	56.2	24.0	72.7	72.7	15.0	51.5	24.0	7.5	44.0	44.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	72.0	57.5	57.5	89.5	74.0	74.0	68.5	53.0	84.0	60.0	45.5	45.5
Actuated g/C Ratio	0.45	0.36	0.36	0.56	0.46	0.46	0.43	0.33	0.52	0.38	0.28	0.28
v/c Ratio	0.85	0.97	0.34	0.44	1.30	0.26	1.28	1.20	1.20	0.79	0.60	0.63
Control Delay	79.4	64.4	12.8	32.7	173.1	10.9	181.4	145.6	135.9	68.1	52.5	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	64.4	12.8	32.7	173.1	10.9	181.4	145.6	135.9	68.1	52.5	33.6
LOS	E	E	B	C	F	B	F	F	F	E	D	C
Approach Delay		60.8			159.1			147.6			48.9	
Approach LOS		E			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 121.4		Intersection LOS: F	
Intersection Capacity Utilization 125.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East



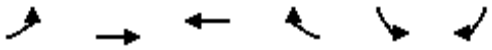


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	134	1746	184	143	3081	170	398	1409	899	120	608	294
v/c Ratio	0.85	0.97	0.34	0.44	1.30	0.26	1.28	1.20	1.20	0.79	0.60	0.63
Control Delay	79.4	64.4	12.8	32.7	173.1	10.9	181.4	145.6	135.9	68.1	52.5	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	64.4	12.8	32.7	173.1	10.9	181.4	145.6	135.9	68.1	52.5	33.6
Queue Length 50th (m)	28.5	210.0	11.4	26.5	~480.9	12.0	~122.4	~300.6	~273.4	24.6	93.2	48.3
Queue Length 95th (m)	#69.4	#243.9	32.3	50.1	#501.8	28.6	#194.4	#345.5	#319.5	#59.7	114.7	84.2
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	157	1809	546	327	2375	664	310	1170	748	152	1005	464
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.97	0.34	0.44	1.30	0.26	1.28	1.20	1.20	0.79	0.60	0.63

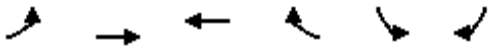
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2437	1734	0	471	1837
Future Volume (vph)	0	2437	1734	0	471	1837
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					3	3
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2539	1806	0	491	1914
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2539	1806	0	1448	957
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

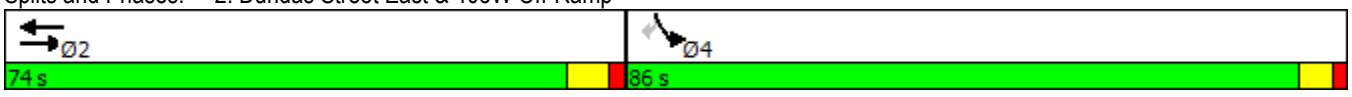


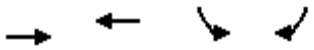
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		74.0	74.0		86.0	86.0
Total Split (%)		46.3%	46.3%		53.8%	53.8%
Maximum Green (s)		67.0	67.0		80.0	80.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		69.0	69.0		81.0	81.0
Actuated g/C Ratio		0.43	0.43		0.51	0.51
v/c Ratio		1.18	0.82		1.17dr	1.28
Control Delay		126.7	43.7		43.3	171.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		126.7	43.7		43.3	171.6
LOS		F	D		D	F
Approach Delay		126.7	43.7		94.3	
Approach LOS		F	D		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 93.0		Intersection LOS: F	
Intersection Capacity Utilization 117.7%		ICU Level of Service H	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2539	1806	1448	957
v/c Ratio	1.18	0.82	1.17dr	1.28
Control Delay	126.7	43.7	43.3	171.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	126.7	43.7	43.3	171.6
Queue Length 50th (m)	~371.7	192.8	219.4	~446.4
Queue Length 95th (m)	#397.2	213.0	255.7	#539.8
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2151	2214	1634	746
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.18	0.82	0.89	1.28

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

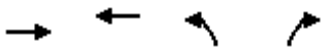
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1865	0	0	2107	72	558
Future Volume (vph)	1865	0	0	2107	72	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.881	0.850
Flt Protected					0.990	
Satd. Flow (prot)	5036	0	0	5136	3101	1429
Flt Permitted					0.990	
Satd. Flow (perm)	5036	0	0	5136	3101	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					14	14
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1923	0	0	2172	74	575
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1923	0	0	2172	362	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	102.0			102.0	58.0	58.0
Total Split (%)	63.8%			63.8%	36.3%	36.3%
Maximum Green (s)	95.0			95.0	52.0	52.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	97.4			97.4	34.7	34.7
Actuated g/C Ratio	0.68			0.68	0.24	0.24
v/c Ratio	0.56			0.62	0.47	0.80
Control Delay	13.2			14.3	45.4	64.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	13.2			14.3	45.4	64.4
LOS	B			B	D	E
Approach Delay	13.2			14.3	53.8	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 142.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 117.7%		ICU Level of Service H	
Analysis Period (min) 15			

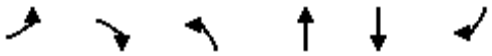
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





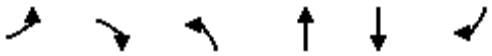
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1923	2172	362	287
v/c Ratio	0.56	0.62	0.47	0.80
Control Delay	13.2	14.3	45.4	64.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.2	14.3	45.4	64.4
Queue Length 50th (m)	98.5	119.2	45.4	83.9
Queue Length 95th (m)	149.3	179.3	60.6	122.3
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3450	3518	1169	543
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	0.56	0.62	0.31	0.53

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	12	15	1863	1325	2
Future Volume (vph)	1	12	15	1863	1325	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.875					
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1582	0	1745	3500	3500	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1582	0	1745	3500	3500	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	1	13	16	2003	1425	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	16	2003	1427	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	12	15	1863	1325	2
Future Volume (Veh/h)	1	12	15	1863	1325	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	13	16	2003	1425	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.67					
vC, conflicting volume	2460	714	1427			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2197	714	1427			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	97	97			
cM capacity (veh/h)	26	379	483			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	16	1002	1002	950	477
Volume Left	1	16	0	0	0	0
Volume Right	13	0	0	0	0	2
cSH	191	483	1700	1700	1700	1700
Volume to Capacity	0.07	0.03	0.59	0.59	0.56	0.28
Queue Length 95th (m)	1.9	0.8	0.0	0.0	0.0	0.0
Control Delay (s)	25.4	12.7	0.0	0.0	0.0	0.0
Lane LOS	D	B				
Approach Delay (s)	25.4	0.1			0.0	
Approach LOS	D					

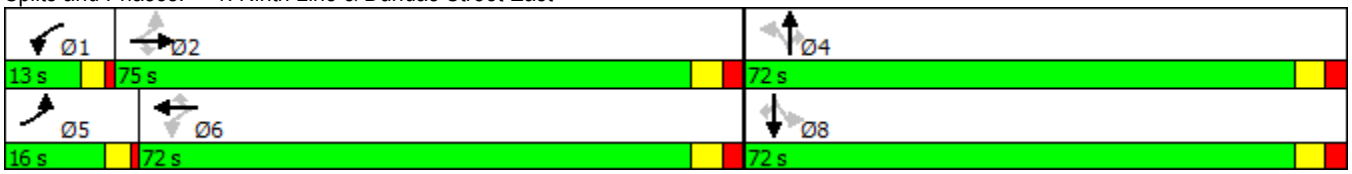
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	61.5%	ICU Level of Service		B
Analysis Period (min)	15			

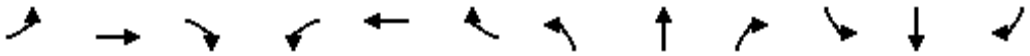
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	2036	248	153	1800	287	191	509	165	213	380	201
Future Volume (vph)	169	2036	248	153	1800	287	191	509	165	213	380	201
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1640	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1426	3500	1301
Flt Permitted	0.057			0.058			0.463			0.372		
Satd. Flow (perm)	102	5136	1324	102	5136	1311	702	3535	1301	558	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138			164			133			133
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			356.0			265.7			149.5	
Travel Time (s)		19.9			21.4			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	174	2099	256	158	1856	296	197	525	170	220	392	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	2099	256	158	1856	296	197	525	170	220	392	207
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.31	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	47.5	47.5	47.5
Total Split (s)	16.0	75.0	75.0	13.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
Total Split (%)	10.0%	46.9%	46.9%	8.1%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	12.0	68.7	68.7	9.0	65.7	65.7	65.5	65.5	65.5	65.5	65.5	65.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	87.1	70.1	70.1	83.4	67.3	67.3	63.6	63.6	63.6	63.6	63.6	63.6
Actuated g/C Ratio	0.56	0.45	0.45	0.53	0.43	0.43	0.41	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.84	0.91	0.38	0.91	0.84	0.45	0.69	0.37	0.28	0.97	0.28	0.34
Control Delay	71.4	48.3	15.0	87.2	45.0	16.3	52.9	33.1	9.0	99.0	31.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.4	48.3	15.0	87.2	45.0	16.3	52.9	33.1	9.0	99.0	31.5	12.7
LOS	E	D	B	F	D	B	D	C	A	F	C	B
Approach Delay		46.5			44.2			32.9			44.9	
Approach LOS		D			D			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 156.8			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 91.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East

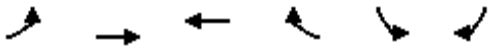




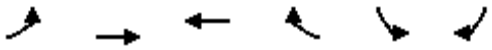
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	2099	256	158	1856	296	197	525	170	220	392	207
v/c Ratio	0.84	0.91	0.38	0.91	0.84	0.45	0.69	0.37	0.28	0.97	0.28	0.34
Control Delay	71.4	48.3	15.0	87.2	45.0	16.3	52.9	33.1	9.0	99.0	31.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.4	48.3	15.0	87.2	45.0	16.3	52.9	33.1	9.0	99.0	31.5	12.7
Queue Length 50th (m)	41.7	242.8	25.1	37.3	206.0	30.2	53.0	62.7	7.4	70.2	44.9	15.2
Queue Length 95th (m)	#85.3	265.2	49.2	#84.7	227.0	58.1	88.0	78.6	24.5	#128.4	58.1	36.0
Internal Link Dist (m)		307.1			332.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	210	2296	668	174	2205	656	300	1513	633	238	1497	633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.91	0.38	0.91	0.84	0.45	0.66	0.35	0.27	0.92	0.26	0.33

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2278	1573	0	440	886
Future Volume (vph)	0	2278	1573	0	440	886
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.925	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3331	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3331	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					18	18
Link Speed (k/h)		60	60		60	
Link Distance (m)		356.0	370.9		257.9	
Travel Time (s)		21.4	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2373	1639	0	458	923
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2373	1639	0	920	461
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

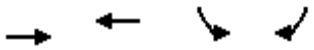


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		92.0	92.0		68.0	68.0
Total Split (%)		57.5%	57.5%		42.5%	42.5%
Maximum Green (s)		85.0	85.0		62.0	62.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		87.4	87.4		53.5	53.5
Actuated g/C Ratio		0.58	0.58		0.35	0.35
v/c Ratio		0.80	0.55		0.77	0.86
Control Delay		28.8	21.5		46.9	60.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		28.8	21.5		46.9	60.5
LOS		C	C		D	E
Approach Delay		28.8	21.5		51.5	
Approach LOS		C	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 150.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2373	1639	920	461
v/c Ratio	0.80	0.55	0.77	0.86
Control Delay	28.8	21.5	46.9	60.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.8	21.5	46.9	60.5
Queue Length 50th (m)	217.5	118.7	129.7	143.0
Queue Length 95th (m)	261.3	146.0	155.0	197.5
Internal Link Dist (m)	332.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2974	2974	1407	627
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	0.80	0.55	0.65	0.74

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1900	0	0	1933	134	661
Future Volume (vph)	1900	0	0	1933	134	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.893	0.850
Flt Protected					0.986	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.986	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					9	9
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1959	0	0	1993	138	681
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1959	0	0	1993	479	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	95.0			95.0	65.0	65.0
Total Split (%)	59.4%			59.4%	40.6%	40.6%
Maximum Green (s)	88.0			88.0	59.0	59.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	90.4			90.4	39.2	39.2
Actuated g/C Ratio	0.65			0.65	0.28	0.28
v/c Ratio	0.59			0.60	0.52	0.81
Control Delay	16.2			16.4	43.0	60.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.2			16.4	43.0	60.8
LOS	B			B	D	E
Approach Delay	16.2			16.4	50.4	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 139.7			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

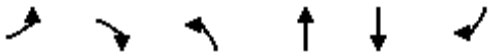
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





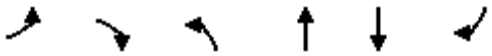
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1959	1993	479	340
v/c Ratio	0.59	0.60	0.52	0.81
Control Delay	16.2	16.4	43.0	60.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.2	16.4	43.0	60.8
Queue Length 50th (m)	110.1	113.1	59.3	98.6
Queue Length 95th (m)	168.9	173.2	75.9	139.5
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3325	3325	1403	640
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	0.59	0.60	0.34	0.53

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	7	70	140	980	928	19
Future Volume (vph)	7	70	140	980	928	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.3	3.5	3.5	3.5
Storage Length (m)	0.0	0.0	15.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.877				0.997	
Flt Protected	0.996		0.950			
Satd. Flow (prot)	1586	0	1745	3535	3491	0
Flt Permitted	0.996		0.950			
Satd. Flow (perm)	1586	0	1745	3535	3491	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	62.7			149.5	997.9	
Travel Time (s)	3.8			9.0	59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	7	73	146	1021	967	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	146	1021	987	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.2			6.5	3.3	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.04	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

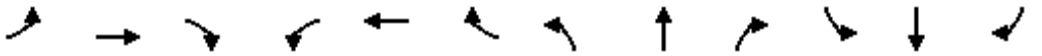
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	70	140	980	928	19
Future Volume (Veh/h)	7	70	140	980	928	19
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	73	146	1021	967	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				149		
pX, platoon unblocked	0.91					
vC, conflicting volume	1780	494	987			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1652	494	987			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	86	79			
cM capacity (veh/h)	66	527	708			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	80	146	510	510	645	342
Volume Left	7	146	0	0	0	0
Volume Right	73	0	0	0	0	20
cSH	326	708	1700	1700	1700	1700
Volume to Capacity	0.25	0.21	0.30	0.30	0.38	0.20
Queue Length 95th (m)	7.6	6.2	0.0	0.0	0.0	0.0
Control Delay (s)	19.6	11.4	0.0	0.0	0.0	0.0
Lane LOS	C	B				
Approach Delay (s)	19.6	1.4			0.0	
Approach LOS	C					

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	2385	364	126	948	141	123	322	152	214	578	122
Future Volume (vph)	263	2385	364	126	948	141	123	322	152	214	578	122
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.229			0.052			0.187			0.426		
Satd. Flow (perm)	408	5136	1263	89	4673	1300	303	3400	1392	732	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			200			145			77			112
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	271	2459	375	130	977	145	127	332	157	221	596	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	2459	375	130	977	145	127	332	157	221	596	126
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

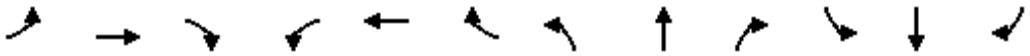
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	25.8	87.2	87.2	13.5	74.9	74.9	11.5	47.5	13.5	11.8	47.8	47.8
Total Split (%)	16.1%	54.5%	54.5%	8.4%	46.8%	46.8%	7.2%	29.7%	8.4%	7.4%	29.9%	29.9%
Maximum Green (s)	21.8	80.9	80.9	9.5	68.6	68.6	7.5	41.0	9.5	7.8	41.3	41.3
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	99.6	82.4	82.4	92.0	75.8	75.8	47.6	33.0	50.3	48.2	33.3	33.3
Actuated g/C Ratio	0.66	0.55	0.55	0.61	0.50	0.50	0.32	0.22	0.33	0.32	0.22	0.22
v/c Ratio	0.63	0.88	0.48	0.73	0.42	0.20	0.70	0.45	0.30	0.74	0.77	0.34
Control Delay	17.9	34.8	11.9	58.2	25.3	4.3	58.8	52.5	19.5	57.4	62.1	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	34.8	11.9	58.2	25.3	4.3	58.8	52.5	19.5	57.4	62.1	12.9
LOS	B	C	B	E	C	A	E	D	B	E	E	B
Approach Delay		30.5			26.3			45.4			54.4	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 150.5
Natural Cycle: 140
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 35.0 Intersection LOS: C
Intersection Capacity Utilization 91.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East

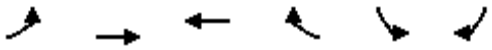




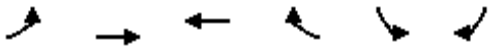
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	271	2459	375	130	977	145	127	332	157	221	596	126
v/c Ratio	0.63	0.88	0.48	0.73	0.42	0.20	0.70	0.45	0.30	0.74	0.77	0.34
Control Delay	17.9	34.8	11.9	58.2	25.3	4.3	58.8	52.5	19.5	57.4	62.1	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	34.8	11.9	58.2	25.3	4.3	58.8	52.5	19.5	57.4	62.1	12.9
Queue Length 50th (m)	32.1	239.3	30.7	24.3	68.7	0.0	29.5	48.0	17.7	54.4	93.4	3.5
Queue Length 95th (m)	54.6	296.4	64.8	#63.4	97.7	13.7	#49.2	63.6	37.1	79.2	115.4	21.8
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	481	2810	781	182	2352	726	182	962	518	298	997	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.88	0.48	0.71	0.42	0.20	0.70	0.35	0.30	0.74	0.60	0.29

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2765	592	0	777	769
Future Volume (vph)	0	2765	592	0	777	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					37	278
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	2880	617	0	809	801
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	2880	617	0	1105	505
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

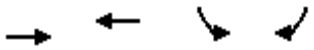


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		99.0	99.0		61.0	61.0
Total Split (%)		61.9%	61.9%		38.1%	38.1%
Maximum Green (s)		92.0	92.0		55.0	55.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		94.0	94.0		56.0	56.0
Actuated g/C Ratio		0.59	0.59		0.35	0.35
v/c Ratio		0.95	0.21		0.96	0.79
Control Delay		39.9	15.8		67.9	30.6
Queue Delay		3.6	0.0		0.0	0.0
Total Delay		43.6	15.8		67.9	30.6
LOS		D	B		E	C
Approach Delay		43.6	15.8		56.2	
Approach LOS		D	B		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 44.2		Intersection LOS: D	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2880	617	1105	505
v/c Ratio	0.95	0.21	0.96	0.79
Control Delay	39.9	15.8	67.9	30.6
Queue Delay	3.6	0.0	0.0	0.0
Total Delay	43.6	15.8	67.9	30.6
Queue Length 50th (m)	320.3	34.4	182.3	81.9
Queue Length 95th (m)	344.0	41.9	#229.5	143.0
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3017	2874	1148	636
Starvation Cap Reductn	104	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	0.21	0.96	0.79

Intersection Summary

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2416	0	0	629	77	480
Future Volume (vph)	2416	0	0	629	77	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					5	5
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2543	0	0	662	81	505
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2543	0	0	662	334	252
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	111.0			111.0	49.0	49.0
Total Split (%)	69.4%			69.4%	30.6%	30.6%
Maximum Green (s)	104.0			104.0	43.0	43.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	102.1			102.1	31.9	31.9
Actuated g/C Ratio	0.71			0.71	0.22	0.22
v/c Ratio	0.71			0.19	0.47	0.77
Control Delay	14.7			7.9	50.3	68.6
Queue Delay	0.1			0.0	0.0	0.0
Total Delay	14.8			7.9	50.3	68.6
LOS	B			A	D	E
Approach Delay	14.8			7.9	58.2	
Approach LOS	B			A	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 144.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

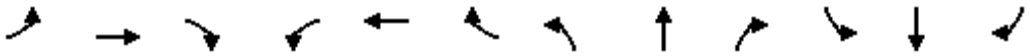
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





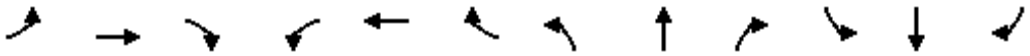
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2543	662	334	252
v/c Ratio	0.71	0.19	0.47	0.77
Control Delay	14.7	7.9	50.3	68.6
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	14.8	7.9	50.3	68.6
Queue Length 50th (m)	150.4	22.4	46.2	80.1
Queue Length 95th (m)	217.3	36.2	61.7	116.4
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3749	3609	994	453
Starvation Cap Reductn	217	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.18	0.34	0.56

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	8	0	3	15	694	24	5	924	1
Future Volume (vph)	0	0	3	8	0	3	15	694	24	5	924	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.865			0.966			0.995				
Flt Protected					0.964		0.950			0.950		
Satd. Flow (prot)	0	1570	0	0	1658	0	1631	3450	0	1711	1842	0
Flt Permitted					0.964		0.950			0.950		
Satd. Flow (perm)	0	1570	0	0	1658	0	1631	3450	0	1711	1842	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			69.4			149.5			997.9	
Travel Time (s)		3.8			4.2			9.0			59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	3%	2%	2%	2%	0%
Adj. Flow (vph)	0	0	3	9	0	3	16	763	26	5	1015	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	12	0	16	789	0	5	1016	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

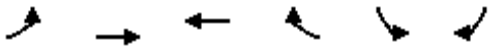
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	3	8	0	3	15	694	24	5	924	1
Future Volume (Veh/h)	0	0	3	8	0	3	15	694	24	5	924	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	3	9	0	3	16	763	26	5	1015	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.92	0.92		0.92	0.92	0.92				0.92		
vC, conflicting volume	1442	1846	1016	1836	1834	394	1016			789		
vC1, stage 1 conf vol	1026	1026		808	808							
vC2, stage 2 conf vol	416	821		1028	1026							
vCu, unblocked vol	1310	1749	1016	1737	1735	174	1016			602		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	95	100	100	98			99		
cM capacity (veh/h)	241	252	239	198	246	774	649			896		

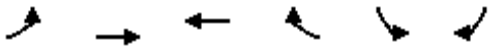
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	3	12	16	509	280	5	1016
Volume Left	0	9	16	0	0	5	0
Volume Right	3	3	0	0	26	0	1
cSH	239	243	649	1700	1700	896	1700
Volume to Capacity	0.01	0.05	0.02	0.30	0.16	0.01	0.60
Queue Length 95th (m)	0.3	1.2	0.6	0.0	0.0	0.1	0.0
Control Delay (s)	20.2	20.6	10.7	0.0	0.0	9.0	0.0
Lane LOS	C	C	B			A	
Approach Delay (s)	20.2	20.6	0.2			0.0	
Approach LOS	C	C					

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	62.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2799	1244	9	0	14
Future Volume (vph)	0	2799	1244	9	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		58.0	
Travel Time (s)		11.0	10.3		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3042	1352	10	0	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3042	1362	0	0	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

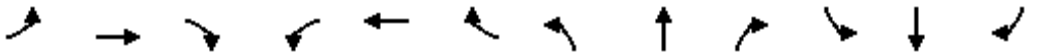
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.4%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2799	1244	9	0	14
Future Volume (Veh/h)	0	2799	1244	9	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3042	1352	10	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.95				0.59	0.95
vC, conflicting volume	1362				2371	456
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1201				350	248
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	549				368	716

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1014	1014	1014	541	541	280	15
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	10	15
cSH	1700	1700	1700	1700	1700	1700	716
Volume to Capacity	0.60	0.60	0.60	0.32	0.32	0.16	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.1
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		



