Higher Living Inc

Traffic Impact Study
Proposed Residential Condominium
86-90 Dundas Street East

City of Mississauga

GHD | 6705 Millcreek Drive Mississauga Ontario L5N 5M4 Canada

11116840 | 800 | Report No 6 | October 2, 2018

October 2 2018

Higher Living Inc.
c/o Susan Borst, C.E.T., B.E.S. Hons.
YYZed Project Management
8888 Keele Street
Suite 1
Vaughan Ontario
L4K 2N2

Our ref: 11116840

Dear Ms. Borst,

RE: Traffic Impact Study
86-90 Dundas Street East
Residential Condominium
Mississauga Ontario

GHD is pleased to submit the enclosed Traffic Impact Study assessing the traffic impacts of the proposed residential condominium development (with ground floor commercial area) located at 86-90 Dundas Street East within the Cooksville community of the City of Mississauga.

The development scheme of September 28th, 2018 prepared by AGT Architects proposes a total of 289 condominium units in 29 storeys, along with 160 sq.m. (1,700 sq.ft.) of ground floor commercial area.

The proposed site driveway is located opposite Little John Lane, and will therefore not significantly impact operation of the adjacent intersections on Dundas Street. The study concludes that the existing Dundas Street road network in the vicinity of the site can be expected to have satisfactory operational characteristics and provide adequate capacity for the projected site traffic volumes.

We trust the enclosed is sufficient for your needs, but please do not hesitate to contact the undersigned should you require any additional assistance.

Sincerely,
GHD

William Maria, P.Eng.
Senior Project Manager

Adam Mildenberger, B.A., C.Tech.
Transportation Planner

Executive Summary

- The purpose of this report is to determine the site related traffic assignment to the local road network and traffic-related impacts on the nearby intersections during the weekday a.m. and p.m. peak hours.
- Future background traffic and transportation network conditions were derived for a 2021 and 2031 traffic conditions and therefore included analyses with the future Hurontario-Main Light Rail Transit (LRT) impact on Hurontario Street.
- The proposed mixed-use re-development located at 86-90 Dundas Street East is estimated to generate a total of 92 vehicle trips during the a.m. peak hour consisting of 18 inbound and 74 outbound new vehicle trips. During the p.m. peak hour it is expected to generate a total of 115 vehicle trips consisting of 74 inbound and 41 outbound new vehicle trips. As per Transportation Tomorrow Survey data and existing traffic patterns, residential traffic were split 45% east and 55% west on Dundas Street; commercial traffic were split 50% east and 50% west on Dundas Street.
- With the introduction of the Hurontario LRT and subsequent changes to the Hurontario Street cross-section, northbound left-turn restriction, and traffic volumes, a minimal change to overall v/c ratios and LOS under the future background 2021 traffic conditions is expected at the intersection of Dundas Street and Hurontario Street. The reserve intersection capacity remains acceptable during the weekday peak hours.
- The addition of the expected site traffic at the intersection of Dundas Street at Hurontario Street is expected to have a negligible impact on intersection operations in 2021. The change in overall v/c ratio during both weekday peak hours is nominal, with the site's impact on v/c ratios, LOS and queuing for individual movements expected to be negligible and unidentifiable from a driver's perspective.
- Under the future total 2031 traffic conditions, the continued corridor growth will limit overall intersection capacity at the intersection of Dundas Street and Hurontario Street, which becomes apparent only marginally during the weekday p.m. peak hour. If the overall Hurontario Street operational delay through this intersection during the p.m. peak period is perceived to be indicative of congestion, then regularly commuting drivers are expected to adapt. The obvious alternative choices are to us the LRT instead of driving, divert to Confederation Parkway or use the ring road system in Cooksville to by-pass the core area. As a result there are no recommended improvements at this intersection that are not expected to be addressed by the design adopted for the future Hurontario LRT.
- Operations at Dundas Street's intersections with Jaguar Valley Drive, Little John Lane / Site Access, the adjacent residential building, and Kirwin Avenue / Camilla Road, are expected to be excellent with substantial reserve capacity, acceptable delay, and negligible queueing, during both peak hours under existing, 2021 and 2031 traffic conditions.
- There are no recommended improvements at the study intersections or site driveway to accommodate the proposed development.