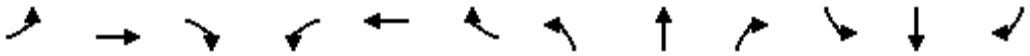
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	1628	171	129	2785	150	310	777	723	108	307	239
Future Volume (vph)	171	1628	171	129	2785	150	310	777	723	108	307	239
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99	1.00		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.068			0.067			0.464			0.100		
Satd. Flow (perm)	121	5036	1283	118	5136	1313	790	3535	1374	172	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			78			50			112
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	174	1661	174	132	2842	153	316	793	738	110	313	244
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	1661	174	132	2842	153	316	793	738	110	313	244
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	12.5	62.1	62.1	38.4	88.0	88.0	12.0	48.0	38.4	11.5	47.5	47.5
Total Split (%)	7.8%	38.8%	38.8%	24.0%	55.0%	55.0%	7.5%	30.0%	24.0%	7.2%	29.7%	29.7%
Maximum Green (s)	8.5	55.8	55.8	34.4	81.7	81.7	8.0	41.5	34.4	7.5	41.0	41.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	72.7	57.1	57.1	99.6	83.1	83.1	55.6	40.6	82.0	54.6	40.1	40.1
Actuated g/C Ratio	0.46	0.36	0.36	0.63	0.53	0.53	0.35	0.26	0.52	0.35	0.25	0.25
v/c Ratio	1.02	0.91	0.33	0.30	1.05	0.21	0.94	0.87	0.99	0.70	0.35	0.59
Control Delay	120.1	56.5	16.4	22.2	68.9	10.6	81.4	67.3	65.9	59.1	49.2	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	120.1	56.5	16.4	22.2	68.9	10.6	81.4	67.3	65.9	59.1	49.2	33.3
LOS	F	E	B	C	E	B	F	E	E	E	D	C
Approach Delay		58.5			64.1			69.2			45.0	
Approach LOS		E			E			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 157.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 62.2		Intersection LOS: E	
Intersection Capacity Utilization 106.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East



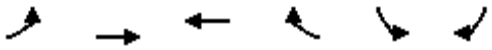


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	1661	174	132	2842	153	316	793	738	110	313	244
v/c Ratio	1.02	0.91	0.33	0.30	1.05	0.21	0.94	0.87	0.99	0.70	0.35	0.59
Control Delay	120.1	56.5	16.4	22.2	68.9	10.6	81.4	67.3	65.9	59.1	49.2	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	120.1	56.5	16.4	22.2	68.9	10.6	81.4	67.3	65.9	59.1	49.2	33.3
Queue Length 50th (m)	~46.1	195.5	15.5	19.5	~383.5	12.5	83.4	132.7	221.9	25.1	44.7	38.4
Queue Length 95th (m)	#98.8	217.3	36.5	40.4	#406.4	26.8	#146.6	159.5	#324.6	#47.9	59.7	70.0
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	170	1824	532	444	2705	728	336	964	742	157	953	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.91	0.33	0.30	1.05	0.21	0.94	0.82	0.99	0.70	0.33	0.56

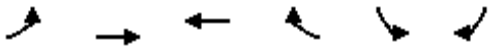
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2334	1583	0	368	1438
Future Volume (vph)	0	2334	1583	0	368	1438
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					9	9
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2431	1649	0	383	1498
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2431	1649	0	1132	749
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

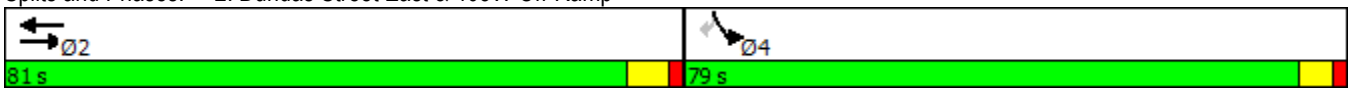


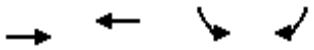
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		81.0	81.0		79.0	79.0
Total Split (%)		50.6%	50.6%		49.4%	49.4%
Maximum Green (s)		74.0	74.0		73.0	73.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		76.0	76.0		74.0	74.0
Actuated g/C Ratio		0.48	0.48		0.46	0.46
v/c Ratio		1.03	0.68		1.00dr	1.09
Control Delay		66.5	34.2		39.3	102.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		66.5	34.2		39.3	102.5
LOS		E	C		D	F
Approach Delay		66.5	34.2		64.5	
Approach LOS		E	C		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 57.0		Intersection LOS: E	
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2431	1649	1132	749
v/c Ratio	1.03	0.68	1.00dr	1.09
Control Delay	66.5	34.2	39.3	102.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	66.5	34.2	39.3	102.5
Queue Length 50th (m)	~316.6	154.2	158.5	~308.4
Queue Length 95th (m)	#342.8	171.4	187.1	#399.5
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2369	2439	1496	685
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.68	0.76	1.09

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1786	0	0	1918	60	436
Future Volume (vph)	1786	0	0	1918	60	436
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.882	0.850
Flt Protected					0.989	
Satd. Flow (prot)	5036	0	0	5136	3100	1429
Flt Permitted					0.989	
Satd. Flow (perm)	5036	0	0	5136	3100	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					19	19
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1841	0	0	1977	62	449
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1841	0	0	1977	287	224
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	105.0			105.0	55.0	55.0
Total Split (%)	65.6%			65.6%	34.4%	34.4%
Maximum Green (s)	98.0			98.0	49.0	49.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	100.3			100.3	27.0	27.0
Actuated g/C Ratio	0.73			0.73	0.20	0.20
v/c Ratio	0.50			0.53	0.46	0.76
Control Delay	9.1			9.5	47.2	63.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	9.1			9.5	47.2	63.7
LOS	A			A	D	E
Approach Delay	9.1			9.5	54.4	
Approach LOS	A			A	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 137.3			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 98.3%		ICU Level of Service F	
Analysis Period (min) 15			

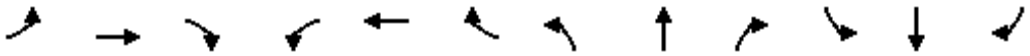
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





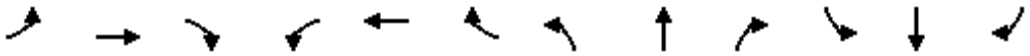
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1841	1977	287	224
v/c Ratio	0.50	0.53	0.46	0.76
Control Delay	9.1	9.5	47.2	63.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.1	9.5	47.2	63.7
Queue Length 50th (m)	72.8	80.6	35.0	61.4
Queue Length 95th (m)	112.2	123.5	49.1	94.5
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3677	3750	1144	533
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	0.50	0.53	0.25	0.42

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	12	30	0	16	15	1033	62	11	670	2
Future Volume (vph)	1	0	12	30	0	16	15	1033	62	11	670	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.875			0.953			0.991				
Flt Protected		0.996			0.968		0.950			0.950		
Satd. Flow (prot)	0	1582	0	0	1642	0	1745	3468	0	1711	1842	0
Flt Permitted		0.996			0.968		0.950			0.950		
Satd. Flow (perm)	0	1582	0	0	1642	0	1745	3468	0	1711	1842	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			58.2			149.5			997.9	
Travel Time (s)		3.8			3.5			9.0			59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	1	0	13	32	0	17	16	1111	67	12	720	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	14	0	0	49	0	16	1178	0	12	722	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

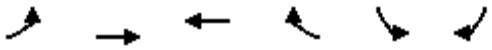
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	12	30	0	16	15	1033	62	11	670	2
Future Volume (Veh/h)	1	0	12	30	0	16	15	1033	62	11	670	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	0	13	32	0	17	16	1111	67	12	720	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.79	0.79		0.79	0.79	0.79				0.79		
vC, conflicting volume	1350	1955	721	1934	1922	589	722			1178		
vC1, stage 1 conf vol	745	745		1176	1176							
vC2, stage 2 conf vol	604	1210		757	746							
vCu, unblocked vol	901	1671	721	1644	1630	0	722			683		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	86	100	98	98			98		
cM capacity (veh/h)	347	255	374	226	265	853	889			712		

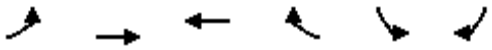
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	49	16	741	437	12	722
Volume Left	1	32	16	0	0	12	0
Volume Right	13	17	0	0	67	0	2
cSH	372	303	889	1700	1700	712	1700
Volume to Capacity	0.04	0.16	0.02	0.44	0.26	0.02	0.42
Queue Length 95th (m)	0.9	4.6	0.4	0.0	0.0	0.4	0.0
Control Delay (s)	15.0	19.2	9.1	0.0	0.0	10.1	0.0
Lane LOS	C	C	A			B	
Approach Delay (s)	15.0	19.2	0.1			0.2	
Approach LOS	C	C					

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	51.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2553	2990	38	0	76
Future Volume (vph)	0	2553	2990	38	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5075	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5075	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		77.0	
Travel Time (s)		11.0	10.3		4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2775	3250	41	0	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2775	3291	0	0	83
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

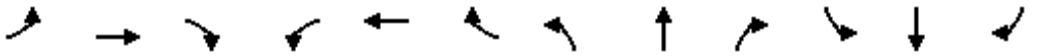
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (veh/h)	0	2553	2990	38	0	76
Future Volume (Veh/h)	0	2553	2990	38	0	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2775	3250	41	0	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.75				0.81	0.75
vC, conflicting volume	3291				4196	1104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2889				2045	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	94				39	814

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	925	925	925	1300	1300	691	83
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	41	83
cSH	1700	1700	1700	1700	1700	1700	814
Volume to Capacity	0.54	0.54	0.54	0.76	0.76	0.41	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.9
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.9
Approach LOS							A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		



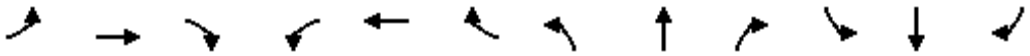
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	1937	234	142	1694	257	155	294	135	198	200	167
Future Volume (vph)	238	1937	234	142	1694	257	155	294	135	198	200	167
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1617	3500	1301
Flt Permitted	0.056			0.057			0.623			0.446		
Satd. Flow (perm)	101	5136	1324	100	5136	1311	944	3535	1301	759	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			155			139			172
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	245	1997	241	146	1746	265	160	303	139	204	206	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	245	1997	241	146	1746	265	160	303	139	204	206	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	11.0	47.5	47.5
Total Split (s)	28.0	81.0	81.0	18.0	71.0	71.0	48.0	48.0	48.0	13.0	61.0	61.0
Total Split (%)	17.5%	50.6%	50.6%	11.3%	44.4%	44.4%	30.0%	30.0%	30.0%	8.1%	38.1%	38.1%
Maximum Green (s)	24.0	74.7	74.7	14.0	64.7	64.7	41.5	41.5	41.5	9.0	54.5	54.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.0	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0		0	0
Act Effct Green (s)	96.5	76.4	76.4	87.7	68.6	68.6	31.3	31.3	31.3	48.4	44.4	44.4
Actuated g/C Ratio	0.66	0.52	0.52	0.60	0.47	0.47	0.21	0.21	0.21	0.33	0.30	0.30
v/c Ratio	0.78	0.75	0.32	0.66	0.73	0.38	0.80	0.40	0.36	0.64	0.19	0.34
Control Delay	57.6	31.4	10.1	50.5	35.8	13.4	82.2	50.8	9.3	48.1	38.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	31.4	10.1	50.5	35.8	13.4	82.2	50.8	9.3	48.1	38.0	6.6
LOS	E	C	B	D	D	B	F	D	A	D	D	A
Approach Delay		31.9			34.0			49.6			32.3	
Approach LOS		C			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 146.9			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

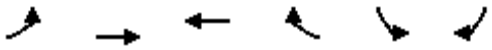
Splits and Phases: 1: Ninth Line & Dundas Street East



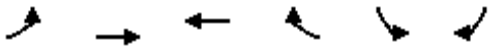


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	1997	241	146	1746	265	160	303	139	204	206	172
v/c Ratio	0.78	0.75	0.32	0.66	0.73	0.38	0.80	0.40	0.36	0.64	0.19	0.34
Control Delay	57.6	31.4	10.1	50.5	35.8	13.4	82.2	50.8	9.3	48.1	38.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	31.4	10.1	50.5	35.8	13.4	82.2	50.8	9.3	48.1	38.0	6.6
Queue Length 50th (m)	55.9	178.5	15.3	27.3	161.9	20.5	47.5	43.0	0.0	48.8	25.1	0.0
Queue Length 95th (m)	95.7	227.6	38.9	57.6	209.7	50.2	76.3	57.7	18.1	72.0	35.7	17.4
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	363	2672	758	244	2400	695	277	1040	481	320	1341	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.75	0.32	0.60	0.73	0.38	0.58	0.29	0.29	0.64	0.15	0.28

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2186	1444	0	344	697
Future Volume (vph)	0	2186	1444	0	344	697
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.924	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3328	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3328	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					34	34
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2277	1504	0	358	726
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2277	1504	0	721	363
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

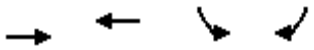


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		99.0	99.0		61.0	61.0
Total Split (%)		61.9%	61.9%		38.1%	38.1%
Maximum Green (s)		92.0	92.0		55.0	55.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		94.4	94.4		42.0	42.0
Actuated g/C Ratio		0.64	0.64		0.29	0.29
v/c Ratio		0.69	0.45		0.74	0.81
Control Delay		19.3	14.6		49.3	58.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		19.3	14.6		49.3	58.6
LOS		B	B		D	E
Approach Delay		19.3	14.6		52.4	
Approach LOS		B	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 146.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2277	1504	721	363
v/c Ratio	0.69	0.45	0.74	0.81
Control Delay	19.3	14.6	49.3	58.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.3	14.6	49.3	58.6
Queue Length 50th (m)	154.6	80.3	98.2	103.9
Queue Length 95th (m)	217.4	116.1	120.3	148.1
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3310	3310	1298	585
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.45	0.56	0.62

Intersection Summary



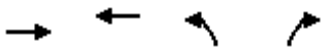
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1821	0	0	1766	109	516
Future Volume (vph)	1821	0	0	1766	109	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.894	0.850
Flt Protected					0.985	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.985	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					14	14
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1877	0	0	1821	112	532
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1877	0	0	1821	378	266
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	100.0			100.0	60.0	60.0
Total Split (%)	62.5%			62.5%	37.5%	37.5%
Maximum Green (s)	93.0			93.0	54.0	54.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	95.4			95.4	31.0	31.0
Actuated g/C Ratio	0.70			0.70	0.23	0.23
v/c Ratio	0.52			0.51	0.51	0.77
Control Delay	11.2			11.0	46.1	61.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	11.2			11.0	46.1	61.7
LOS	B			B	D	E
Approach Delay	11.2			11.0	52.5	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 136.4			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

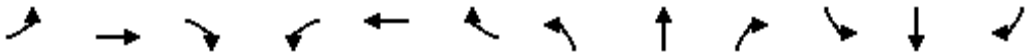
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





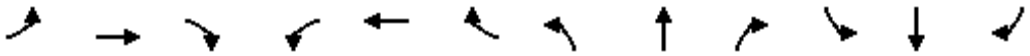
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1877	1821	378	266
v/c Ratio	0.52	0.51	0.51	0.77
Control Delay	11.2	11.0	46.1	61.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.2	11.0	46.1	61.7
Queue Length 50th (m)	84.5	80.5	46.5	74.1
Queue Length 95th (m)	128.1	122.4	62.2	109.6
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3591	3591	1319	603
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.51	0.29	0.44

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	66	34	0	17	134	540	92	15	468	19
Future Volume (vph)	7	0	66	34	0	17	134	540	92	15	468	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.877			0.954			0.978			0.994	
Flt Protected		0.995			0.968		0.950			0.950		
Satd. Flow (prot)	0	1584	0	0	1644	0	1745	3452	0	1711	1832	0
Flt Permitted		0.995			0.968		0.950			0.950		
Satd. Flow (perm)	0	1584	0	0	1644	0	1745	3452	0	1711	1832	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			68.3			149.5			997.9	
Travel Time (s)		3.8			4.1			9.0			59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	1%	2%	2%	2%	0%
Adj. Flow (vph)	7	0	69	35	0	18	140	563	96	16	488	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	53	0	140	659	0	16	508	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

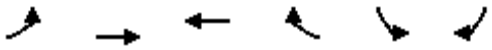
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	66	34	0	17	134	540	92	15	468	19
Future Volume (Veh/h)	7	0	66	34	0	17	134	540	92	15	468	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	0	69	35	0	18	140	563	96	16	488	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.94	0.94		0.94	0.94	0.94				0.94		
vC, conflicting volume	1110	1469	498	1480	1431	330	508			659		
vC1, stage 1 conf vol	530	530		891	891							
vC2, stage 2 conf vol	580	939		589	540							
vCu, unblocked vol	993	1375	498	1386	1334	165	508			515		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	87	83	100	98	87			98		
cM capacity (veh/h)	360	273	523	202	269	801	1067			986		

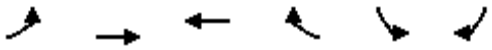
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	76	53	140	375	284	16	508
Volume Left	7	35	140	0	0	16	0
Volume Right	69	18	0	0	96	0	20
cSH	502	271	1067	1700	1700	986	1700
Volume to Capacity	0.15	0.20	0.13	0.22	0.17	0.02	0.30
Queue Length 95th (m)	4.2	5.7	3.6	0.0	0.0	0.4	0.0
Control Delay (s)	13.4	21.5	8.9	0.0	0.0	8.7	0.0
Lane LOS	B	C	A			A	
Approach Delay (s)	13.4	21.5	1.6			0.3	
Approach LOS	B	C					

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2295	2007	46	0	84
Future Volume (vph)	0	2295	2007	46	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5070	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5070	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		64.2	
Travel Time (s)		11.0	10.3		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2495	2182	50	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2495	2232	0	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2295	2007	46	0	84
Future Volume (Veh/h)	0	2295	2007	46	0	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2495	2182	50	0	91
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.85				0.76	0.85
vC, conflicting volume	2232				3039	752
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1840				1281	105
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	279				120	792

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	832	832	832	873	873	486	91
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	50	91
cSH	1700	1700	1700	1700	1700	1700	792
Volume to Capacity	0.49	0.49	0.49	0.51	0.51	0.29	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.1
Approach LOS							B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

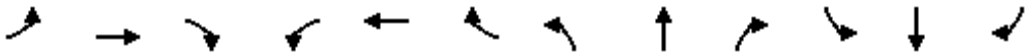
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	2445	373	130	972	145	140	430	168	241	737	135
Future Volume (vph)	269	2445	373	130	972	145	140	430	168	241	737	135
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.211			0.054			0.119			0.335		
Satd. Flow (perm)	376	5136	1263	92	4673	1300	193	3400	1392	576	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			149			77			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	277	2521	385	134	1002	149	144	443	173	248	760	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	277	2521	385	134	1002	149	144	443	173	248	760	139
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	27.2	87.5	87.5	12.0	72.3	72.3	12.0	47.5	12.0	13.0	48.5	48.5
Total Split (%)	17.0%	54.7%	54.7%	7.5%	45.2%	45.2%	7.5%	29.7%	7.5%	8.1%	30.3%	30.3%
Maximum Green (s)	23.2	81.2	81.2	8.0	66.0	66.0	8.0	41.0	8.0	9.0	42.0	42.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	98.6	82.6	82.6	88.0	73.0	73.0	54.1	39.1	55.1	56.1	40.1	40.1
Actuated g/C Ratio	0.63	0.53	0.53	0.56	0.47	0.47	0.35	0.25	0.35	0.36	0.26	0.26
v/c Ratio	0.68	0.93	0.51	0.84	0.46	0.22	0.89	0.52	0.32	0.86	0.85	0.35
Control Delay	22.4	42.3	14.0	78.3	30.3	4.6	85.8	53.0	21.5	69.2	65.4	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	42.3	14.0	78.3	30.3	4.6	85.8	53.0	21.5	69.2	65.4	16.3
LOS	C	D	B	E	C	A	F	D	C	E	E	B
Approach Delay		37.2			32.3			52.1			60.3	
Approach LOS		D			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 156.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 42.1		Intersection LOS: D	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East

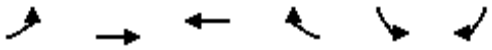




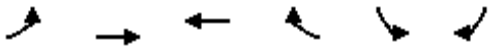
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	2521	385	134	1002	149	144	443	173	248	760	139
v/c Ratio	0.68	0.93	0.51	0.84	0.46	0.22	0.89	0.52	0.32	0.86	0.85	0.35
Control Delay	22.4	42.3	14.0	78.3	30.3	4.6	85.8	53.0	21.5	69.2	65.4	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	42.3	14.0	78.3	30.3	4.6	85.8	53.0	21.5	69.2	65.4	16.3
Queue Length 50th (m)	40.4	285.9	39.6	29.1	83.8	0.0	33.4	66.4	22.1	61.4	125.4	8.9
Queue Length 95th (m)	57.6	311.9	70.5	#73.0	104.4	14.5	#72.8	84.8	42.9	#105.3	151.5	28.9
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	456	2706	757	159	2177	685	161	922	539	287	972	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.93	0.51	0.84	0.46	0.22	0.89	0.48	0.32	0.86	0.78	0.33

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2835	607	0	879	870
Future Volume (vph)	0	2835	607	0	879	870
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					39	256
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	2953	632	0	916	906
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	2953	632	0	1251	571
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

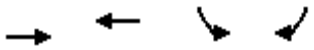


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		96.0	96.0		64.0	64.0
Total Split (%)		60.0%	60.0%		40.0%	40.0%
Maximum Green (s)		89.0	89.0		58.0	58.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		91.0	91.0		59.0	59.0
Actuated g/C Ratio		0.57	0.57		0.37	0.37
v/c Ratio		1.01	0.23		1.03	0.89
Control Delay		53.4	17.3		82.4	42.8
Queue Delay		7.4	0.0		0.0	0.0
Total Delay		60.8	17.3		82.4	42.8
LOS		E	B		F	D
Approach Delay		60.8	17.3		70.0	
Approach LOS		E	B		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 58.8		Intersection LOS: E	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2953	632	1251	571
v/c Ratio	1.01	0.23	1.03	0.89
Control Delay	53.4	17.3	82.4	42.8
Queue Delay	7.4	0.0	0.0	0.0
Total Delay	60.8	17.3	82.4	42.8
Queue Length 50th (m)	~365.7	37.2	~226.6	123.5
Queue Length 95th (m)	#401.0	45.0	#271.1	#211.6
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2921	2782	1209	642
Starvation Cap Reductn	62	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.23	1.03	0.89

Intersection Summary

~ 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.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2477	0	0	645	87	543
Future Volume (vph)	2477	0	0	645	87	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.887	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3210	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3210	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					4	4
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2607	0	0	679	92	572
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2607	0	0	679	378	286
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	109.0			109.0	51.0	51.0
Total Split (%)	68.1%			68.1%	31.9%	31.9%
Maximum Green (s)	102.0			102.0	45.0	45.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	102.3			102.3	35.5	35.5
Actuated g/C Ratio	0.69			0.69	0.24	0.24
v/c Ratio	0.75			0.20	0.49	0.81
Control Delay	17.3			9.0	49.8	70.6
Queue Delay	0.1			0.0	0.0	0.0
Total Delay	17.5			9.0	49.8	70.6
LOS	B			A	D	E
Approach Delay	17.5			9.0	58.8	
Approach LOS	B			A	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 147.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 15			

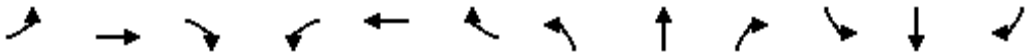
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





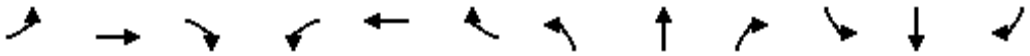
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2607	679	378	286
v/c Ratio	0.75	0.20	0.49	0.81
Control Delay	17.3	9.0	49.8	70.6
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	17.5	9.0	49.8	70.6
Queue Length 50th (m)	179.2	26.1	52.4	92.5
Queue Length 95th (m)	237.9	38.6	68.7	132.1
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3564	3431	1007	458
Starvation Cap Reductn	178	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.77	0.20	0.38	0.62

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	8	0	3	15	930	24	5	1180	1
Future Volume (vph)	0	0	3	8	0	3	15	930	24	5	1180	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.865			0.966			0.996				
Flt Protected					0.964		0.950			0.950		
Satd. Flow (prot)	0	1570	0	0	1658	0	1631	3453	0	1711	3500	0
Flt Permitted					0.964		0.950			0.950		
Satd. Flow (perm)	0	1570	0	0	1658	0	1631	3453	0	1711	3500	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			69.4			149.5			997.9	
Travel Time (s)		3.8			4.2			9.0			59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	3%	2%	2%	2%	0%
Adj. Flow (vph)	0	0	3	9	0	3	16	1022	26	5	1297	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	12	0	16	1048	0	5	1298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

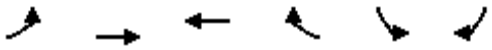
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	3	8	0	3	15	930	24	5	1180	1
Future Volume (Veh/h)	0	0	3	8	0	3	15	930	24	5	1180	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	3	9	0	3	16	1022	26	5	1297	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.89	0.89		0.89	0.89	0.89				0.89		
vC, conflicting volume	1854	2388	649	1728	2375	524	1298			1048		
vC1, stage 1 conf vol	1308	1308		1067	1067							
vC2, stage 2 conf vol	546	1080		662	1308							
vCu, unblocked vol	1716	2314	649	1576	2300	227	1298			814		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	96	100	100	97			99		
cM capacity (veh/h)	162	180	417	232	173	693	504			722		

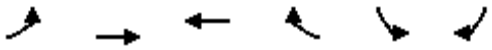
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	12	16	681	367	5	865	433
Volume Left	0	9	16	0	0	5	0	0
Volume Right	3	3	0	0	26	0	0	1
cSH	417	278	504	1700	1700	722	1700	1700
Volume to Capacity	0.01	0.04	0.03	0.40	0.22	0.01	0.51	0.25
Queue Length 95th (m)	0.2	1.1	0.8	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	13.7	18.5	12.4	0.0	0.0	10.0	0.0	0.0
Lane LOS	B	C	B			B		
Approach Delay (s)	13.7	18.5	0.2			0.0		
Approach LOS	B	C						

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	46.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2870	1276	9	0	14
Future Volume (vph)	0	2870	1276	9	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		58.0	
Travel Time (s)		11.0	10.3		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3120	1387	10	0	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3120	1397	0	0	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

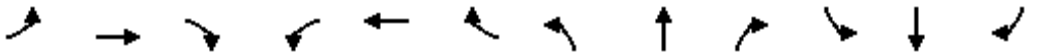
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2870	1276	9	0	14
Future Volume (Veh/h)	0	2870	1276	9	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3120	1387	10	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.95				0.55	0.95
vC, conflicting volume	1397				2432	467
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1233				139	254
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	533				464	708

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1040	1040	1040	555	555	287	15
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	10	15
cSH	1700	1700	1700	1700	1700	1700	708
Volume to Capacity	0.61	0.61	0.61	0.33	0.33	0.17	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.2
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.2
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1669	175	135	2924	158	347	1038	798	122	429	264
Future Volume (vph)	175	1669	175	135	2924	158	347	1038	798	122	429	264
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99			
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.070			0.069			0.351			0.091		
Satd. Flow (perm)	125	5036	1283	122	5136	1313	597	3535	1374	156	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106			78			50			105
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	179	1703	179	138	2984	161	354	1059	814	124	438	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	179	1703	179	138	2984	161	354	1059	814	124	438	269
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

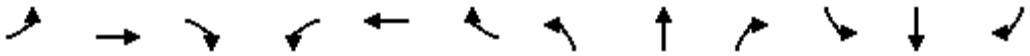
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	12.0	60.6	60.6	36.9	85.5	85.5	15.0	51.0	36.9	11.5	47.5	47.5
Total Split (%)	7.5%	37.9%	37.9%	23.1%	53.4%	53.4%	9.4%	31.9%	23.1%	7.2%	29.7%	29.7%
Maximum Green (s)	8.0	54.3	54.3	32.9	79.2	79.2	11.0	44.5	32.9	7.5	41.0	41.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	70.6	55.6	55.6	96.5	80.5	80.5	61.5	46.0	85.9	57.0	42.5	42.5
Actuated g/C Ratio	0.44	0.35	0.35	0.60	0.50	0.50	0.38	0.29	0.54	0.36	0.27	0.27
v/c Ratio	1.10	0.97	0.35	0.33	1.15	0.23	1.11	1.04	1.07	0.82	0.47	0.64
Control Delay	143.1	67.1	17.6	24.3	111.3	12.0	124.1	94.1	84.7	72.8	51.2	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	143.1	67.1	17.6	24.3	111.3	12.0	124.1	94.1	84.7	72.8	51.2	38.6
LOS	F	E	B	C	F	B	F	F	F	E	D	D
Approach Delay		69.4			102.7			95.4			50.4	
Approach LOS		E			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 87.5 — Intersection LOS: F
Intersection Capacity Utilization 117.2% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



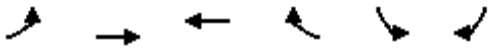


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	179	1703	179	138	2984	161	354	1059	814	124	438	269
v/c Ratio	1.10	0.97	0.35	0.33	1.15	0.23	1.11	1.04	1.07	0.82	0.47	0.64
Control Delay	143.1	67.1	17.6	24.3	111.3	12.0	124.1	94.1	84.7	72.8	51.2	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	143.1	67.1	17.6	24.3	111.3	12.0	124.1	94.1	84.7	72.8	51.2	38.6
Queue Length 50th (m)	~51.3	206.0	16.9	21.6	~429.8	14.5	~108.3	~201.0	~291.6	27.6	65.2	49.5
Queue Length 95th (m)	#104.7	#240.8	38.9	43.3	#451.4	29.7	#189.9	#246.0	#264.1	#63.1	83.3	84.2
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	162	1750	515	422	2584	699	318	1016	764	152	938	422
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.97	0.35	0.33	1.15	0.23	1.11	1.04	1.07	0.82	0.47	0.64

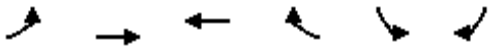
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2393	1663	0	416	1627
Future Volume (vph)	0	2393	1663	0	416	1627
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					6	6
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2493	1732	0	433	1695
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2493	1732	0	1281	847
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

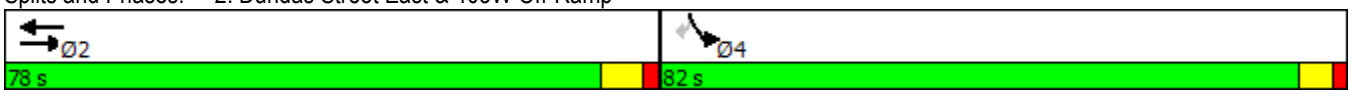


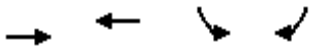
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		78.0	78.0		82.0	82.0
Total Split (%)		48.8%	48.8%		51.3%	51.3%
Maximum Green (s)		71.0	71.0		76.0	76.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		73.0	73.0		77.0	77.0
Actuated g/C Ratio		0.46	0.46		0.48	0.48
v/c Ratio		1.10	0.74		1.09dr	1.19
Control Delay		91.7	38.1		41.1	136.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		91.7	38.1		41.1	136.6
LOS		F	D		D	F
Approach Delay		91.7	38.1		79.1	
Approach LOS		F	D		E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 72.9		Intersection LOS: E	
Intersection Capacity Utilization 107.6%		ICU Level of Service G	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2493	1732	1281	847
v/c Ratio	1.10	0.74	1.09dr	1.19
Control Delay	91.7	38.1	41.1	136.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	91.7	38.1	41.1	136.6
Queue Length 50th (m)	~344.2	172.3	186.5	~374.7
Queue Length 95th (m)	#370.1	190.9	218.4	#467.3
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2275	2343	1555	711
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.10	0.74	0.82	1.19

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



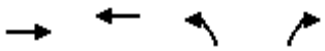
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1831	0	0	2015	67	493
Future Volume (vph)	1831	0	0	2015	67	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.882	0.850
Flt Protected					0.989	
Satd. Flow (prot)	5036	0	0	5136	3101	1429
Flt Permitted					0.989	
Satd. Flow (perm)	5036	0	0	5136	3101	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					16	16
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1888	0	0	2077	69	508
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1888	0	0	2077	323	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	103.0			103.0	57.0	57.0
Total Split (%)	64.4%			64.4%	35.6%	35.6%
Maximum Green (s)	96.0			96.0	51.0	51.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	98.4			98.4	30.5	30.5
Actuated g/C Ratio	0.71			0.71	0.22	0.22
v/c Ratio	0.53			0.57	0.47	0.78
Control Delay	11.0			11.6	46.3	64.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	11.0			11.6	46.3	64.1
LOS	B			B	D	E
Approach Delay	11.0			11.6	54.1	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.9			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 107.6%		ICU Level of Service G	
Analysis Period (min) 15			

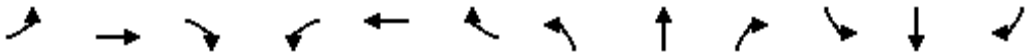
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





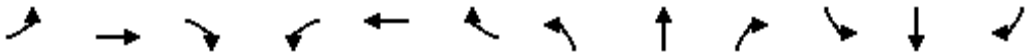
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1888	2077	323	254
v/c Ratio	0.53	0.57	0.47	0.78
Control Delay	11.0	11.6	46.3	64.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.0	11.6	46.3	64.1
Queue Length 50th (m)	83.5	96.6	39.9	71.7
Queue Length 95th (m)	128.5	147.5	54.4	107.2
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3566	3637	1175	546
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	0.53	0.57	0.27	0.47

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	12	30	0	16	15	1385	62	11	941	2
Future Volume (vph)	1	0	12	30	0	16	15	1385	62	11	941	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.875			0.953			0.994				
Flt Protected		0.996			0.968		0.950			0.950		
Satd. Flow (prot)	0	1582	0	0	1642	0	1745	3479	0	1711	3500	0
Flt Permitted		0.996			0.968		0.950			0.950		
Satd. Flow (perm)	0	1582	0	0	1642	0	1745	3479	0	1711	3500	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			58.2			149.5			997.9	
Travel Time (s)		3.8			3.5			9.0			59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	1	0	13	32	0	17	16	1489	67	12	1012	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	14	0	0	49	0	16	1556	0	12	1014	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

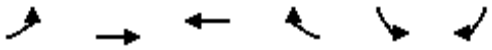
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	12	30	0	16	15	1385	62	11	941	2
Future Volume (Veh/h)	1	0	12	30	0	16	15	1385	62	11	941	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	0	13	32	0	17	16	1489	67	12	1012	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.72	0.72		0.72	0.72	0.72				0.72		
vC, conflicting volume	1830	2625	507	2098	2592	778	1014			1556		
vC1, stage 1 conf vol	1037	1037		1554	1554							
vC2, stage 2 conf vol	794	1588		543	1038							
vCu, unblocked vol	1369	2477	507	1742	2432	0	1014			986		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	97	81	100	98	98			98		
cM capacity (veh/h)	230	162	516	169	170	778	692			499		

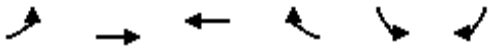
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	14	49	16	993	563	12	675	339
Volume Left	1	32	16	0	0	12	0	0
Volume Right	13	17	0	0	67	0	0	2
cSH	474	233	692	1700	1700	499	1700	1700
Volume to Capacity	0.03	0.21	0.02	0.58	0.33	0.02	0.40	0.20
Queue Length 95th (m)	0.7	6.2	0.6	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	12.8	24.6	10.3	0.0	0.0	12.4	0.0	0.0
Lane LOS	B	C	B			B		
Approach Delay (s)	12.8	24.6	0.1			0.1		
Approach LOS	B	C						

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2617	3144	38	0	76
Future Volume (vph)	0	2617	3144	38	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5075	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5075	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		77.0	
Travel Time (s)		11.0	10.3		4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2845	3417	41	0	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2845	3458	0	0	83
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2617	3144	38	0	76
Future Volume (Veh/h)	0	2617	3144	38	0	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2845	3417	41	0	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.72				0.81	0.72
vC, conflicting volume	3458				4386	1160
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3055				2030	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	77				40	782

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	948	948	948	1367	1367	724	83
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	41	83
cSH	1700	1700	1700	1700	1700	1700	782
Volume to Capacity	0.56	0.56	0.56	0.80	0.80	0.43	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.1
Approach LOS							B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

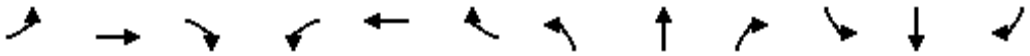
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	1986	240	149	1777	270	171	390	149	216	278	184
Future Volume (vph)	242	1986	240	149	1777	270	171	390	149	216	278	184
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1617	3500	1301
Flt Permitted	0.056			0.057			0.576			0.364		
Satd. Flow (perm)	101	5136	1324	100	5136	1311	873	3535	1301	620	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			156			154			190
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	249	2047	247	154	1832	278	176	402	154	223	287	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	2047	247	154	1832	278	176	402	154	223	287	190
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	11.0	47.5	47.5
Total Split (s)	26.0	81.9	81.9	16.1	72.0	72.0	49.0	49.0	49.0	13.0	62.0	62.0
Total Split (%)	16.3%	51.2%	51.2%	10.1%	45.0%	45.0%	30.6%	30.6%	30.6%	8.1%	38.8%	38.8%
Maximum Green (s)	22.0	75.6	75.6	12.1	65.7	65.7	42.5	42.5	42.5	9.0	55.5	55.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.0	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0		0	0
Act Effct Green (s)	96.6	77.2	77.2	87.3	68.8	68.8	36.3	36.3	36.3	53.4	49.3	49.3
Actuated g/C Ratio	0.64	0.51	0.51	0.57	0.45	0.45	0.24	0.24	0.24	0.35	0.32	0.32
v/c Ratio	0.82	0.78	0.33	0.75	0.79	0.41	0.85	0.48	0.36	0.75	0.25	0.35
Control Delay	64.3	34.5	10.7	60.6	40.0	14.9	87.7	51.2	8.5	55.5	37.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	34.5	10.7	60.6	40.0	14.9	87.7	51.2	8.5	55.5	37.9	6.2
LOS	E	C	B	E	D	B	F	D	A	E	D	A
Approach Delay		35.1			38.3			51.0			34.9	
Approach LOS		D			D			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 152			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 38.1		Intersection LOS: D	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Ninth Line & Dundas Street East

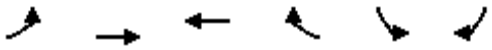




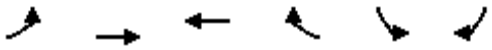
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	2047	247	154	1832	278	176	402	154	223	287	190
v/c Ratio	0.82	0.78	0.33	0.75	0.79	0.41	0.85	0.48	0.36	0.75	0.25	0.35
Control Delay	64.3	34.5	10.7	60.6	40.0	14.9	87.7	51.2	8.5	55.5	37.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	34.5	10.7	60.6	40.0	14.9	87.7	51.2	8.5	55.5	37.9	6.2
Queue Length 50th (m)	61.9	201.8	17.3	33.4	191.7	25.8	53.9	58.3	0.0	53.5	35.4	0.0
Queue Length 95th (m)	#108.1	234.1	39.8	#71.0	222.3	53.8	#91.5	75.2	18.8	78.0	47.9	18.0
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	329	2609	745	215	2326	679	253	1027	487	296	1317	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.78	0.33	0.72	0.79	0.41	0.70	0.39	0.32	0.75	0.22	0.31

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2241	1517	0	389	788
Future Volume (vph)	0	2241	1517	0	389	788
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.924	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3328	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3328	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					24	24
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2334	1580	0	405	821
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2334	1580	0	816	410
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

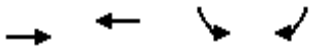


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		95.0	95.0		65.0	65.0
Total Split (%)		59.4%	59.4%		40.6%	40.6%
Maximum Green (s)		88.0	88.0		59.0	59.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		90.4	90.4		47.8	47.8
Actuated g/C Ratio		0.61	0.61		0.32	0.32
v/c Ratio		0.75	0.50		0.75	0.84
Control Delay		24.0	18.1		47.8	59.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		24.0	18.1		47.8	59.1
LOS		C	B		D	E
Approach Delay		24.0	18.1		51.5	
Approach LOS		C	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 148.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 28.7		Intersection LOS: C	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2334	1580	816	410
v/c Ratio	0.75	0.50	0.75	0.84
Control Delay	24.0	18.1	47.8	59.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.0	18.1	47.8	59.1
Queue Length 50th (m)	185.1	98.7	112.8	122.3
Queue Length 95th (m)	242.1	132.4	136.2	170.7
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	3131	3131	1367	612
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.50	0.60	0.67

Intersection Summary



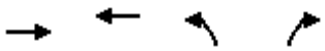
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1867	0	0	1855	123	584
Future Volume (vph)	1867	0	0	1855	123	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.895	0.850
Flt Protected					0.985	
Satd. Flow (prot)	5136	0	0	5136	3244	1471
Flt Permitted					0.985	
Satd. Flow (perm)	5136	0	0	5136	3244	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					12	12
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1925	0	0	1912	127	602
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1925	0	0	1912	428	301
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	98.0			98.0	62.0	62.0
Total Split (%)	61.3%			61.3%	38.8%	38.8%
Maximum Green (s)	91.0			91.0	56.0	56.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	93.4			93.4	34.8	34.8
Actuated g/C Ratio	0.68			0.68	0.25	0.25
v/c Ratio	0.56			0.55	0.52	0.79
Control Delay	13.4			13.4	44.9	61.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	13.4			13.4	44.9	61.7
LOS	B			B	D	E
Approach Delay	13.4			13.4	51.8	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 138.3			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 19.5		Intersection LOS: B	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

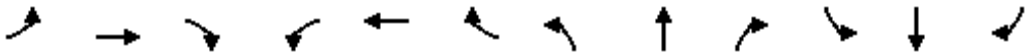
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





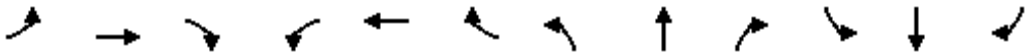
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1925	1912	428	301
v/c Ratio	0.56	0.55	0.52	0.79
Control Delay	13.4	13.4	44.9	61.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.4	13.4	44.9	61.7
Queue Length 50th (m)	97.3	96.2	53.1	85.9
Queue Length 95th (m)	147.1	145.6	69.4	124.1
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3468	3468	1350	616
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	0.56	0.55	0.32	0.49

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	68	34	0	17	137	725	92	15	658	19
Future Volume (vph)	7	0	68	34	0	17	137	725	92	15	658	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.877			0.954			0.983			0.996	
Flt Protected		0.996			0.968		0.950			0.950		
Satd. Flow (prot)	0	1586	0	0	1644	0	1745	3471	0	1711	3488	0
Flt Permitted		0.996			0.968		0.950			0.950		
Satd. Flow (perm)	0	1586	0	0	1644	0	1745	3471	0	1711	3488	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			68.3			149.5			997.9	
Travel Time (s)		3.8			4.1			9.0			59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	1%	2%	2%	2%	0%
Adj. Flow (vph)	7	0	71	35	0	18	143	755	96	16	685	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	53	0	143	851	0	16	705	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

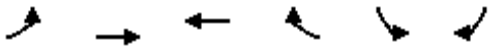
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	68	34	0	17	137	725	92	15	658	19
Future Volume (Veh/h)	7	0	68	34	0	17	137	725	92	15	658	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	0	71	35	0	18	143	755	96	16	685	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.91	0.91		0.91	0.91	0.91				0.91		
vC, conflicting volume	1408	1864	352	1534	1826	426	705			851		
vC1, stage 1 conf vol	727	727		1089	1089							
vC2, stage 2 conf vol	682	1137		446	737							
vCu, unblocked vol	1258	1756	352	1396	1715	182	705			648		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	89	82	100	98	84			98		
cM capacity (veh/h)	286	210	650	196	198	758	902			853		

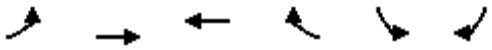
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	78	53	143	503	348	16	457	248
Volume Left	7	35	143	0	0	16	0	0
Volume Right	71	18	0	0	96	0	0	20
cSH	583	262	902	1700	1700	853	1700	1700
Volume to Capacity	0.13	0.20	0.16	0.30	0.20	0.02	0.27	0.15
Queue Length 95th (m)	3.7	5.9	4.5	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	12.1	22.2	9.7	0.0	0.0	9.3	0.0	0.0
Lane LOS	B	C	A			A		
Approach Delay (s)	12.1	22.2	1.4			0.2		
Approach LOS	B	C						

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	46.0%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2352	2110	46	0	84
Future Volume (vph)	0	2352	2110	46	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5070	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5070	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		64.2	
Travel Time (s)		11.0	10.3		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2557	2293	50	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2557	2343	0	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

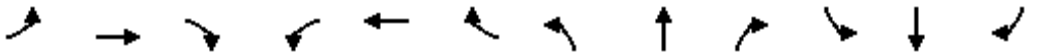
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2352	2110	46	0	84
Future Volume (Veh/h)	0	2352	2110	46	0	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2557	2293	50	0	91
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.83				0.75	0.83
vC, conflicting volume	2343				3170	789
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1894				1193	17
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	258				135	876

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	852	852	852	917	917	509	91
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	50	91
cSH	1700	1700	1700	1700	1700	1700	876
Volume to Capacity	0.50	0.50	0.50	0.54	0.54	0.30	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



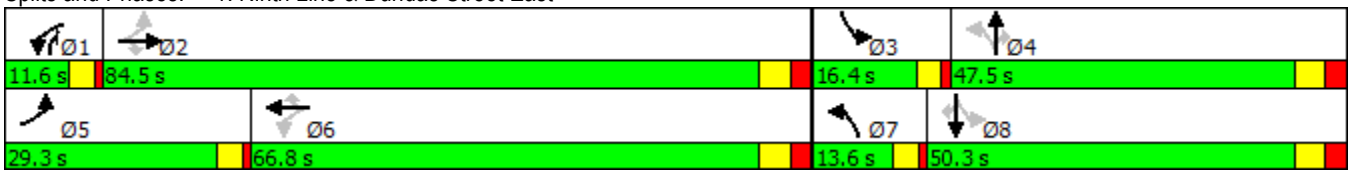
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	2507	382	134	996	149	159	574	185	270	940	149
Future Volume (vph)	275	2507	382	134	996	149	159	574	185	270	940	149
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5136	1263	1627	4673	1300	1541	3400	1392	1633	3500	1263
Flt Permitted	0.189			0.058			0.091			0.232		
Satd. Flow (perm)	336	5136	1263	99	4673	1300	148	3400	1392	399	3500	1263
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			193			146			77			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	5%	5%	11%	2%	7%	5%	6%	1%	2%	3%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	284	2585	394	138	1027	154	164	592	191	278	969	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	284	2585	394	138	1027	154	164	592	191	278	969	154
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