A TDM plan that proposes a mix of hard and soft measures to meet the objectives and targets to reduce vehicular demand and encourage passenger, transit, cycling, and walking has been completed and is contained in this report.

Table of Contents

Figure Index

Table Index

Appendix Index

1. Introduction

1.1 Retainer and Objective

GHD was retained to prepare a Traffic Impact Study (TIS) for the proposed mixed-use re-development located at 86-90 Dundas Street East, to determine the following:

- Establish baseline traffic conditions for the study area and update the existing traffic conditions to derive the future background operating conditions for the study intersections at future 2021 and 2031 planning horizons.
- Establish the residential and commercial composition of the site, apply the estimated traffic generation and distribution of the development to the adjacent road network, and determine the future impacts in the context of all local transportation modes.
- Review the site plan in the context of operational/geometric issues, and provide recommendations on how to address any deficiencies (if any are revealed).

The subject site is located on the south side of Dundas Street East opposite Little John Lane, in the City of Mississauga, as shown in **Figure 1**.

1.2 Study Background

The site is located within the Cooksville Mobility Hub, and as a result, the Master Plan Study of September 2011 for Metrolinx and the City of Mississauga by MMM Group et al provides the basis for the expected future background conditions at the planning horizons of this study.

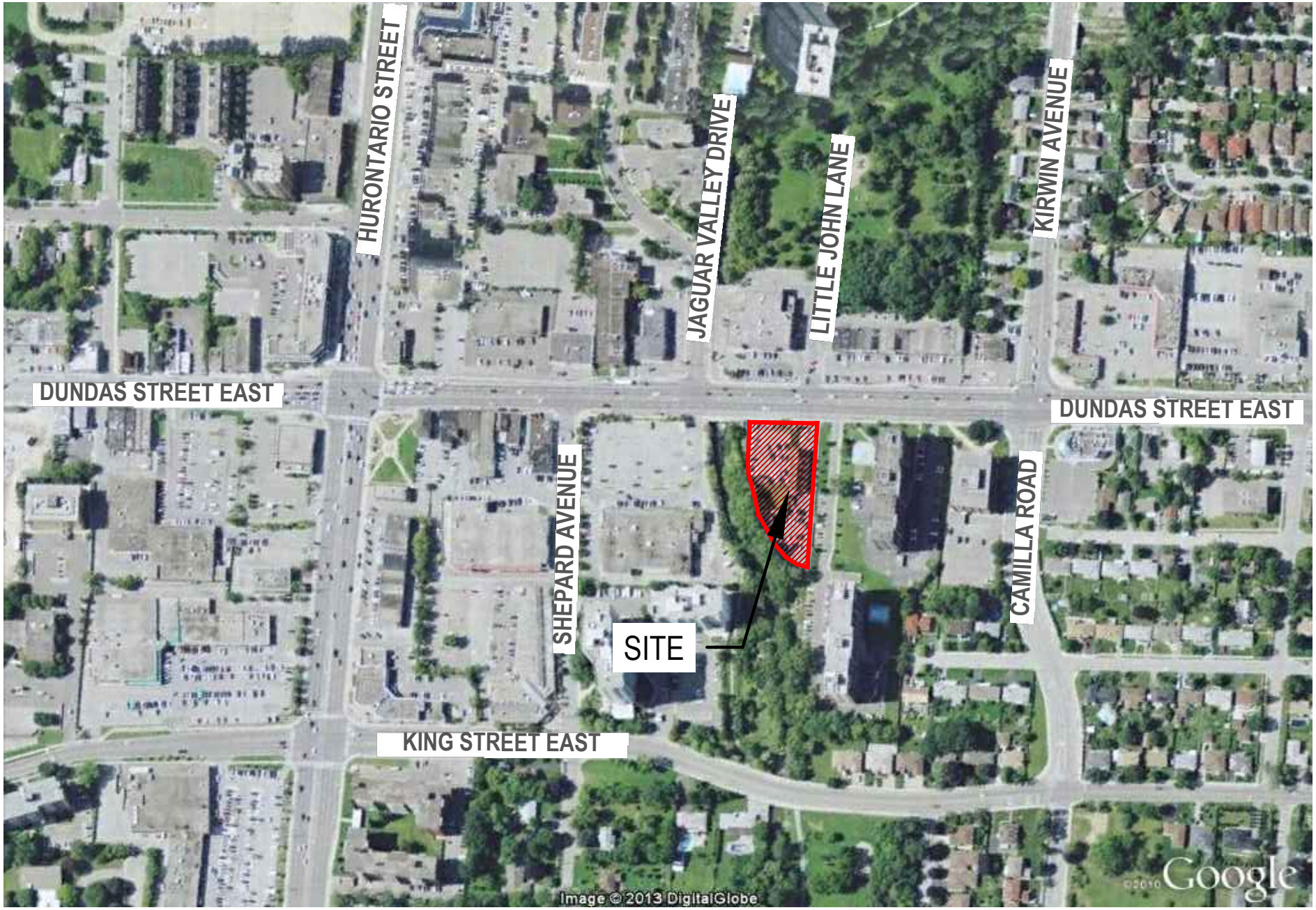
The proposed development contains a maximum of 289 dwelling units and 158 sq.m of ground floor commercial area. An existing driveway access to the subject lands is situated on the south side of Dundas Street East opposite Little John Lane.