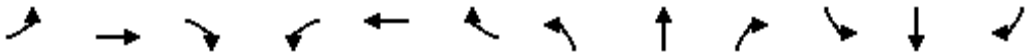
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	29.3	84.5	84.5	11.6	66.8	66.8	13.6	47.5	11.6	16.4	50.3	50.3
Total Split (%)	18.3%	52.8%	52.8%	7.3%	41.8%	41.8%	8.5%	29.7%	7.3%	10.3%	31.4%	31.4%
Maximum Green (s)	25.3	78.2	78.2	7.6	60.5	60.5	9.6	41.0	7.6	12.4	43.8	43.8
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	95.1	79.5	79.5	82.3	67.7	67.7	59.1	42.5	58.1	62.9	45.3	45.3
Actuated g/C Ratio	0.59	0.50	0.50	0.51	0.42	0.42	0.37	0.27	0.36	0.39	0.28	0.28
v/c Ratio	0.73	1.01	0.54	0.91	0.52	0.24	1.00	0.66	0.34	1.01	0.98	0.36
Control Delay	29.2	60.8	16.3	92.7	35.9	6.2	111.1	56.3	23.5	96.0	80.2	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	60.8	16.3	92.7	35.9	6.2	111.1	56.3	23.5	96.0	80.2	18.2
LOS	C	E	B	F	D	A	F	E	C	F	F	B
Approach Delay		52.6			38.3			59.2			76.5	
Approach LOS		D			D			E			E	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 55.6 Intersection LOS: E
Intersection Capacity Utilization 106.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



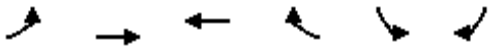


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	284	2585	394	138	1027	154	164	592	191	278	969	154
v/c Ratio	0.73	1.01	0.54	0.91	0.52	0.24	1.00	0.66	0.34	1.01	0.98	0.36
Control Delay	29.2	60.8	16.3	92.7	35.9	6.2	111.1	56.3	23.5	96.0	80.2	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	60.8	16.3	92.7	35.9	6.2	111.1	56.3	23.5	96.0	80.2	18.2
Queue Length 50th (m)	44.7	~332.5	44.7	30.7	92.0	1.5	40.6	93.5	27.0	~68.8	170.4	12.6
Queue Length 95th (m)	70.1	#357.7	77.7	#78.1	114.4	17.5	#93.4	115.7	49.5	#116.6	#217.3	34.2
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	439	2551	724	152	1976	634	164	903	554	275	990	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	1.01	0.54	0.91	0.52	0.24	1.00	0.66	0.34	1.01	0.98	0.36

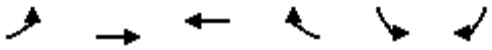
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2907	622	0	995	984
Future Volume (vph)	0	2907	622	0	995	984
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.960	0.850
Flt Protected					0.965	
Satd. Flow (prot)	0	5136	4893	0	3214	1303
Flt Permitted					0.965	
Satd. Flow (perm)	0	5136	4893	0	3214	1303
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					40	235
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.25	0.96	0.96	0.25	0.96	0.96
Heavy Vehicles (%)	0%	1%	6%	0%	5%	14%
Adj. Flow (vph)	0	3028	648	0	1036	1025
Shared Lane Traffic (%)						37%
Lane Group Flow (vph)	0	3028	648	0	1415	646
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

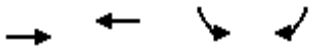


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		93.0	93.0		67.0	67.0
Total Split (%)		58.1%	58.1%		41.9%	41.9%
Maximum Green (s)		86.0	86.0		61.0	61.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		88.0	88.0		62.0	62.0
Actuated g/C Ratio		0.55	0.55		0.39	0.39
v/c Ratio		1.07	0.24		1.12	1.00
Control Delay		75.1	19.0		106.6	65.2
Queue Delay		3.6	0.0		0.0	0.0
Total Delay		78.7	19.0		106.6	65.2
LOS		E	B		F	E
Approach Delay		78.7	19.0		93.6	
Approach LOS		E	B		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 77.3		Intersection LOS: E	
Intersection Capacity Utilization 103.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	3028	648	1415	646
v/c Ratio	1.07	0.24	1.12	1.00
Control Delay	75.1	19.0	106.6	65.2
Queue Delay	3.6	0.0	0.0	0.0
Total Delay	78.7	19.0	106.6	65.2
Queue Length 50th (m)	~410.4	40.1	~275.0	176.4
Queue Length 95th (m)	#431.5	48.4	#319.5	#276.8
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2824	2691	1269	648
Starvation Cap Reductn	22	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.08	0.24	1.12	1.00

Intersection Summary

~ 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.



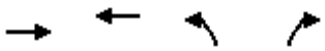
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2539	0	0	661	98	614
Future Volume (vph)	2539	0	0	661	98	614
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.886	0.850
Flt Protected					0.988	
Satd. Flow (prot)	5036	0	0	4848	3206	1457
Flt Permitted					0.988	
Satd. Flow (perm)	5036	0	0	4848	3206	1457
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					3	3
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.95	0.25	0.25	0.95	0.95	0.95
Heavy Vehicles (%)	3%	0%	0%	7%	1%	2%
Adj. Flow (vph)	2673	0	0	696	103	646
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	2673	0	0	696	426	323
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	106.0			106.0	54.0	54.0
Total Split (%)	66.3%			66.3%	33.8%	33.8%
Maximum Green (s)	99.0			99.0	48.0	48.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	101.3			101.3	39.6	39.6
Actuated g/C Ratio	0.67			0.67	0.26	0.26
v/c Ratio	0.79			0.21	0.51	0.84
Control Delay	20.9			10.4	48.7	71.6
Queue Delay	0.2			0.0	0.0	0.0
Total Delay	21.0			10.4	48.7	71.6
LOS	C			B	D	E
Approach Delay	21.0			10.4	58.6	
Approach LOS	C			B	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 150.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 103.2%		ICU Level of Service G	
Analysis Period (min) 15			

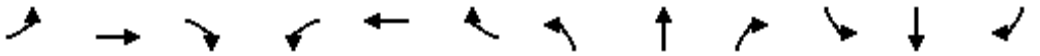
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	2673	696	426	323
v/c Ratio	0.79	0.21	0.51	0.84
Control Delay	20.9	10.4	48.7	71.6
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	21.0	10.4	48.7	71.6
Queue Length 50th (m)	207.9	29.6	58.6	105.3
Queue Length 95th (m)	265.5	42.0	75.5	148.6
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3379	3253	1045	476
Starvation Cap Reductn	128	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.21	0.41	0.68

Intersection Summary



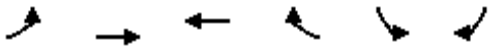
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	3	8	0	3	15	1246	24	5	1507	1
Future Volume (vph)	0	0	3	8	0	3	15	1246	24	5	1507	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.865			0.966			0.997				
Flt Protected					0.964		0.950			0.950		
Satd. Flow (prot)	0	1570	0	0	1658	0	1631	3456	0	1711	3500	0
Flt Permitted					0.964		0.950			0.950		
Satd. Flow (perm)	0	1570	0	0	1658	0	1631	3456	0	1711	3500	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			69.4			149.5			997.9	
Travel Time (s)		3.8			4.2			9.0			59.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	7%	3%	2%	2%	2%	0%
Adj. Flow (vph)	0	0	3	9	0	3	16	1369	26	5	1656	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	12	0	16	1395	0	5	1657	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	3	8	0	3	15	1246	24	5	1507	1
Future Volume (Veh/h)	0	0	3	8	0	3	15	1246	24	5	1507	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	3	9	0	3	16	1369	26	5	1656	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.85	0.85		0.85	0.85	0.85				0.85		
vC, conflicting volume	2386	3094	828	2255	3081	698	1657			1395		
vC1, stage 1 conf vol	1666	1666		1414	1414							
vC2, stage 2 conf vol	720	1427		841	1667							
vCu, unblocked vol	2277	3110	828	2123	3095	289	1657			1110		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	99	94	100	100	96			99		
cM capacity (veh/h)	97	117	318	147	110	601	363			531		

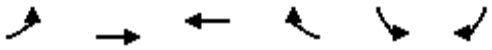
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	12	16	913	482	5	1104	553
Volume Left	0	9	16	0	0	5	0	0
Volume Right	3	3	0	0	26	0	0	1
cSH	318	182	363	1700	1700	531	1700	1700
Volume to Capacity	0.01	0.07	0.04	0.54	0.28	0.01	0.65	0.33
Queue Length 95th (m)	0.2	1.7	1.1	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	16.4	26.2	15.4	0.0	0.0	11.8	0.0	0.0
Lane LOS	C	D	C			B		
Approach Delay (s)	16.4	26.2	0.2			0.0		
Approach LOS	C	D						

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	55.6%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2942	1308	9	0	14
Future Volume (vph)	0	2942	1308	9	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.999			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5080	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5080	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		58.0	
Travel Time (s)		11.0	10.3		3.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3198	1422	10	0	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3198	1432	0	0	15
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

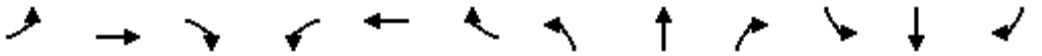
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2942	1308	9	0	14
Future Volume (Veh/h)	0	2942	1308	9	0	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3198	1422	10	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.95				0.54	0.95
vC, conflicting volume	1432				2493	479
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1267				111	263
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	516				468	698

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	1066	1066	1066	569	569	294	15
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	10	15
cSH	1700	1700	1700	1700	1700	1700	698
Volume to Capacity	0.63	0.63	0.63	0.33	0.33	0.17	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.3
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		



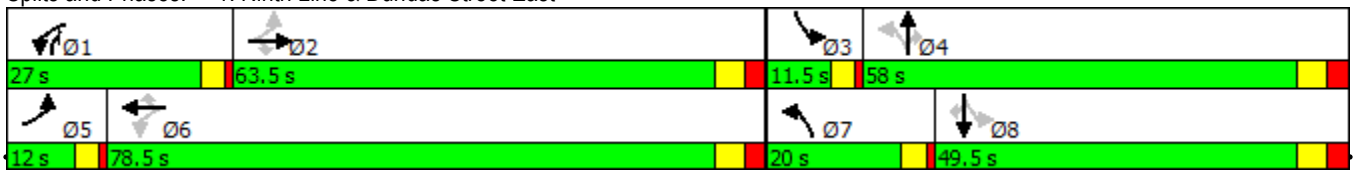
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	1711	179	142	3071	166	388	1387	881	137	600	291
Future Volume (vph)	179	1711	179	142	3071	166	388	1387	881	137	600	291
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1860	1900	1860	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99						0.99			
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1691	5036	1300	1675	5136	1313	1617	3535	1392	1633	3535	1301
Flt Permitted	0.066			0.065			0.231			0.087		
Satd. Flow (perm)	117	5036	1283	115	5136	1313	393	3535	1374	150	3535	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			106			50			132
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Confl. Peds. (#/hr)			1	1					1	1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	2%	1%	1%	2%	1%	6%	1%	1%	0%
Bus Blockages (#/hr)	0	0	4	0	0	4	0	0	0	0	0	0
Adj. Flow (vph)	183	1746	183	145	3134	169	396	1415	899	140	612	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	1746	183	145	3134	169	396	1415	899	140	612	297
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.28	1.07	1.00	1.28	1.12	1.01	1.12	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

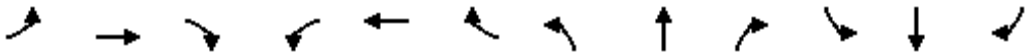
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4	1	3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	1	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0	7.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	11.5	47.5	11.5	11.5	47.5	47.5
Total Split (s)	12.0	63.5	63.5	27.0	78.5	78.5	20.0	58.0	27.0	11.5	49.5	49.5
Total Split (%)	7.5%	39.7%	39.7%	16.9%	49.1%	49.1%	12.5%	36.3%	16.9%	7.2%	30.9%	30.9%
Maximum Green (s)	8.0	57.2	57.2	23.0	72.2	72.2	16.0	51.5	23.0	7.5	43.0	43.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.0	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	1.0	2.8	1.0	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-3.0	-1.5	-3.0	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	1.0	5.0	1.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		34.0			34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0		0			0	0
Act Effct Green (s)	73.5	58.5	58.5	89.5	73.5	73.5	68.5	53.0	83.0	59.0	44.5	44.5
Actuated g/C Ratio	0.46	0.37	0.37	0.56	0.46	0.46	0.43	0.33	0.52	0.37	0.28	0.28
v/c Ratio	1.14	0.95	0.33	0.46	1.33	0.26	1.27	1.21	1.22	0.92	0.62	0.65
Control Delay	151.6	61.1	12.4	33.9	186.5	11.0	173.7	147.6	142.2	92.2	53.7	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.6	61.1	12.4	33.9	186.5	11.0	173.7	147.6	142.2	92.2	53.7	34.9
LOS	F	E	B	C	F	B	F	F	F	F	D	C
Approach Delay		64.7			171.5			149.6			53.5	
Approach LOS		E			F			F			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 160
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.33
Intersection Signal Delay: 127.6 — Intersection LOS: F
Intersection Capacity Utilization 130.6% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East



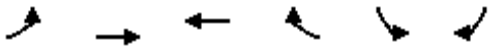


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1746	183	145	3134	169	396	1415	899	140	612	297
v/c Ratio	1.14	0.95	0.33	0.46	1.33	0.26	1.27	1.21	1.22	0.92	0.62	0.65
Control Delay	151.6	61.1	12.4	33.9	186.5	11.0	173.7	147.6	142.2	92.2	53.7	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.6	61.1	12.4	33.9	186.5	11.0	173.7	147.6	142.2	92.2	53.7	34.9
Queue Length 50th (m)	~54.7	207.8	11.1	27.4	~496.5	11.9	~123.4	~302.7	~279.4	31.0	94.7	49.7
Queue Length 95th (m)	#108.8	#234.9	31.6	51.5	#516.8	28.4	#193.6	#347.6	#330.6	#76.4	116.7	86.3
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	161	1841	553	317	2359	660	313	1170	739	152	983	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.95	0.33	0.46	1.33	0.26	1.27	1.21	1.22	0.92	0.62	0.65

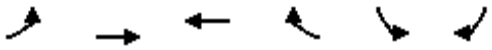
Intersection Summary

~ 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.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2453	1747	0	471	1840
Future Volume (vph)	0	2453	1747	0	471	1840
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Ped Bike Factor						
Frt					0.901	0.850
Flt Protected					0.983	
Satd. Flow (prot)	0	4988	5136	0	3225	1471
Flt Permitted					0.983	
Satd. Flow (perm)	0	4988	5136	0	3225	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					3	3
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Confl. Peds. (#/hr)	1			1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	4%	1%	0%	5%	1%
Adj. Flow (vph)	0	2555	1820	0	491	1917
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2555	1820	0	1450	958
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						

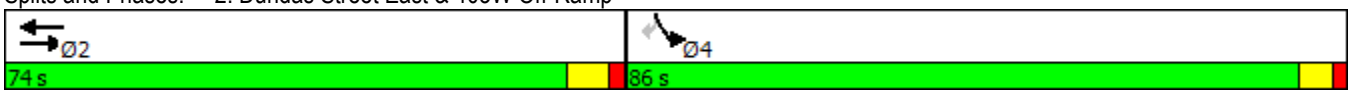


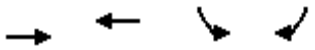
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		74.0	74.0		86.0	86.0
Total Split (%)		46.3%	46.3%		53.8%	53.8%
Maximum Green (s)		67.0	67.0		80.0	80.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		69.0	69.0		81.0	81.0
Actuated g/C Ratio		0.43	0.43		0.51	0.51
v/c Ratio		1.19	0.82		1.17dr	1.28
Control Delay		129.7	44.0		43.4	172.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		129.7	44.0		43.4	172.2
LOS		F	D		D	F
Approach Delay		129.7	44.0		94.6	
Approach LOS		F	D		F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 160			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 94.3		Intersection LOS: F	
Intersection Capacity Utilization 118.0%		ICU Level of Service H	
Analysis Period (min) 15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2555	1820	1450	958
v/c Ratio	1.19	0.82	1.17dr	1.28
Control Delay	129.7	44.0	43.4	172.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	129.7	44.0	43.4	172.2
Queue Length 50th (m)	~375.8	195.0	220.0	~447.2
Queue Length 95th (m)	#401.0	215.4	256.0	#541.4
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2151	2214	1634	746
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.19	0.82	0.89	1.28

Intersection Summary

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

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

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1877	0	0	2117	75	558
Future Volume (vph)	1877	0	0	2117	75	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Ped Bike Factor						
Frt					0.882	0.850
Flt Protected					0.990	
Satd. Flow (prot)	5036	0	0	5136	3104	1429
Flt Permitted					0.990	
Satd. Flow (perm)	5036	0	0	5136	3104	1429
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					14	14
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Confl. Peds. (#/hr)		5	5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	1%	8%	4%
Adj. Flow (vph)	1935	0	0	2182	77	575
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1935	0	0	2182	365	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	103.0			103.0	57.0	57.0
Total Split (%)	64.4%			64.4%	35.6%	35.6%
Maximum Green (s)	96.0			96.0	51.0	51.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	98.4			98.4	35.0	35.0
Actuated g/C Ratio	0.69			0.69	0.24	0.24
v/c Ratio	0.56			0.62	0.48	0.80
Control Delay	13.3			14.4	45.9	64.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	13.3			14.4	45.9	64.9
LOS	B			B	D	E
Approach Delay	13.3			14.4	54.3	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 143.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 19.4		Intersection LOS: B	
Intersection Capacity Utilization 118.0%		ICU Level of Service H	
Analysis Period (min) 15			

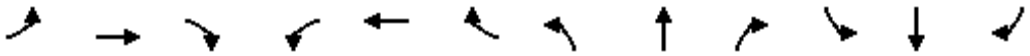
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1935	2182	365	287
v/c Ratio	0.56	0.62	0.48	0.80
Control Delay	13.3	14.4	45.9	64.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.3	14.4	45.9	64.9
Queue Length 50th (m)	100.1	120.8	46.3	84.8
Queue Length 95th (m)	151.8	181.6	61.7	123.0
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3455	3523	1138	529
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	0.56	0.62	0.32	0.54

Intersection Summary



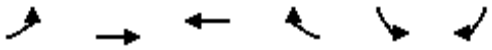
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	12	30	0	16	15	1856	62	11	1321	2
Future Volume (vph)	1	0	12	30	0	16	15	1856	62	11	1321	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.875			0.953			0.995				
Flt Protected		0.996			0.968		0.950			0.950		
Satd. Flow (prot)	0	1582	0	0	1642	0	1745	3482	0	1711	3500	0
Flt Permitted		0.996			0.968		0.950			0.950		
Satd. Flow (perm)	0	1582	0	0	1642	0	1745	3482	0	1711	3500	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			58.2			149.5			997.9	
Travel Time (s)		3.8			3.5			9.0			59.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	1	0	13	32	0	17	16	1996	67	12	1420	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	14	0	0	49	0	16	2063	0	12	1422	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	12	30	0	16	15	1856	62	11	1321	2
Future Volume (Veh/h)	1	0	12	30	0	16	15	1856	62	11	1321	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1	0	13	32	0	17	16	1996	67	12	1420	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.67	0.67		0.67	0.67	0.67				0.67		
vC, conflicting volume	2492	3540	711	2808	3508	1032	1422			2063		
vC1, stage 1 conf vol	1445	1445		2062	2062							
vC2, stage 2 conf vol	1047	2095		747	1446							
vCu, unblocked vol	2246	3802	711	2716	3754	77	1422			1609		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	53	100	97	97			96		
cM capacity (veh/h)	127	75	380	68	84	652	485			271		

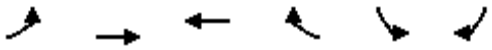
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	14	49	16	1331	732	12	947	475
Volume Left	1	32	16	0	0	12	0	0
Volume Right	13	17	0	0	67	0	0	2
cSH	333	98	485	1700	1700	271	1700	1700
Volume to Capacity	0.04	0.50	0.03	0.78	0.43	0.04	0.56	0.28
Queue Length 95th (m)	1.1	17.6	0.8	0.0	0.0	1.1	0.0	0.0
Control Delay (s)	16.3	73.9	12.7	0.0	0.0	18.9	0.0	0.0
Lane LOS	C	F	B			C		
Approach Delay (s)	16.3	73.9	0.1			0.2		
Approach LOS	C	F						

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	69.3%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2683	3305	38	0	76
Future Volume (vph)	0	2683	3305	38	0	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.998			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5075	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5075	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		77.0	
Travel Time (s)		11.0	10.3		4.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2916	3592	41	0	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2916	3633	0	0	83
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Volume (veh/h)	0	2683	3305	38	0	76
Future Volume (Veh/h)	0	2683	3305	38	0	76
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2916	3592	41	0	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.69				0.82	0.69
vC, conflicting volume	3633				4584	1218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3238				2022	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	62				41	745

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	972	972	972	1437	1437	759	83
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	41	83
cSH	1700	1700	1700	1700	1700	1700	745
Volume to Capacity	0.57	0.57	0.57	0.85	0.85	0.45	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	3.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.4
Approach LOS							B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

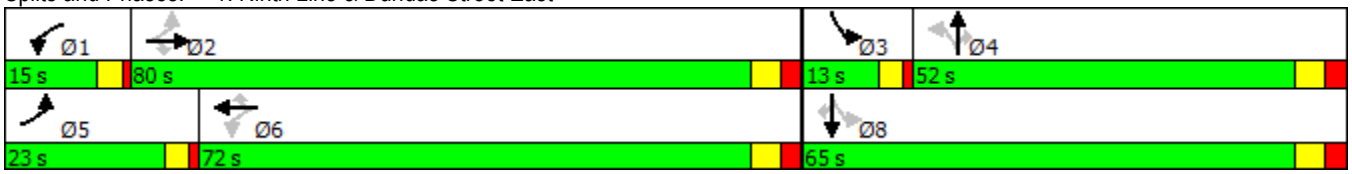
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	2036	246	156	1864	284	189	519	165	236	387	203
Future Volume (vph)	246	2036	246	156	1864	284	189	519	165	236	387	203
Ideal Flow (vphpl)	1860	1900	1640	1860	1900	1640	1640	1900	1640	1860	1900	1640
Lane Width (m)	3.3	3.6	3.3	3.3	3.6	3.3	3.0	3.5	3.0	3.0	3.5	3.0
Storage Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	60.0			70.0			100.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1708	5136	1324	1675	5136	1311	1440	3535	1301	1617	3500	1301
Flt Permitted	0.057			0.058			0.517			0.283		
Satd. Flow (perm)	102	5136	1324	102	5136	1311	784	3535	1301	482	3500	1301
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			157			152			204
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		331.1			184.0			265.7			149.5	
Travel Time (s)		19.9			11.0			15.9			9.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	1%	2%	1%	2%	1%	1%	0%	2%	2%	0%
Bus Blockages (#/hr)	0	0	2	0	0	2	0	0	0	0	0	0
Adj. Flow (vph)	254	2099	254	161	1922	293	195	535	170	243	399	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	254	2099	254	161	1922	293	195	535	170	243	399	209
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.3			3.3			3.3			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.00	1.27	1.07	1.00	1.27	1.31	1.01	1.31	1.12	1.01	1.31
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