Hurontario Street is planned to have high-order transit (LRT) service introduced by 2021. This will however reduce Hurontario from 3 to 2 through lanes in each direction with northbound left-turn restrictions to Dundas Street West.

1.3 Study Team

The GHD team involved in the preparation of this study are:

- William Maria, P. Eng., Senior Project Manager
- Adam Mildenberger, B.A., Dipl.T., Transportation Planner



NOT TO SCALE

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

Site Location

Job Number	12431
Revision	A
Date	July 2016

Figure 01

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:14 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg

2. Site Characteristics

2.1 Site Environs

The subject site is located on the south side of Dundas Street East opposite Little John Lane within the Cooksville Mobility Hub. The future concept of the Cooksville Mobility Hub includes a dense road grid network. Along with the LRT on Hurontario Street with stops at Dundas Street and John Street (Cooksville GO), the future availability of convenient transit service in the vicinity of the site will be excellent.

2.2 Study Area

The study area includes the following intersections:

- Dundas Street at Hurontario Street (signalized)
- Dundas Street East at Jaguar Valley Drive (unsignalized)
- Dundas Street East at Little John Lane / Site Driveway (unsignalized)
- Dundas Street East at 120 Dundas Street East apartment driveway (unsignalized)
- Dundas Street East at Kirwin Avenue / Camilla Road (signalized)

2.3 Site Plan

The proposed draft plan of the site proposes 289 dwelling units and 158 sq.m of ground floor commercial area. Access for the development is provided via the existing full moves driveway on Dundas Street East opposite Little John Lane. The proposed site plan is shown in **Figure 2**.

The development's residential unit breakdown is as follows:

- 174 one bedroom units;
- 105 two bedroom units; and
- 10 three bedroom units.

As per the approved vehicle parking rates provided by the City, the required parking provision was calculated using the proposed unit breakdown as follows:

- 174 one bedroom units × 0.9 spaces per one bedroom units, resulting in 157 spaces;
- 105 two bedroom units × 1.0 spaces per two bedroom units, resulting in 105 spaces;
- 10 three bedroom units × 1.3 spaces per three bedroom units, resulting in 13 spaces; and
- 289 dwelling units × 0.15 visitor spaces, resulting in 44 visitor spaces.

Therefore a total parking provision of 275 resident spaces and 44 visitor/commercial spaces are proposed, for a total site parking provision of 319 spaces.

As per the approved bicycle parking rates provided by the City, the required parking provision was calculated as follows:

- 289 dwelling units × 0.08 outdoor bicycle parking spaces, resulting in 24 outdoor bicycle parking spaces; and
- 289 dwelling units × 0.7 indoor bicycle parking spaces, resulting in 203 indoor bicycle parking spaces.

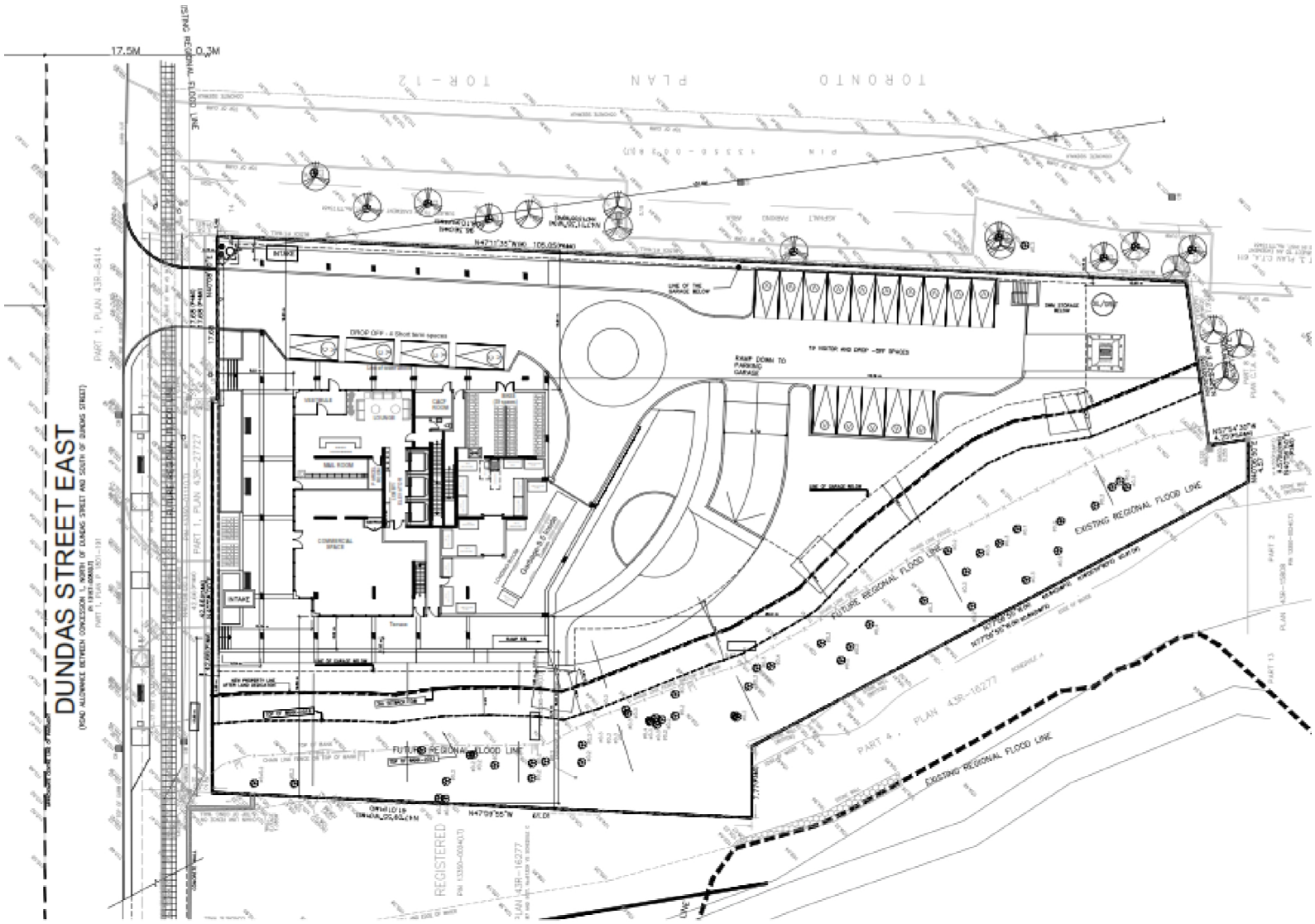
As per the approved non-residential bicycle parking rates provided by the City, the required parking provision was calculated as follows:

- 158 SQ.M with 0.10 spaces per 100 SQ.M GFA resulting in 1 internal parking space; and
- 158 SQ.M with 0.25 spaces per 100 SQ.M GFA resulting in 1 external parking space.

Therefore a total parking provision of 24 outdoor bicycle parking spaces and 204 indoor bicycle parking spaces are proposed, for a total bicycle parking provision of 228 spaces.