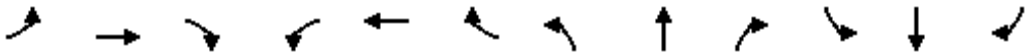
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	4	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.5	45.3	45.3	11.5	45.3	45.3	47.5	47.5	47.5	11.0	47.5	47.5
Total Split (s)	23.0	80.0	80.0	15.0	72.0	72.0	52.0	52.0	52.0	13.0	65.0	65.0
Total Split (%)	14.4%	50.0%	50.0%	9.4%	45.0%	45.0%	32.5%	32.5%	32.5%	8.1%	40.6%	40.6%
Maximum Green (s)	19.0	73.7	73.7	11.0	65.7	65.7	45.5	45.5	45.5	9.0	58.5	58.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	2.8	2.8	2.8	1.0	2.8	2.8
Lost Time Adjust (s)	-3.0	-1.3	-1.3	-3.0	-1.3	-1.3	-1.5	-1.5	-1.5	-3.0	-1.5	-1.5
Total Lost Time (s)	1.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	1.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.0	3.5	3.5
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0	34.0	34.0	34.0		34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0		0	0
Act Effct Green (s)	94.0	75.2	75.2	85.3	67.4	67.4	42.6	42.6	42.6	59.7	55.7	55.7
Actuated g/C Ratio	0.60	0.48	0.48	0.55	0.43	0.43	0.27	0.27	0.27	0.38	0.36	0.36
v/c Ratio	0.90	0.85	0.36	0.83	0.86	0.45	0.91	0.55	0.36	0.89	0.32	0.35
Control Delay	78.1	40.1	12.3	71.7	45.8	16.7	96.2	50.5	10.5	71.8	36.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	40.1	12.3	71.7	45.8	16.7	96.2	50.5	10.5	71.8	36.8	6.1
LOS	E	D	B	E	D	B	F	D	B	E	D	A
Approach Delay		41.1			43.9			52.9			39.2	
Approach LOS		D			D			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 160
Actuated Cycle Length: 155.7
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 43.4 Intersection LOS: D
Intersection Capacity Utilization 92.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Ninth Line & Dundas Street East

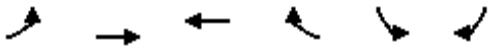




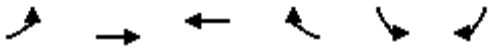
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	254	2099	254	161	1922	293	195	535	170	243	399	209
v/c Ratio	0.90	0.85	0.36	0.83	0.86	0.45	0.91	0.55	0.36	0.89	0.32	0.35
Control Delay	78.1	40.1	12.3	71.7	45.8	16.7	96.2	50.5	10.5	71.8	36.8	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	40.1	12.3	71.7	45.8	16.7	96.2	50.5	10.5	71.8	36.8	6.1
Queue Length 50th (m)	68.4	228.3	21.3	37.6	217.6	31.2	61.7	78.8	4.3	57.2	49.4	1.1
Queue Length 95th (m)	#122.7	249.5	43.5	#80.1	239.3	59.2	#110.2	98.5	24.7	#104.0	64.1	19.7
Internal Link Dist (m)		307.1			160.0			241.7			125.5	
Turn Bay Length (m)	220.0		75.0	230.0		70.0	130.0		90.0	115.0		65.0
Base Capacity (vph)	288	2479	713	197	2224	657	237	1069	499	272	1351	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.85	0.36	0.82	0.86	0.45	0.82	0.50	0.34	0.89	0.30	0.33

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↰↰	↱
Traffic Volume (vph)	0	2297	1593	0	440	891
Future Volume (vph)	0	2297	1593	0	440	891
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)	0.0			0.0	145.0	0.0
Storage Lanes	0			0	1	1
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frt					0.925	0.850
Flt Protected					0.976	
Satd. Flow (prot)	0	5136	5136	0	3331	1471
Flt Permitted					0.976	
Satd. Flow (perm)	0	5136	5136	0	3331	1471
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					18	18
Link Speed (k/h)		60	60		60	
Link Distance (m)		172.0	370.9		257.9	
Travel Time (s)		10.3	22.3		15.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	1%	0%	1%	1%
Adj. Flow (vph)	0	2393	1659	0	458	928
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	0	2393	1659	0	922	464
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.4	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	Perm

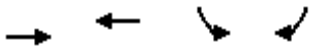


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Protected Phases		2	2		4	
Permitted Phases						4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		8.0	8.0
Minimum Split (s)		25.0	25.0		24.0	24.0
Total Split (s)		93.0	93.0		67.0	67.0
Total Split (%)		58.1%	58.1%		41.9%	41.9%
Maximum Green (s)		86.0	86.0		61.0	61.0
Yellow Time (s)		5.0	5.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0		4.0	4.0
Recall Mode		Max	Max		None	None
Walk Time (s)		8.0	8.0		7.0	7.0
Flash Dont Walk (s)		10.0	10.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		88.3	88.3		53.8	53.8
Actuated g/C Ratio		0.58	0.58		0.35	0.35
v/c Ratio		0.80	0.56		0.78	0.87
Control Delay		28.9	21.6		47.6	62.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		28.9	21.6		47.6	62.0
LOS		C	C		D	E
Approach Delay		28.9	21.6		52.4	
Approach LOS		C	C		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 152.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 32.7		Intersection LOS: C	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Dundas Street East & 403W Off-Ramp





Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	2393	1659	922	464
v/c Ratio	0.80	0.56	0.78	0.87
Control Delay	28.9	21.6	47.6	62.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.9	21.6	47.6	62.0
Queue Length 50th (m)	226.2	123.7	131.5	146.0
Queue Length 95th (m)	261.3	146.1	157.1	201.5
Internal Link Dist (m)	148.0	346.9	233.9	
Turn Bay Length (m)			145.0	
Base Capacity (vph)	2982	2982	1373	612
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	0.80	0.56	0.67	0.76

Intersection Summary



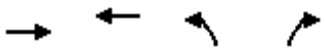
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1914	0	0	1949	139	661
Future Volume (vph)	1914	0	0	1949	139	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.7	3.7
Storage Length (m)		0.0	0.0		125.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		100.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt					0.894	0.850
Flt Protected					0.985	
Satd. Flow (prot)	5136	0	0	5136	3240	1471
Flt Permitted					0.985	
Satd. Flow (perm)	5136	0	0	5136	3240	1471
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					9	9
Link Speed (k/h)	60			60	60	
Link Distance (m)	370.9			189.3	295.6	
Travel Time (s)	22.3			11.4	17.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	0%	0%	1%	2%	1%
Adj. Flow (vph)	1973	0	0	2009	143	681
Shared Lane Traffic (%)						50%
Lane Group Flow (vph)	1973	0	0	2009	484	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.4	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.99	0.99
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Protected Phases	2			2	4	
Permitted Phases						4
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	8.0			8.0	8.0	8.0
Minimum Split (s)	24.0			24.0	24.0	24.0
Total Split (s)	95.0			95.0	65.0	65.0
Total Split (%)	59.4%			59.4%	40.6%	40.6%
Maximum Green (s)	88.0			88.0	59.0	59.0
Yellow Time (s)	5.0			5.0	4.0	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-1.0	-1.0
Total Lost Time (s)	5.0			5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0			4.0	4.0	4.0
Recall Mode	None			None	None	None
Walk Time (s)	8.0			8.0	7.0	7.0
Flash Dont Walk (s)	9.0			9.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	90.4			90.4	39.2	39.2
Actuated g/C Ratio	0.65			0.65	0.28	0.28
v/c Ratio	0.59			0.60	0.53	0.81
Control Delay	16.3			16.5	43.1	60.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.3			16.5	43.1	60.8
LOS	B			B	D	E
Approach Delay	16.3			16.5	50.4	
Approach LOS	B			B	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 160			
Actuated Cycle Length: 139.7			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

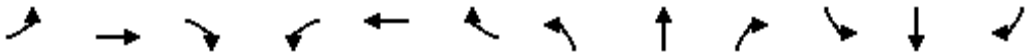
Splits and Phases: 3: 403E Off-Ramp & Dundas Street East





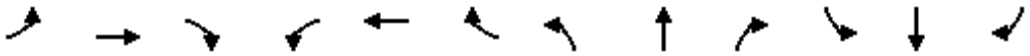
Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1973	2009	484	340
v/c Ratio	0.59	0.60	0.53	0.81
Control Delay	16.3	16.5	43.1	60.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.3	16.5	43.1	60.8
Queue Length 50th (m)	111.3	114.7	60.1	98.6
Queue Length 95th (m)	170.8	175.7	76.8	139.5
Internal Link Dist (m)	346.9	165.3	271.6	
Turn Bay Length (m)			125.0	
Base Capacity (vph)	3325	3325	1403	640
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	0.59	0.60	0.34	0.53

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	70	34	0	17	140	973	92	15	924	19
Future Volume (vph)	7	0	70	34	0	17	140	973	92	15	924	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.5	3.5
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.877			0.954			0.987			0.997	
Flt Protected		0.996			0.968		0.950			0.950		
Satd. Flow (prot)	0	1586	0	0	1644	0	1745	3486	0	1711	3491	0
Flt Permitted		0.996			0.968		0.950			0.950		
Satd. Flow (perm)	0	1586	0	0	1644	0	1745	3486	0	1711	3491	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		62.7			68.3			149.5			997.9	
Travel Time (s)		3.8			4.1			9.0			59.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	2%	0%	2%	2%	2%	0%	1%	2%	2%	2%	0%
Adj. Flow (vph)	7	0	73	35	0	18	146	1014	96	16	963	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	53	0	146	1110	0	16	983	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			6.5			3.3	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane											Yes	
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.04	1.01	1.01	1.04	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

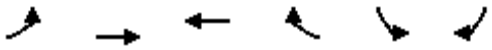
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	70	34	0	17	140	973	92	15	924	19
Future Volume (Veh/h)	7	0	70	34	0	17	140	973	92	15	924	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	7	0	73	35	0	18	146	1014	96	16	963	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (m)								149				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	1822	2407	492	1940	2369	555	983			1110		
vC1, stage 1 conf vol	1005	1005		1354	1354							
vC2, stage 2 conf vol	817	1402		586	1015							
vCu, unblocked vol	1660	2325	492	1795	2282	219	983			850		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	86	73	100	97	79			98		
cM capacity (veh/h)	202	143	528	128	123	691	711			689		

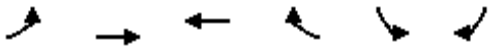
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	80	53	146	676	434	16	642	341
Volume Left	7	35	146	0	0	16	0	0
Volume Right	73	18	0	0	96	0	0	20
cSH	463	177	711	1700	1700	689	1700	1700
Volume to Capacity	0.17	0.30	0.21	0.40	0.26	0.02	0.38	0.20
Queue Length 95th (m)	5.0	9.5	6.1	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	14.4	33.7	11.4	0.0	0.0	10.3	0.0	0.0
Lane LOS	B	D	B			B		
Approach Delay (s)	14.4	33.7	1.3			0.2		
Approach LOS	B	D						

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	53.5%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2411	2219	46	0	84
Future Volume (vph)	0	2411	2219	46	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00
Frt			0.997			0.865
Flt Protected						
Satd. Flow (prot)	0	5085	5070	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	5085	5070	0	0	1611
Link Speed (k/h)		60	60		60	
Link Distance (m)		184.0	172.0		64.2	
Travel Time (s)		11.0	10.3		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2621	2412	50	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2621	2462	0	0	91
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.3	3.3		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2411	2219	46	0	84
Future Volume (Veh/h)	0	2411	2219	46	0	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2621	2412	50	0	91
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		184	172			
pX, platoon unblocked	0.80				0.73	0.80
vC, conflicting volume	2462				3311	829
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1959				1061	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	235				161	870

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1
Volume Total	874	874	874	965	965	532	91
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	50	91
cSH	1700	1700	1700	1700	1700	1700	870
Volume to Capacity	0.51	0.51	0.51	0.57	0.57	0.31	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.6
Approach LOS							A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2023 Future Background.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:26:21 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 FB											
Arm 1	0.83	3.29	0.45	A	0.58	3.35	0.37	A	0.39	2.56	0.28	A
Arm 4	1.26	5.19	0.56	A	0.58	3.25	0.37	A	0.30	2.55	0.23	A
Arm 2	0.55	3.61	0.35	A	1.21	4.60	0.55	A	0.46	2.81	0.32	A
Arm 3	0.32	2.55	0.24	A	1.09	4.41	0.52	A	0.42	2.67	0.29	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2023 FB, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2023 FB, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2023 FB, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:26:21 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2028 Future Background.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:29:00 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2028 FB											
Arm 1	1.28	4.13	0.56	A	0.97	4.24	0.49	A	0.58	2.95	0.37	A
Arm 4	1.85	7.30	0.65	A	0.73	3.89	0.42	A	0.35	2.84	0.26	A
Arm 2	0.87	4.48	0.46	A	2.35	7.14	0.71	A	0.68	3.28	0.41	A
Arm 3	0.37	2.82	0.27	A	1.55	5.96	0.61	A	0.49	2.97	0.33	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2028 FB, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2028 FB, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2028 FB, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:29:00 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2033 Future Background.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:30:47 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2033 FB											
Arm 1	2.29	6.01	0.70	A	1.93	6.47	0.66	A	0.95	3.68	0.49	A
Arm 4	3.74	14.11	0.80	B	1.02	5.21	0.51	A	0.44	3.34	0.30	A
Arm 2	1.60	6.40	0.61	A	8.77	20.69	0.92	C	1.10	4.18	0.53	A
Arm 3	0.45	3.25	0.31	A	2.82	10.41	0.74	B	0.60	3.48	0.37	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2033 FB, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2033 FB, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2033 FB, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:30:46 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2023 Future Total.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:28:09 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2023 FT											
Arm 1	0.83	3.30	0.45	A	0.60	3.38	0.37	A	0.40	2.59	0.29	A
Arm 4	1.26	5.20	0.56	A	0.58	3.27	0.37	A	0.31	2.57	0.23	A
Arm 2	0.55	3.62	0.35	A	1.23	4.65	0.55	A	0.47	2.83	0.32	A
Arm 3	0.32	2.55	0.24	A	1.10	4.44	0.52	A	0.42	2.68	0.29	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2023 FT, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2023 FT, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2023 FT, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:28:08 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2028 Future Total.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:30:09 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2028 FT											
Arm 1	1.28	4.14	0.56	A	0.98	4.28	0.50	A	0.59	2.97	0.37	A
Arm 4	1.85	7.32	0.65	A	0.73	3.91	0.42	A	0.36	2.86	0.26	A
Arm 2	0.87	4.48	0.46	A	2.41	7.26	0.71	A	0.70	3.31	0.41	A
Arm 3	0.37	2.82	0.27	A	1.56	6.02	0.61	A	0.49	2.99	0.33	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2028 FT, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2028 FT, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2028 FT, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:30:08 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]
© Copyright TRL Limited, 2018

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 2033 Future Total.arc8
Path: J:\1600\1644-DYM Capital Corp\5084-3855 Dundas St E\Design\Traffic\Analysis\ARCADY
Report generation date: 11/4/2018 1:31:26 PM

Summary of junction performance

	AM				PM				SAT			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
	2033 FT											
Arm 1	2.30	6.03	0.70	A	1.97	6.55	0.67	A	0.97	3.73	0.49	A
Arm 4	3.77	14.19	0.80	B	1.03	5.25	0.51	A	0.44	3.36	0.31	A
Arm 2	1.60	6.42	0.61	A	9.18	21.47	0.92	C	1.13	4.23	0.53	A
Arm 3	0.45	3.25	0.31	A	2.86	10.58	0.75	B	0.60	3.50	0.38	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2033 FT, AM " model duration: 8:00 AM - 9:00 AM
"D2 - 2033 FT, PM" model duration: 5:00 PM - 6:00 PM
"D3 - 2033 FT, SAT" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 11/4/2018 1:31:26 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	10/31/2018
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	mferguson
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

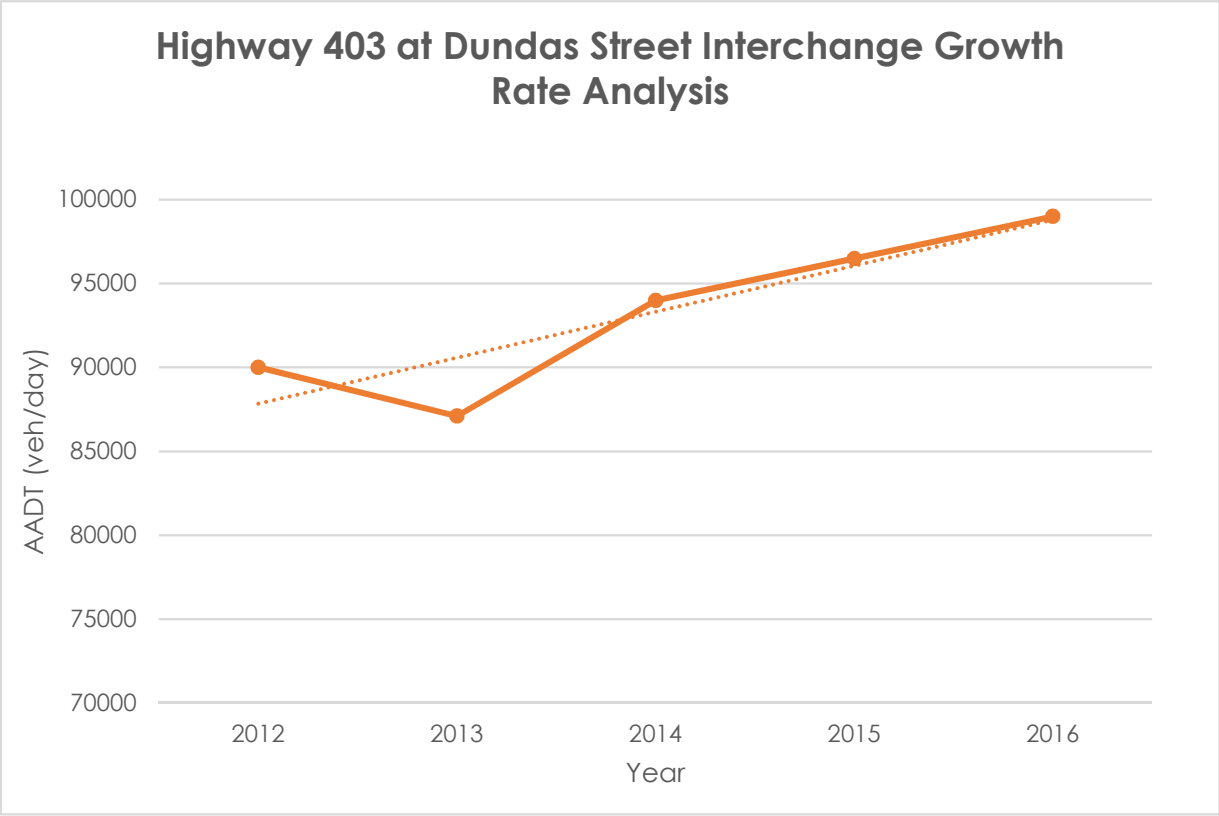
Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

APPENDIX G

MTO Growth Rate Analysis

Highway 403 at Dundas Street Interchange

Year	AADT	Year-to-Year Increase	Average Increase
2012	90000	-3.22%	2.49%
2013	87100	7.92%	
2014	94000	2.66%	
2015	96500	2.59%	
2016	99000		



APPENDIX H

Ninth Line Widening Preliminary Design Drawings

Class Environmental Assessment Study
Ninth Line (Regional Road 13)
Transportation Corridor Improvements
Dundas (Regional Road 5) to 407 ETR
Preliminary Preferred Plan
Dundas Street to Willam Halton Parkway

Halton Region

June 22, 2017

CIMA



APPENDIX I

TTS Data

Mon Oct 22 2018 10:17:14 GMT-0400 (Eastern Daylight Time) - Run Time: 3838ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: Primary travel mode of trip - mode_prime
Table: Planning district of origin - pd_orig

Filters:
(Primary travel mode of trip - mode_prime In D
and
2006 GTA zone of destination - gta06_dest In 4035
and
Trip purpose of destination - purp_dest In M
and
Start time of trip - start_time In 1600-1900)

Trip 2016
Table: Mississauga

	Auto driver	Route
3634	21	East (Dundas)
3644	69	East (Dundas)
3680	13	East (Highway 403)
3684	21	East (Highway 403)

Route	# of trips	% of trips	% assumed
East (Dundas)	90	17%	15%
East (Highway 403)	34	6%	5%
North (Ninth)	59	11%	10%
South (Ninth)	17	3%	5%
West (Dundas)	308	58%	60%
West (Highway 403)	25	5%	5%
Total	533	100%	100%

Trip 2016
Table: Milton

	Auto driver	
4112	24	North (Ninth)

Trip 2016
Table: Oakville

	Auto driver	
4011	20	West (Dundas)
4017	35	West (Dundas)
4023	37	West (Dundas)
4025	17	South (Ninth)
4027	29	West (Dundas)
4029	35	West (Dundas)
4030	29	West (Dundas)
4031	13	West (Dundas)
4034	11	West (Dundas)
4035	53	West (Dundas)
4036	19	West (Dundas)
4037	19	West (Dundas)
4180	35	North (Ninth)
4185	8	West (Dundas)
4186	23	West (Dundas)

Trip 2016
Table: Burlington

	Auto driver	
4092	25	West (Highway 403)

Tue Oct 30 2018 23:37:27 GMT-0400 (Eastern Daylight Time) - Run Time: 2129ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Primary travel mode of trip - mode_prime

Filters:
(Start time of trip - start_time In 600-900
and
2006 GTA zone of destination - gta06_dest In 3634)

Trip 2016
Table:

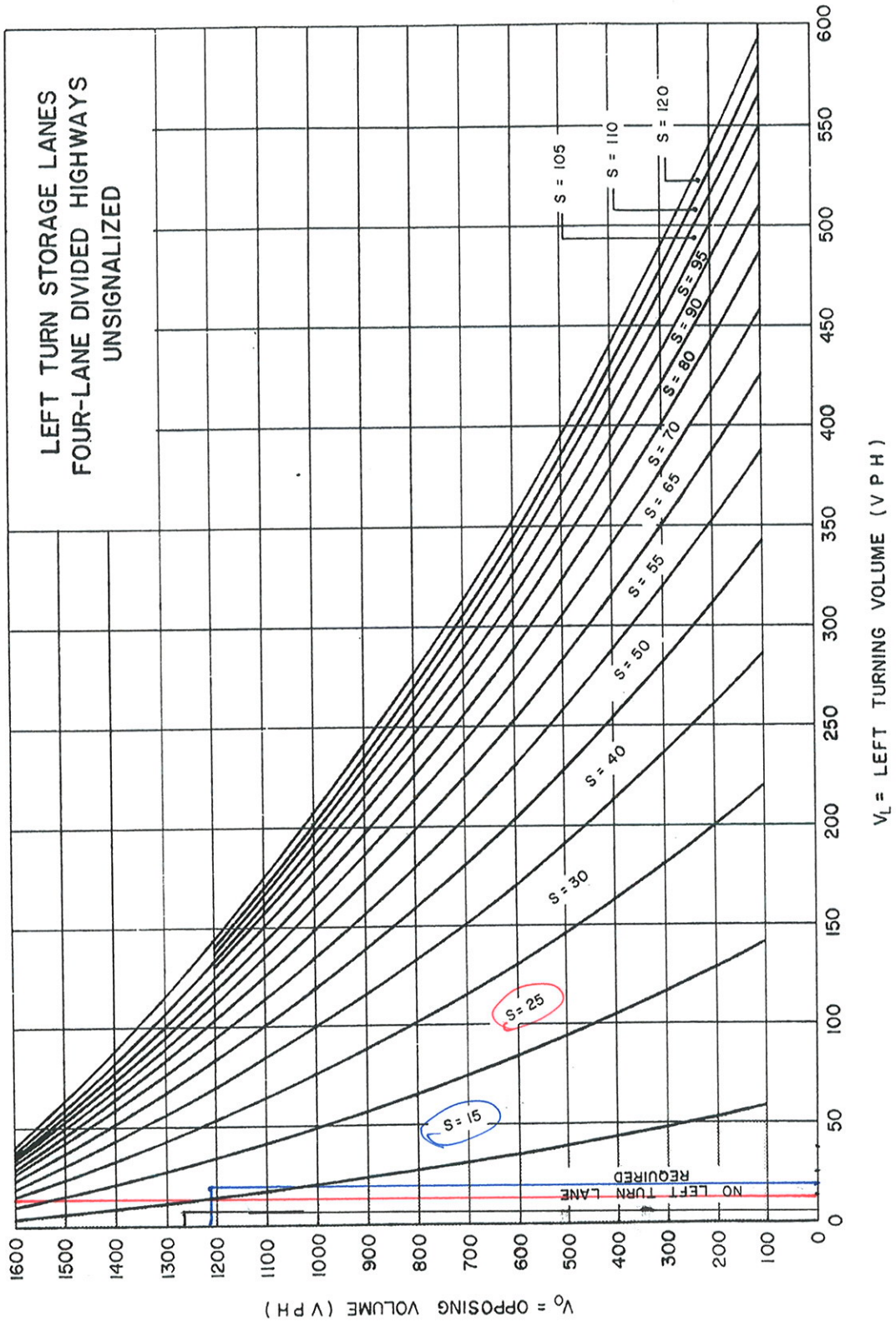
	Transit excluding GO rail	Cycle	Auto driver	Auto passenger	Walk	
PD 2 of Toronto	0	0	56	0	0	
PD 3 of Toronto	0	0	32	0	0	
PD 4 of Toronto	0	0	16	0	0	
PD 8 of Toronto	0	0	71	0	0	
PD 16 of Toronto	0	0	74	0	0	
Richmond Hill	0	0	32	0	0	
Markham	0	0	38	0	0	
Vaughan	0	0	127	0	0	
Brampton	0	0	177	6	0	
Mississauga	276	4	1284	111	32	
Halton Hills	0	0	78	0	0	
Milton	0	0	105	0	0	
Oakville	0	0	650	36	0	
Burlington	0	0	166	16	0	
Flamborough	0	0	105	0	0	
Hamilton	0	0	123	0	0	
Cambridge	0	0	44	0	0	
Orangeville	0	0	15	0	0	
Barrie	0	0	17	0	0	
Shelburne	0	0	15	0	0	
Brantford	0	0	0	20	0	
	276	4	3225	189	32	3726

Mode	**% of trips**
Transit	7%
Auto Driver	87%
Auto Passenger	5%
Cycling	0%
Walk	1%
Total	100%

APPENDIX J

Left-Turn Lane Warrant Analysis Worksheets

Ninth Line & Glen Oaks / Site Access B
2033 Future Total Conditions
Southbound Left-Turn



AM
VL = 5 veh/hr
VO = 1285 veh/hr
Req = None

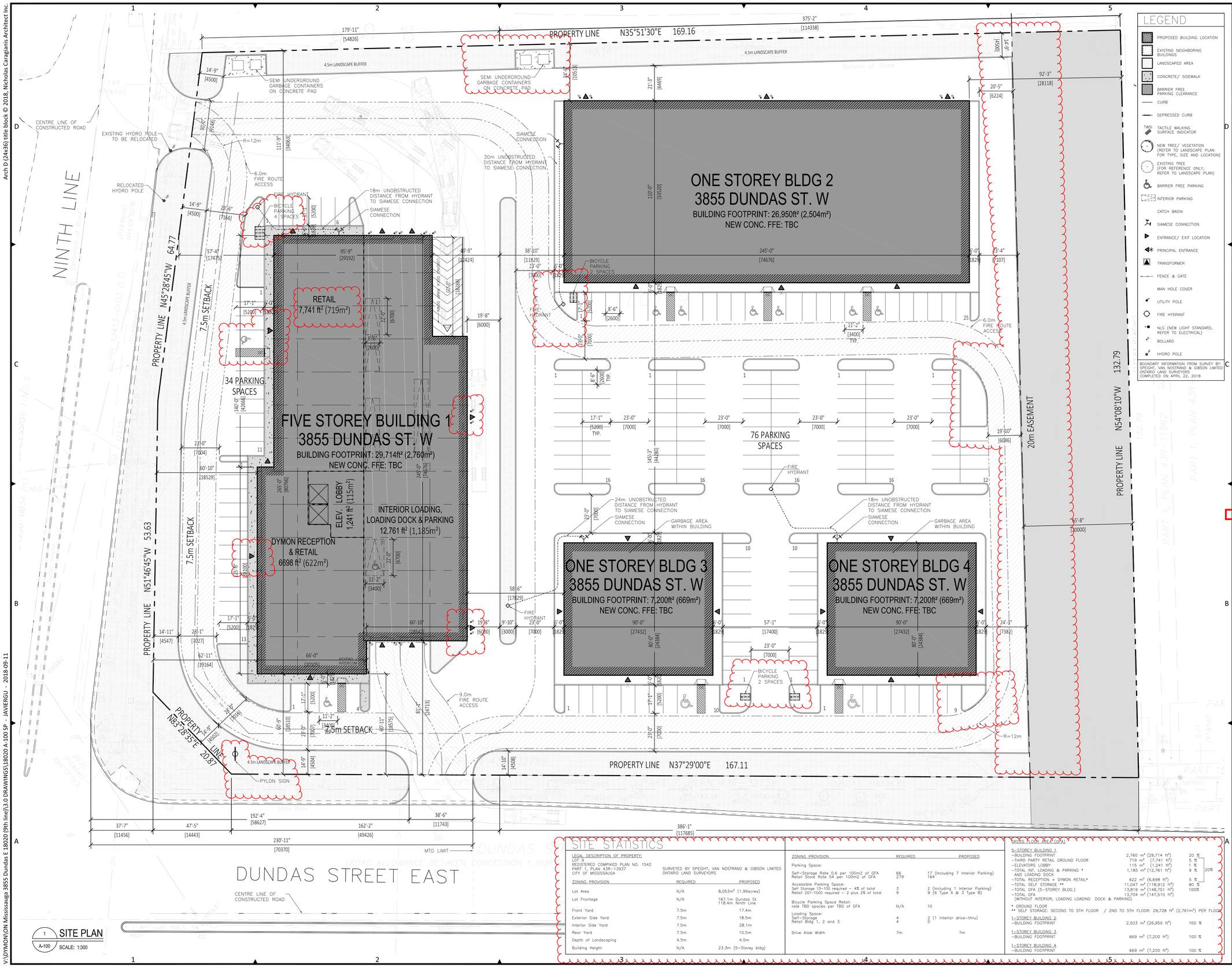
PM
VL = 11 veh/hr
VO = 1933 veh/hr
Req = 25+m

SAT
VL = 15 veh/hr
VO = 1205 veh/hr
Req = 15m

Figure EC-1

FIGURES

Arch D (24x36) title block © 2018, Nicholas Caragianis Architect Inc.



1 SITE PLAN
A-100 SCALE: 1:300

LEGEND

- PROPOSED BUILDING LOCATION
- EXISTING NEIGHBORING BUILDINGS
- LANDSCAPED AREA
- CONCRETE/ SIDEWALK
- BARRIER FREE PARKING CLEARANCE
- CURB
- DEPRESSED CURB
- TWSI TACTILE WALKING SURFACE INDICATOR
- NEW TREE/ VEGETATION (REFER TO LANDSCAPE PLAN FOR TYPE, SIZE AND LOCATION)
- EXISTING TREE (FOR REFERENCE ONLY, REFER TO LANDSCAPE PLAN)
- BARRIER FREE PARKING
- INTERIOR PARKING
- CATCH BASIN
- SIAMESE CONNECTION
- ENTRANCE/ EXIT LOCATION
- PRINCIPAL ENTRANCE
- TRANSFORMER
- FENCE & GATE
- MAN HOLE COVER
- UTILITY POLE
- FIRE HYDRANT
- NLS (NEW LIGHT STANDARD, REFER TO ELECTRICAL)
- BOLLARD
- HYDRO POLE

BOUNDARY INFORMATION FROM SURVEY BY: SPEIGHT, VAN NOSTRAND & GIBSON LIMITED ONTARIO LAND SURVEYORS COMPLETED ON APRIL 22, 2018

SITE STATISTICS

LEGAL DESCRIPTION OF PROPERTY:
LOT 9
REGISTERED COMPIKED PLAN NO. 1542
PART 1, PLAN 43R-13937
CITY OF MISSISSAUGA

SURVEYED BY SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS

ZONING PROVISION	REQUIRED	PROPOSED
Lot Area	N/A	8,053m² (1.99acres)
Lot Frontage	N/A	167.1m Dundas St. 118.4m Ninth Line
Front Yard	7.5m	17.4m
Exterior Side Yard	7.5m	18.5m
Interior Side Yard	7.5m	28.1m
Rear Yard	7.5m	10.5m
Depth of Landscaping	4.5m	4.5m
Building Height	N/A	23.3m (5-Storey bldg)

ZONING PROVISION	REQUIRED	PROPOSED
Parking Space:		
Self-Storage Rate 0.6 per 100m2 of GFA Retail Store Rate 54 per 100m2 of GFA	66 279	17 (including 7 Interior Parking) 164
Accessible Parking Space: Self Storage 13-100 required - 4% of total Retail 201-1000 required - 2 plus 2% of total	3 9	2 (including 1 Interior Parking) 9 (6 Type A & 3 Type B)
Bicycle Parking Space Retail: rate TBD spaces per TBD of GFA	N/A	10
Loading Space: Self-Storage Retail Bldg 1, 2 and 3	4 4	2 (1 interior drive-thru) 0
Drive Aisle Width	7m	7m

GROSS FLOOR AREA (GFA)

5-STOREY BUILDING 1		
-BUILDING FOOTPRINT	2,760 m² (29,714 ft²)	20 %
-THIRD PARTY RETAIL GROUND FLOOR	719 m² (7,741 ft²)	5 %
-ELEVATORS LOBBY	115 m² (1,241 ft²)	1 %
-TOTAL INT. LOADING & PARKING * AND LOADING DOCK	1,185 m² (12,761 ft²)	9 % 20%
-TOTAL RECEPTION + DYMON RETAIL*	622 m² (6,698 ft²)	5 %
-TOTAL SELF STORAGE **	11,047 m² (118,912 ft²)	80 %
-TOTAL GFA (5-STOREY BLDG.)	13,819 m² (148,751 ft²)	100%
-TOTAL GFA (WITHOUT INTERIOR, LOADING LOADING DOCK & PARKING)	13,704 m² (147,510 ft²)	
* GROUND FLOOR		
** SELF STORAGE: SECOND TO 5TH FLOOR / 2ND TO 5TH FLOOR: 29,728 ft² (2,761m²) PER FLOOR		
1-STOREY BUILDING 2		
-BUILDING FOOTPRINT	2,503 m² (26,950 ft²)	100 %
1-STOREY BUILDING 3		
-BUILDING FOOTPRINT	669 m² (7,200 ft²)	100 %
1-STOREY BUILDING 4		
-BUILDING FOOTPRINT	669 m² (7,200 ft²)	100 %

nicholas caragianis architect inc.
137 Pamilla Street
Ottawa ON K1S 3K9
613 237 6801 ncarchitect.ca

PROJECT NORTH / TRUE NORTH

ARCHITECT'S SEAL:

© Copyright 2018, Nicholas Caragianis Architect Inc. All Rights Reserved.

Notes: Contractor must verify all drawings, dimensions, details and specifications and report any discrepancies to the architect before proceeding with work. All drawings and specifications are instruments of service and the property of the architect, and these must be returned at the completion of the project, and may not be reproduced without the architect's written permission. All drawings are to be read in conjunction with specifications and consultants' documents. Do not scale drawings. Do not use for construction unless both indicated as "For Construction" and bearing the architect's stamp and signature. All construction to meet local, provincial and federal requirements.

PLANNING & URBAN DESIGN
MHBC Planning, Urban Design & Landscape Architecture
7050 Weston Road, Suite 230, Woodbridge ON. L4L 8G7
tel: (905) 761-5588 fax: (905) 761-5589
www.mhbcplan.com

CIVIL ENGINEER
Cole Engineering
70 Valleywood Drive, Markham ON. L3R 4T5
tel: (416) 987-6161 / (905) 940-6161 fax: (905) 940-2064
info@coleengineering.ca

DESIGN ARCHITECT
TACT Architecture Inc
660R College Street (Rear Lane) Toronto ON. M6G 1B8
tel: (416) 516-1949
email: info@tactdesign.ca

STRUCTURAL ENGINEER
Cleland Jardine Engineering Ltd.
200-580 Terry Fox Drive, Kanata ON. K2L 4B9
tel: (613) 591-1533 fax: (613) 591-1703
E-MAIL AND/OR URL

MECHANICAL AND ELECTRICAL ENGINEER

ISSUE	YYYYMMDD	ISSUES DESCRIPTION
14	2018-09-11	FOR COORDINATION
13	2018-08-14	FOR COORDINATION
12	2018-08-13	FOR COORDINATION
11	2018-07-27	FOR COORDINATION
10	2018-07-24	FOR COORDINATION
9	2018-07-17	FOR DISCUSSION
8	2018-07-06	FOR COORDINATION
7	2018-07-03	FOR COORDINATION
6	2018-05-11	FOR DISCUSSION
5	2018-03-25	REVISED FOR DISCUSSION
4	2018-03-22	REVISED FOR DISCUSSION
3	2018-03-20	REVISED FOR DISCUSSION
2	2018-03-19	REVISED FOR DISCUSSION
1	2018-03-08	PRELIM FOR CLIENT REVIEW

DYMON STORAGE

CLIENT NAME AND ADDRESS:
DYM. CAPITAL CORP
2-1830 WALKLEY ROAD
OTTAWA, ON. K1H 8K3

PROJECT NAME & LOCATION:
9th LINE & DUNDAS
3855 DUNDAS ST. E
MISSISSAUGA

NCA PROJECT NUMBER: 2018.0020
FILE NUMBER: ---
OWNER'S CONTRACT NUMBER: ---
OWNER'S PROJECT NUMBER: ---
CAD FILE NAME: 18020 A-100 SP

SHEET TITLE: SITE PLAN

SCALE: 1:300
DRAWN BY: CLW/TH
DATE CREATED: 18-03-07
SHEET ID: A-100

V:\DYMON\ON Mississauga 3855 Dundas E 18020 (9th line)\3.0 DRAWINGS\18020 A-100 SP - JAVIERGU - 2018-09-11



Legend

Project

3855 DUNDAS STREET WEST

Drawing

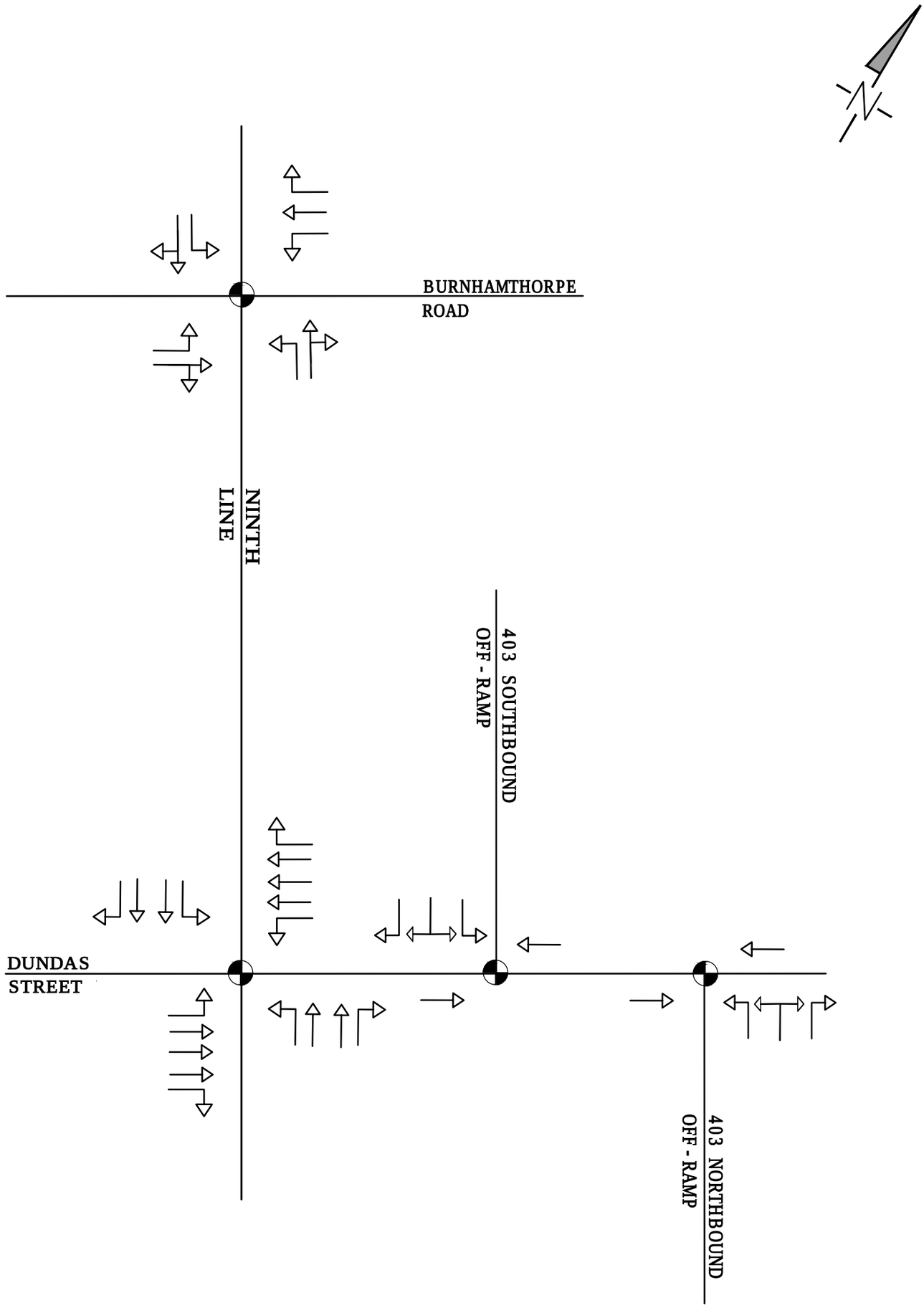
SITE LOCATION PLAN

CROZIER & ASSOCIATES
Consulting Engineers

The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
D.L.	D.L.	1644-5084

Scale	Date	Check By	Drawing
N.T.S.	NOV. 2, 2018	A.F.	FIG. 2



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

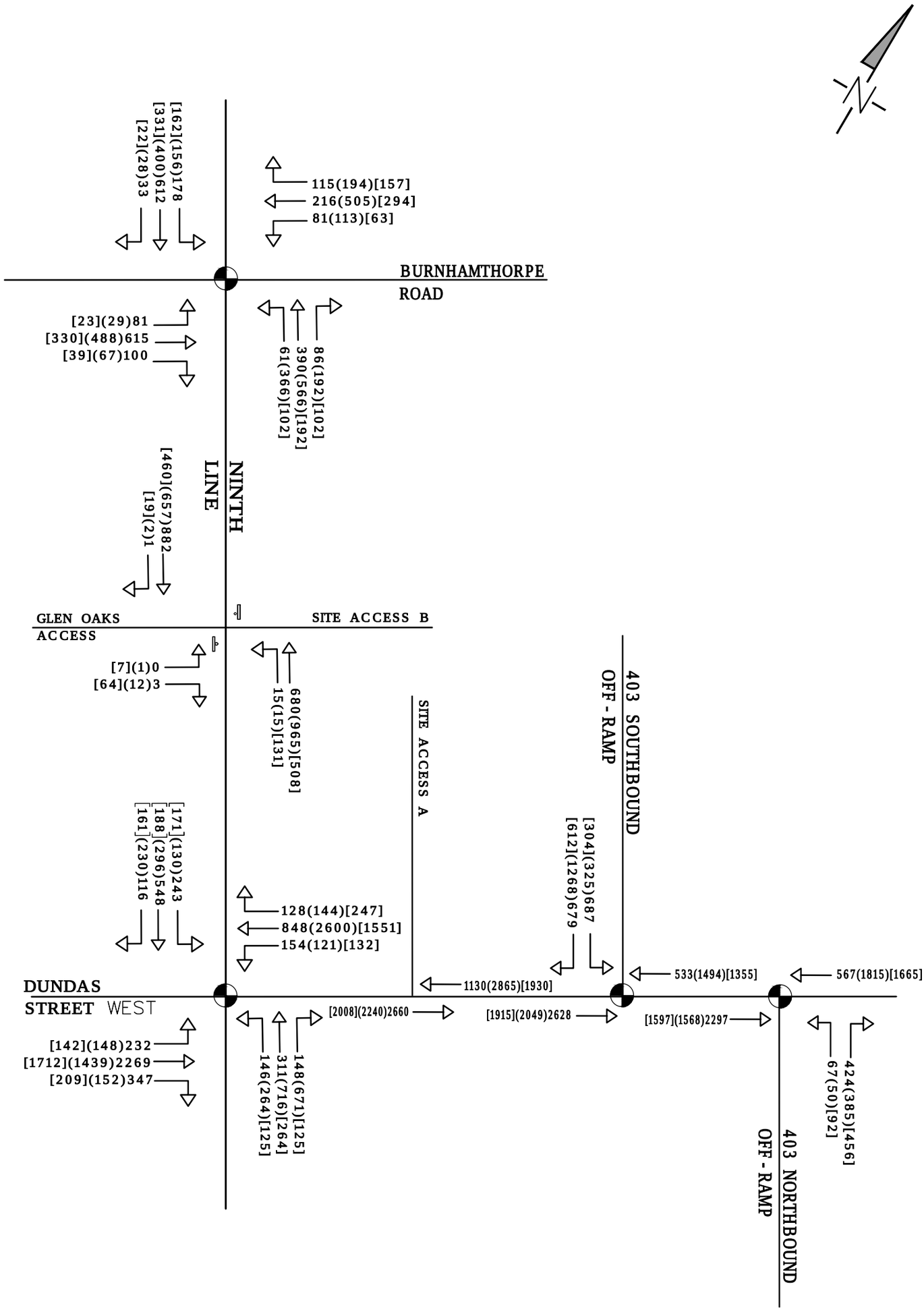
- SIGNAL CONTROL
- STOP CONTROL
- MULTI-USE PATH
- BIKE LANE
- BUS STOP

Project: 3855 DUNDAS STREET WEST

Drawing: BOUNDARY ROAD NETWORK

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project	Scale	Date	Check By	Drawing
T.W.	T.W.	1644-5084	N.T.S.	2018.11.02	D.L.	FIG.3