This is considered appropriate given the proximity to transit corridors with increased service level and the expectation that patrons of the commercial use will primarily be residents of the proposed development, thus reducing parking demand and shifting peak-hour commuter trips to non-auto modes.

A garbage truck (Peel Region standard) was modelled in the internal road network as part of the vehicle swept path analysis. The results of the vehicle swept path analysis, as provided in **Appendix D**, indicate the configuration of the internal road network can accommodate the required turning movements of the subject vehicle.



0 5 10 15m

SCALE 1:500 AT ORIGINAL SIZE

N

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

Site Plan

Job Number	12431
Revision	A
Date	Oct2018

Figure 02

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 2 October 2018 - 1:25 PM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Report\Figures\Updated Figures_17Sept2018.dwg

3. Existing Conditions

3.1 Existing Road Network

All roads in the study area are under City of Mississauga jurisdiction with a posted speed limit of 50 km/h.

Dundas Street East is an east-west major arterial road. In the study area it has an existing five-lane cross section with a centre left turn lane.

Hurontario Street is a north-south major arterial road that is signalized at Dundas Street East. In the study area it has an existing seven-lane cross section with a centre left turn lane. It will become a four-lane cross section when the LRT is built with north south capacity reduced from 3 to 2 lanes in each direction.

Jaguar Valley Drive is a north-south collector road with an existing two-lane cross section. It is the north approach of an intersection on Dundas Street East opposite a commercial access, with both the north and south approaches being stop-controlled.

Little John Lane is a north-south local road with an existing two-lane cross section. It is the north approach of an intersection on Dundas Street East opposite the site driveway, with an offset of approximately 5 metres between the two stop-controlled approaches.

Camilla Road is a north-south major collector road that is signalized at Dundas Street East. In the study area it has an existing two-lane cross section.

The existing and future lane configurations at the study intersections are shown in **Figure 3**.

3.2 Existing Transit Services

Mi-Way Transit

Mississauga Transit currently operates routes 1, 19, 28, 62, 91, 101, 103, and 201 in the vicinity of the site. Routes 1 (Dundas), 101 (Dundas Express), and 201 (Dundas Rush Hour) provide east-west service along the Dundas corridor south of the site. Routes 19 (Hurontario) and 103 (Hurontario Express) provide north-south service along the Hurontario corridor west of the site. Route 28 provides service on Confederation Parkway west of the site. Routes 62 (Cooksville GO) and 91 (Hillcrest) provide local service through the Cooksville GO Station north of the site. The site location is therefore centrally located and in close proximity to excellent Mi-Way transit service.

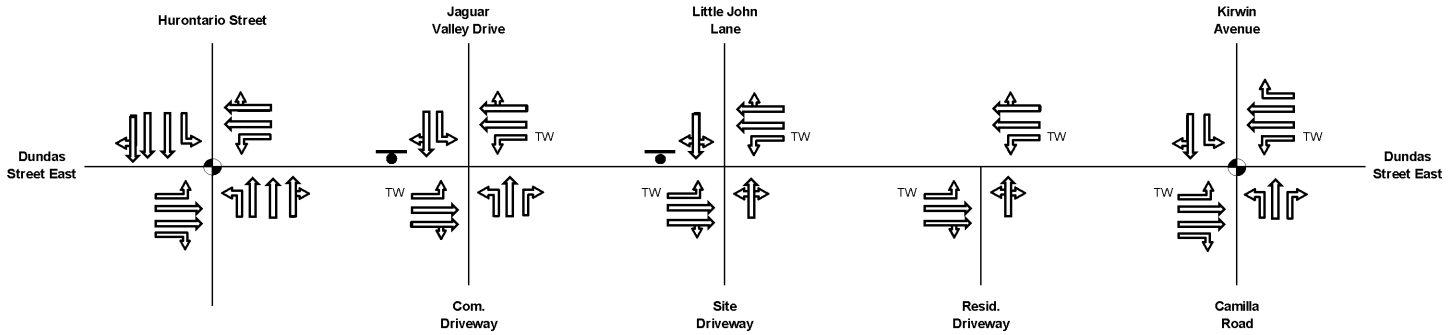
GO Transit

GO Transit operates both train and bus service at the Cooksville GO Station. There are currently 8 trains in each of the am and pm peak periods with service along the Milton line for downtown Toronto. GO Transit also operates a regular daily bus service through the Cooksville GO Station serving all stations on the Milton line as well as the Meadowvale Town Centre and the City Centre Transit Terminal.