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

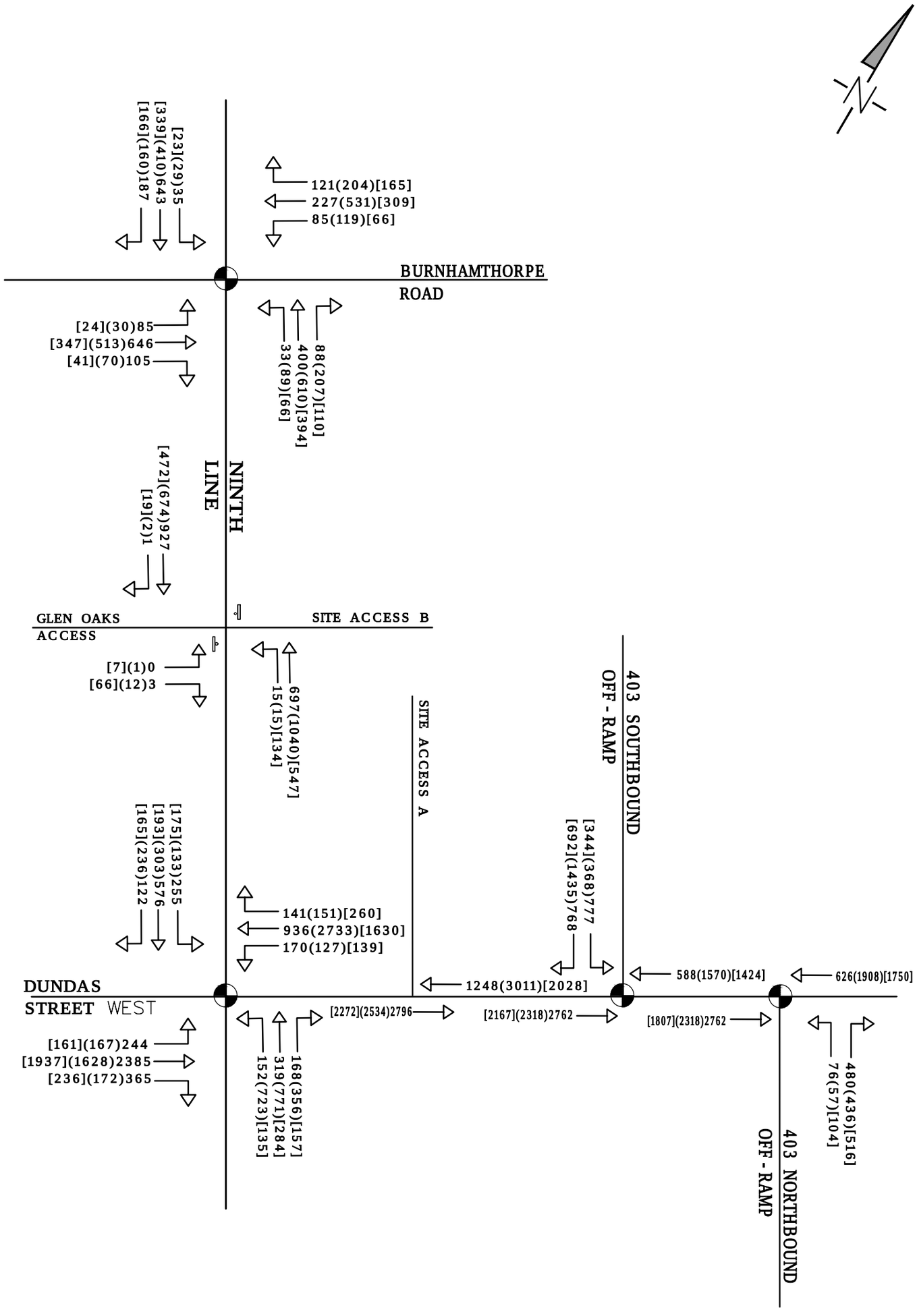
- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

Project: 3855 DUNDAS STREET WEST

Drawing: 2018 EXISTING

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building, 40 Huron Street, Suite 301, Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project	
T.W.	T.W.	1644 - 5084	
Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.4



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

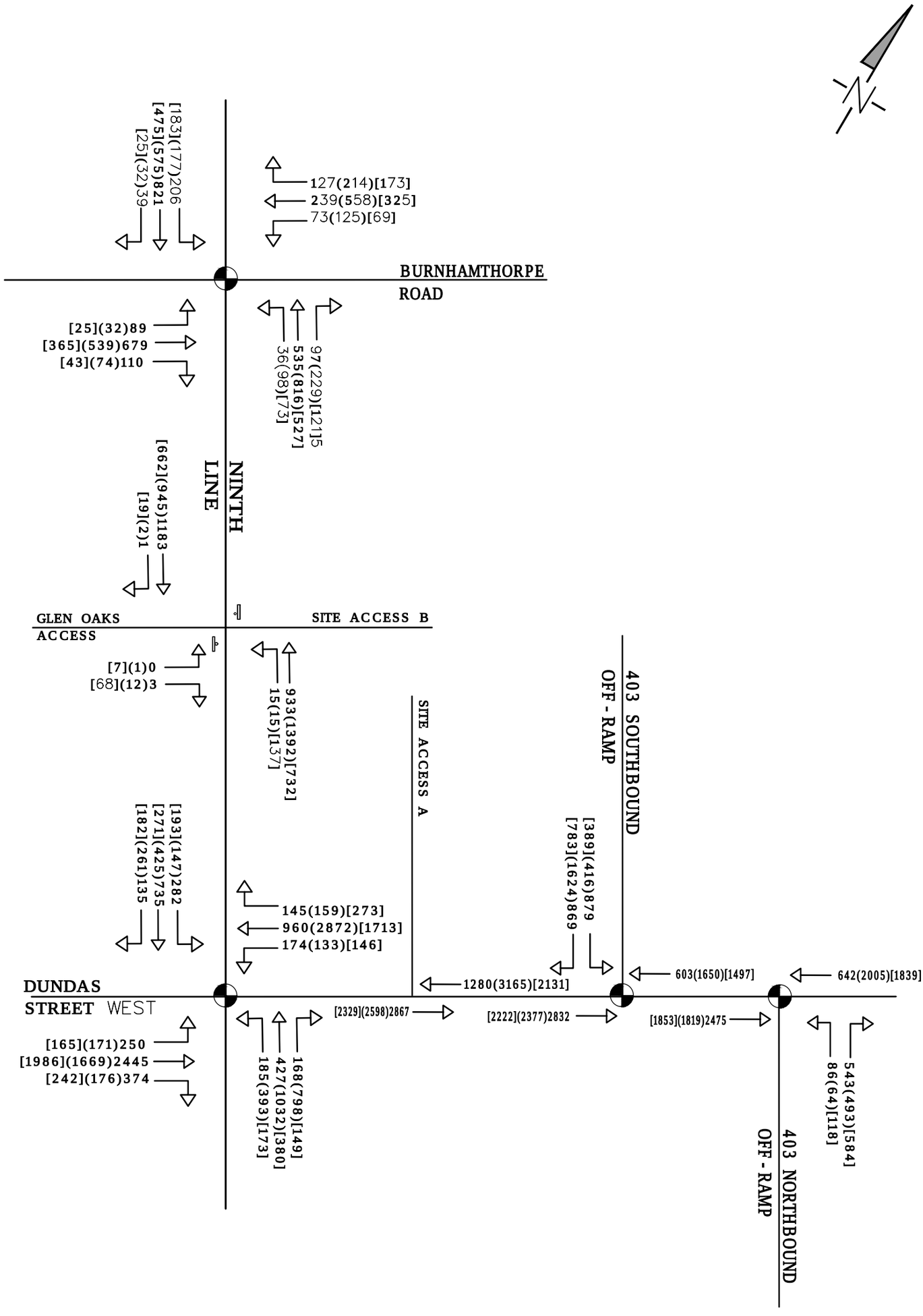
- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

Project: 3855 DUNDAS STREET WEST

Drawing: 2023 FUTURE BACKGROUND TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project	Scale	Date	Check By	Drawing
T.W.	T.W.	1644 - 5084	N.T.S.	2018.11.02	D.L.	FIG. 5



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

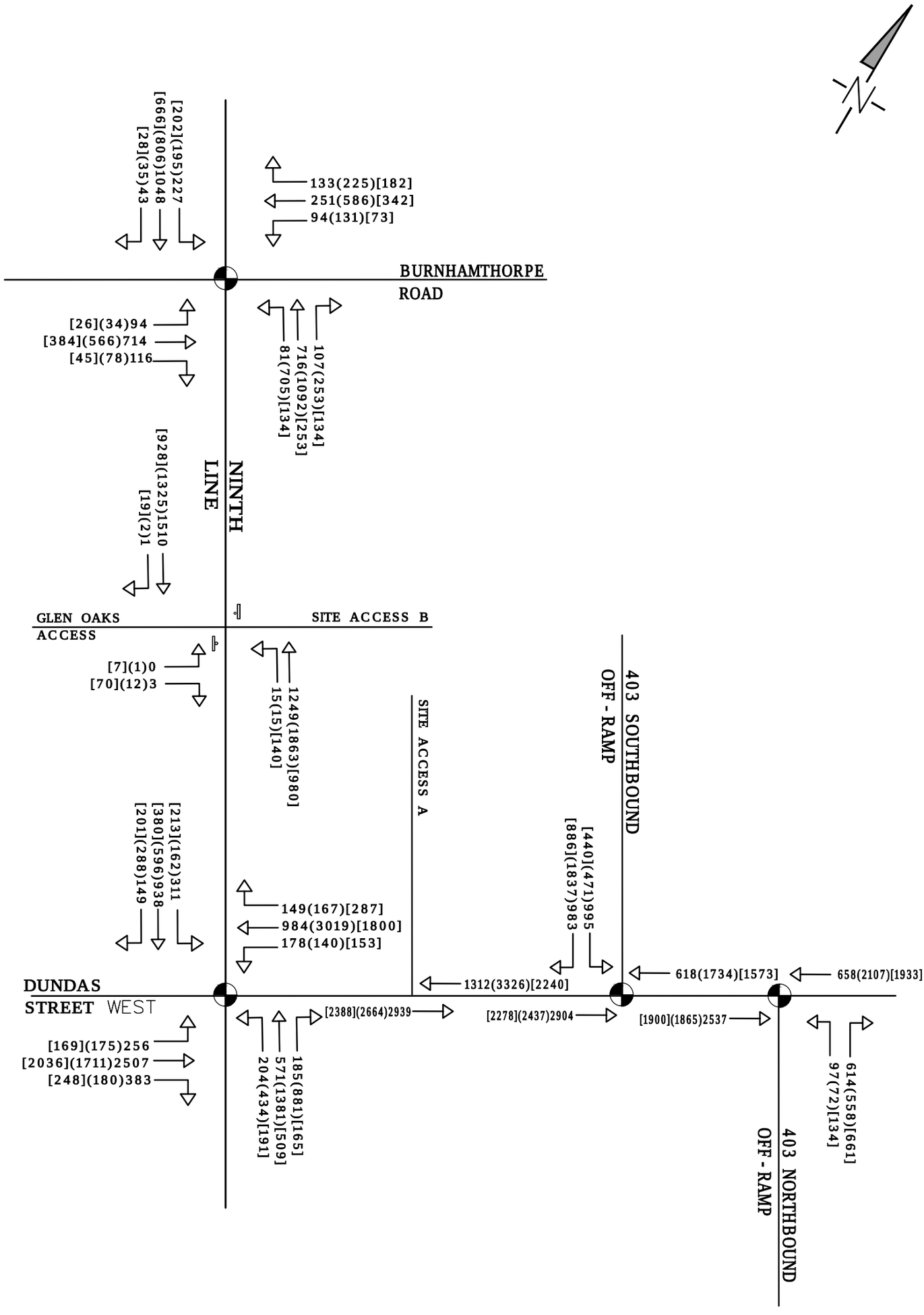
Project: 3855 DUNDAS STREET WEST

Drawing: 2028 FUTURE BACKGROUND TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG. 6



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

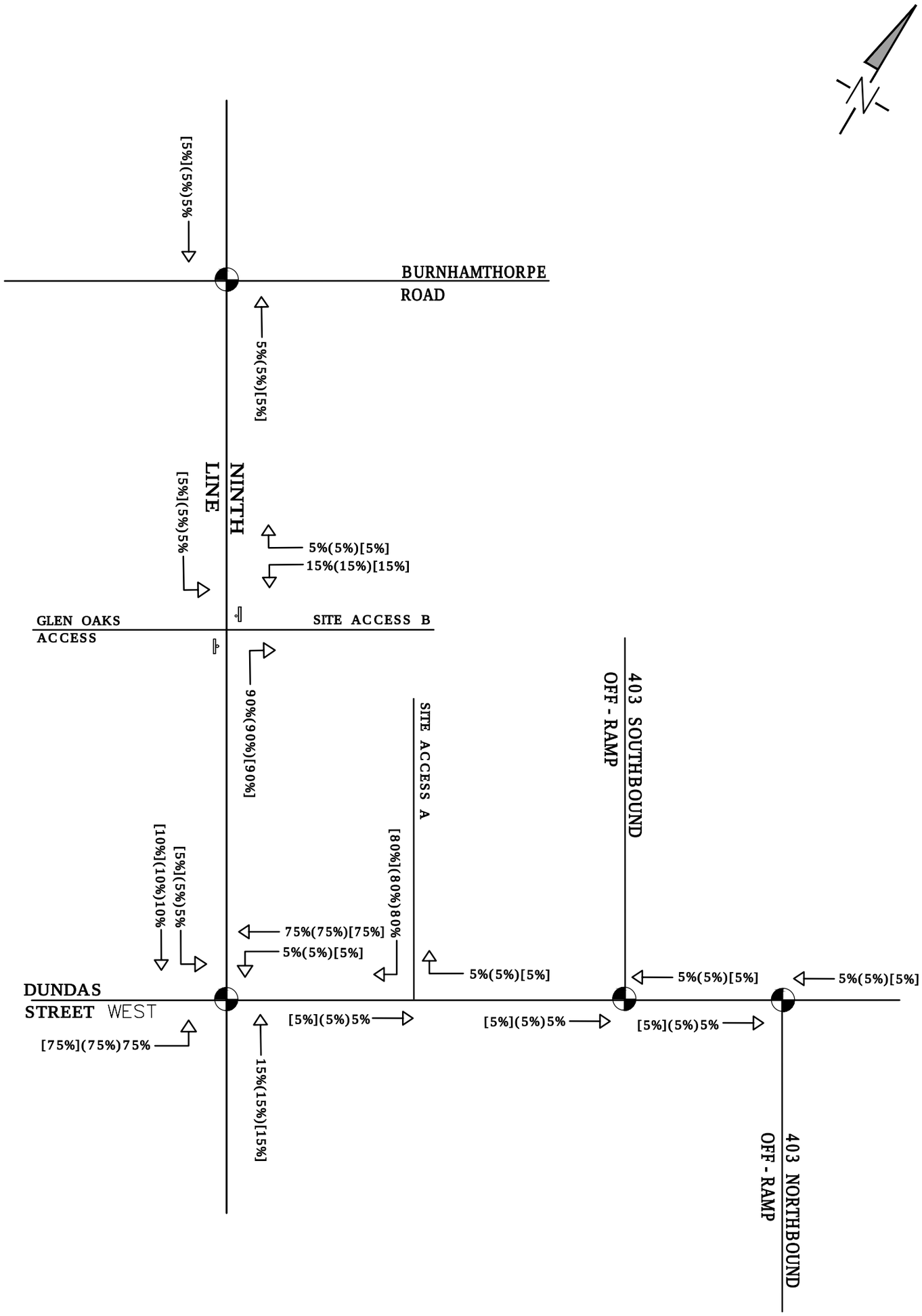
Project: 3855 DUNDAS STREET WEST

Drawing: 2033 FUTURE BACKGROUND TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.7



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

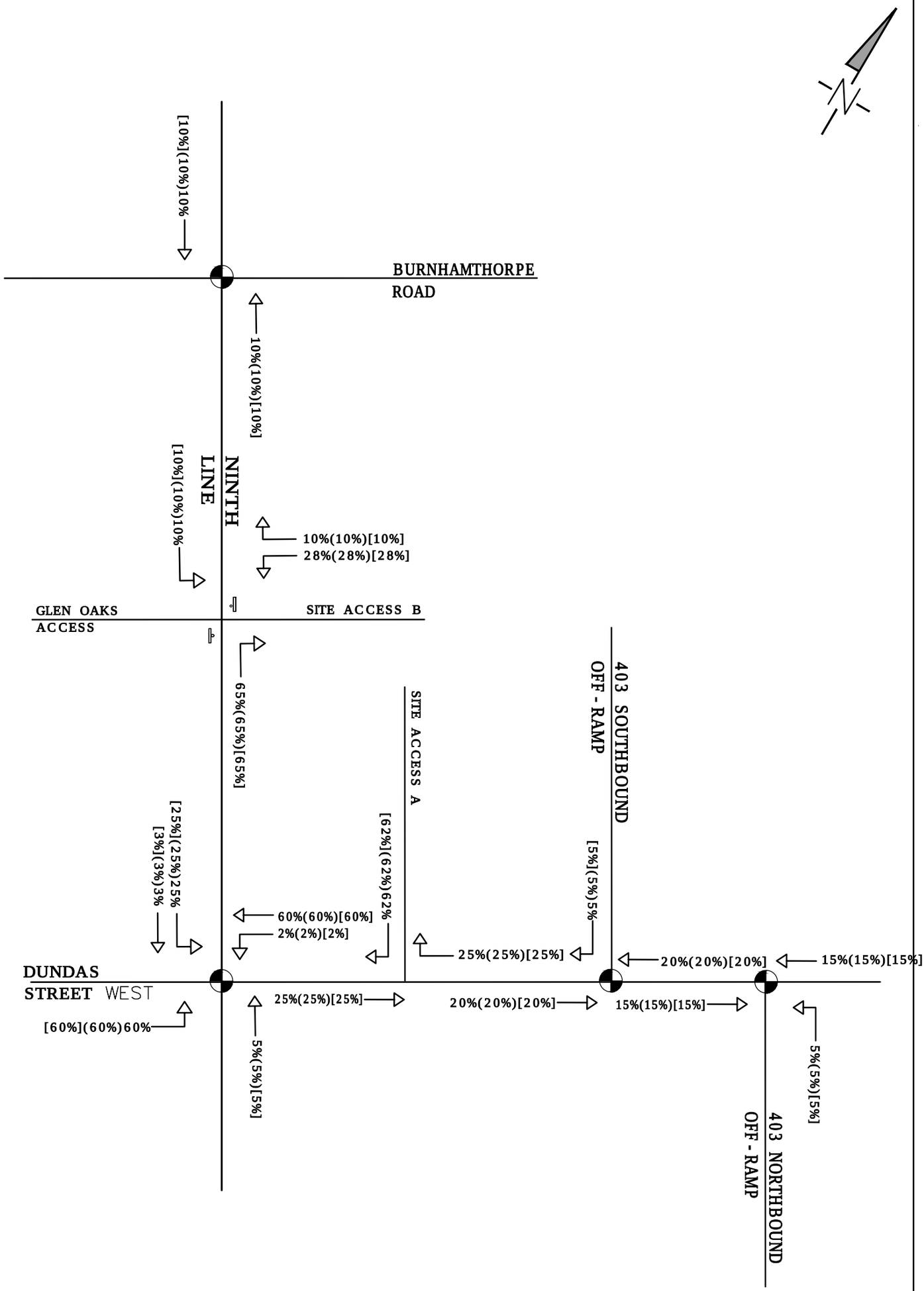
Project: 3855 DUNDAS STREET WEST

Drawing: TRIP DISTRIBUTION - SELF STORAGE

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.8



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

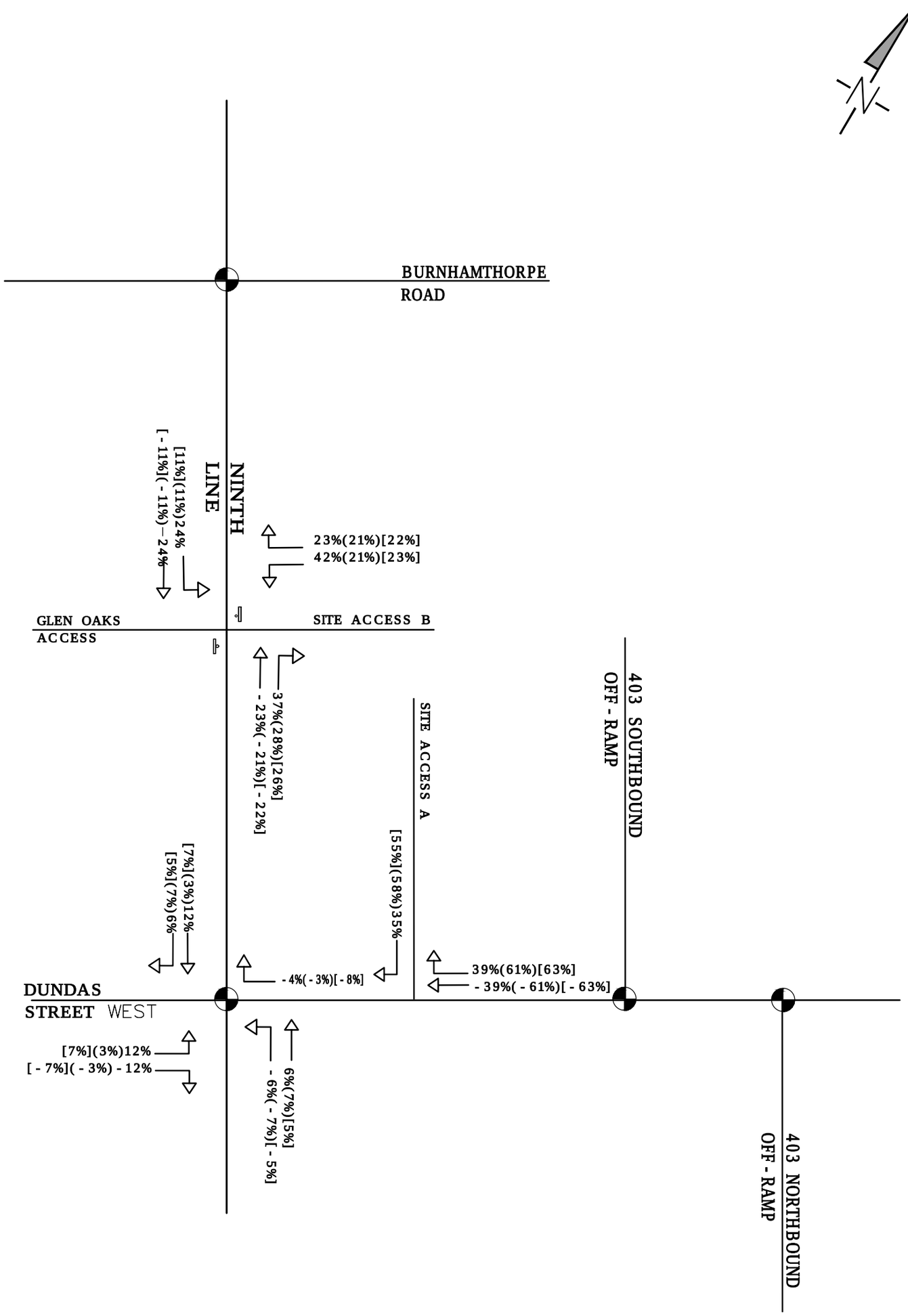
Project: 3855 DUNDAS STREET WEST

Drawing: TRIP DISTRIBUTION – RETAIL PRIMARY

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.W.	FIG. 9



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

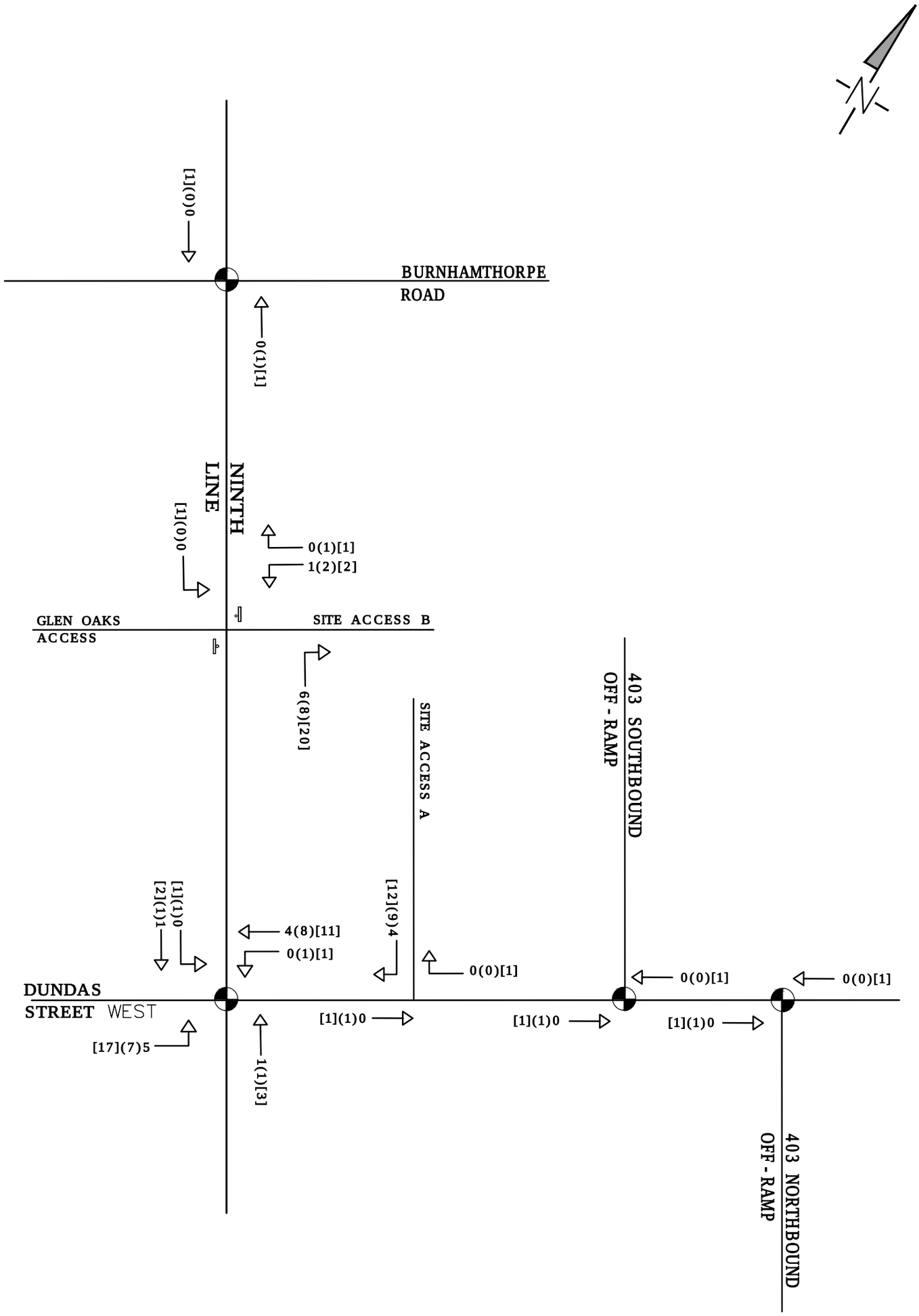
Project: 3855 DUNDAS STREET WEST

Drawing: TRIP DISTRIBUTION – RETAIL PASS-BY

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.10



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

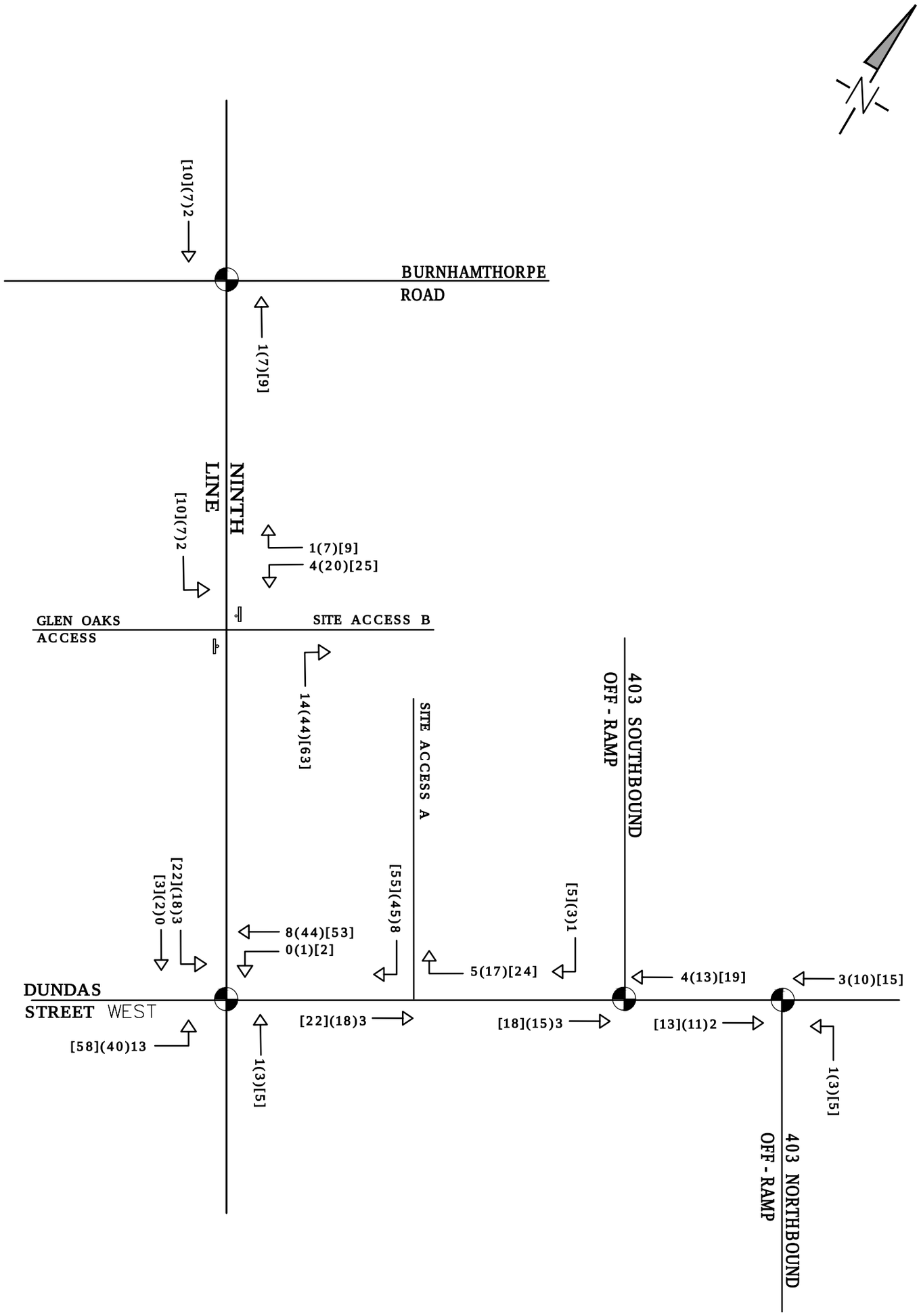
Project: 3855 DUNDAS STREET WEST

Drawing: TRIP ASSIGNMENT - SELF STORAGE

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.11



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

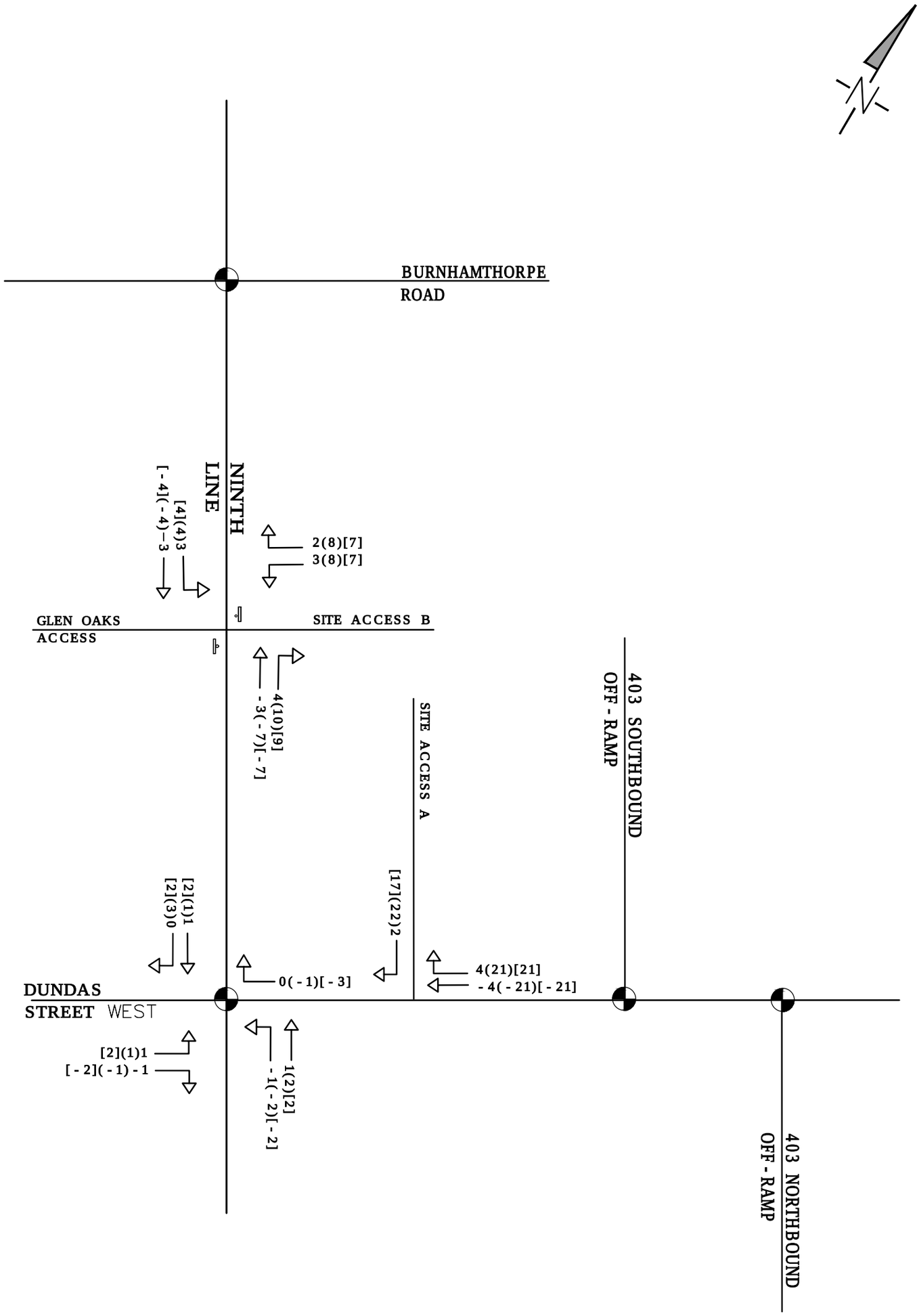
Project: 3855 DUNDAS STREET WEST

Drawing: TRIP ASSIGNMENT – RETAIL PRIMARY

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.W.	FIG.12



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

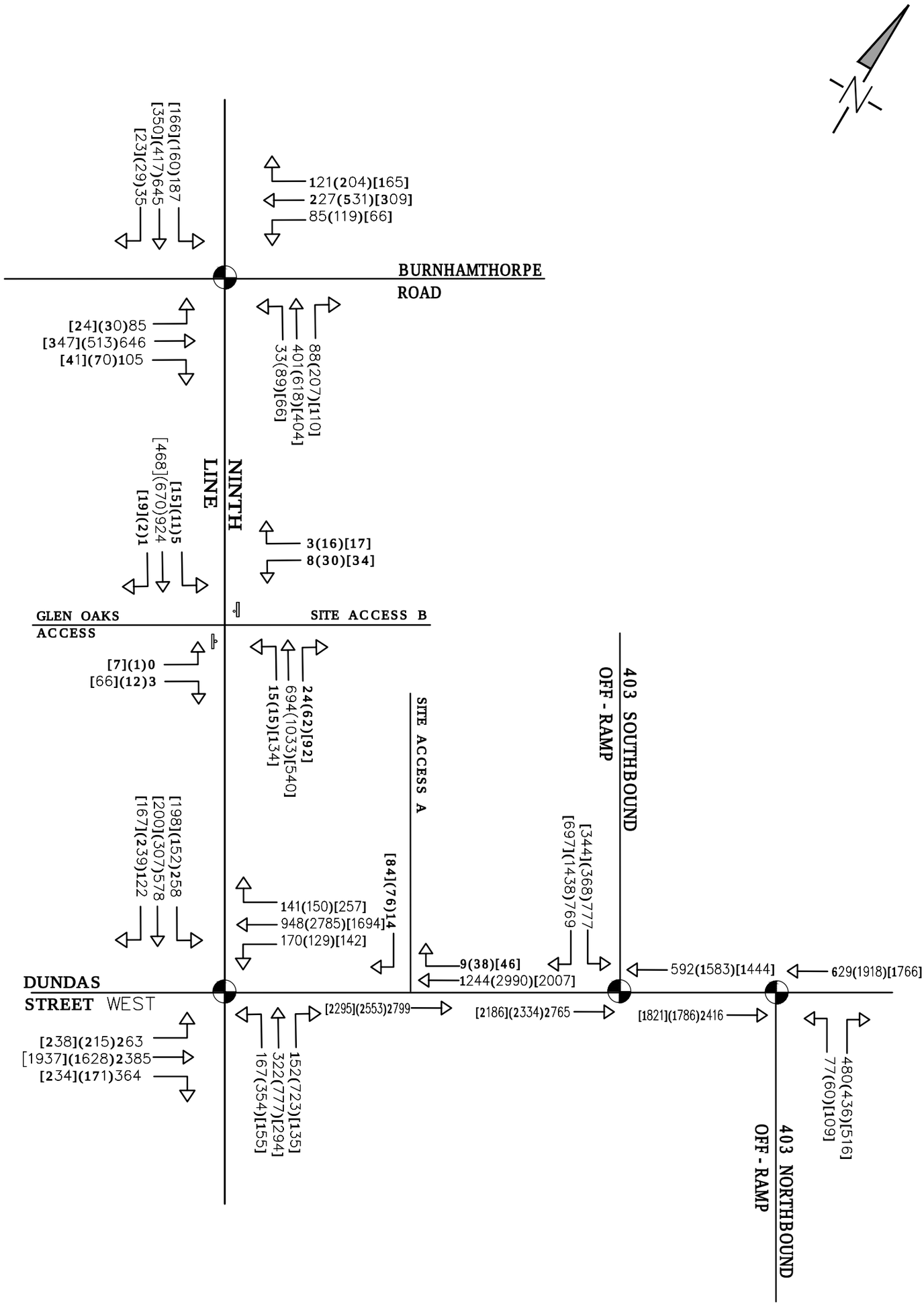
Project: **3855 DUNDAS STREET** WEST

Drawing: TRIP ASSIGNMENT – RETAIL PASS-BY

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.13



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

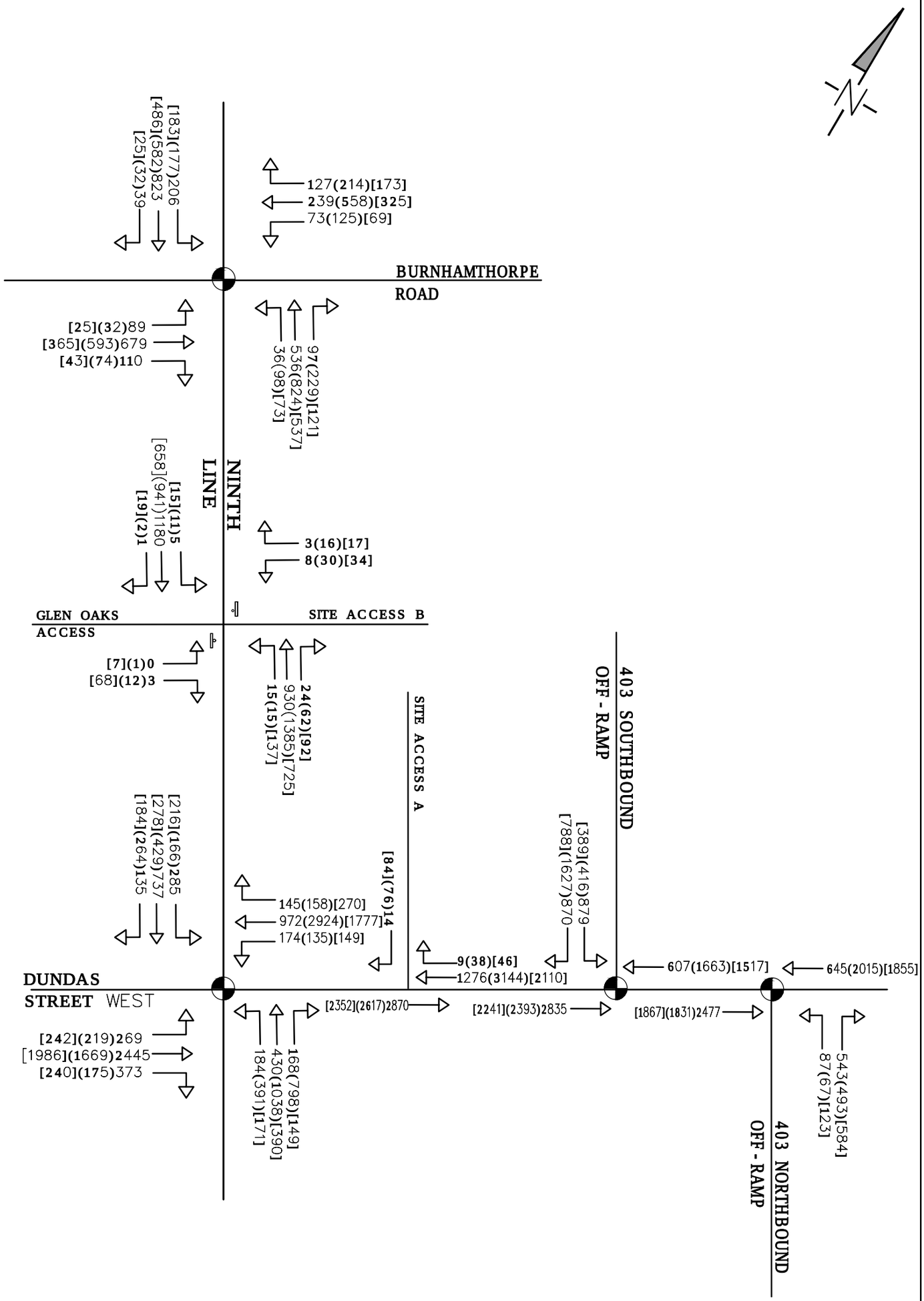
Project: 3855 DUNDAS STREET WEST

Drawing: 2023 FUTURE TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.14



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

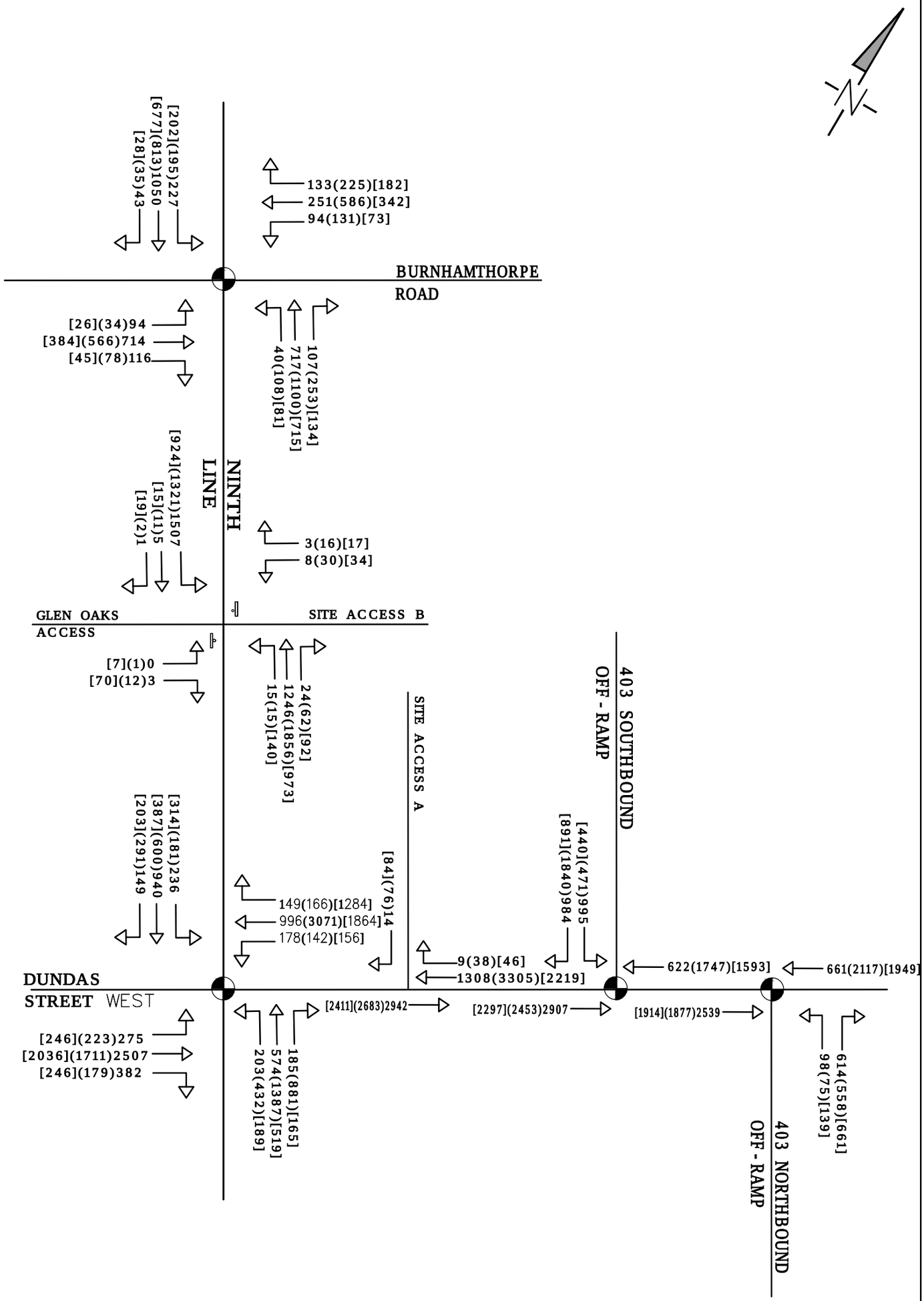
- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

Project: 3855 DUNDAS STREET WEST

Drawing: 2028 FUTURE TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building, 40 Huron Street, Suite 301, Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project	Scale	Date	Check By	Drawing
T.W.	T.W.	1644 - 5084	N.T.S.	2018.11.02	D.L.	FIG.15



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

Legend

- SIGNAL CONTROL
- STOP CONTROL
- XX(YY) A.M. (P.M.) PEAK HOUR TRAFFIC VOLUMES

Project: 3855 DUNDAS STREET WEST

Drawing: 2033 FUTURE TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn By	Design By	Project
T.W.	T.W.	1644 - 5084

Scale	Date	Check By	Drawing
N.T.S.	2018.11.02	D.L.	FIG.16