3.3 Existing Traffic

GHD collected turning movement counts in April 2016 during the weekday am and pm peak hours at each of the study intersections, with counts for the intersection of Dundas Street at Hurontario Street being collected in October 2015. The turning movement counts are included in **Appendix A**. Existing signal timings were obtained from the City and reflected in the analysis.

Figure 4 summarizes the adopted existing traffic volumes during each of the peak hours.



Legend

- Signalized Intersection
- Stop Control
- TW Two-Way-Left-Turn-Lane
- Movement

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

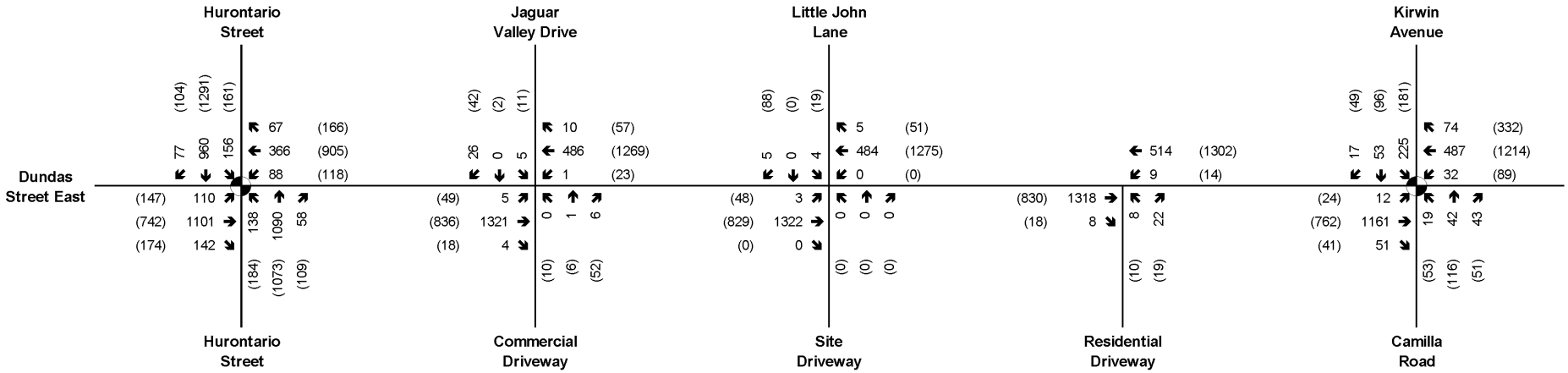
Existing Lane Configurations

Job Number	12431
Revision	A
Date	July 2016

Figure 03

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:17 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

Existing Traffic

Job Number 12431
Revision A
Date July 2016

Figure 04

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:17 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg

4. Future Background Traffic

4.1 Study Horizon Years

The City of Mississauga requested future background and total traffic analyses for 2021 and 2031 planning horizons. With the planned opening of the LRT along Hurontario in 2021, our analyses adopted future background conditions with the LRT impact on Hurontario Street in for both the 2021 and 2031 planning horizons.

4.2 Study Area Transportation Network Improvements

Cooksville Mobility Hub

The mobility network within Cooksville is planned for substantial expansion as shown in the appended existing and proposed non-automotive transportation network plans. Expansion plans include the road grid system with pedestrian sidewalks, on-street bicycle lanes, multi-use trails, LRT on Hurontario Street and higher-order transit on Dundas Street. This is expected to significantly decrease the reliance on the personal automobile for residents of Cooksville based on enhancing the connectivity and convenience of alternate transportation modes.

Hurontario-Main LRT

The LRT on Hurontario Street is expected to be operational in 2021. It will result in the loss of one northbound and one southbound travel lane (from 3 to 2 lanes in each direction), restrict many unsignalized intersections to right-in/out only movements, and generally create urban density characteristics in nodes such as Cooksville making it less attractive for vehicular traffic. Derivation of the future LRT impact on transit mode split and Hurontario corridor traffic volumes was based on data provided by the City of Mississauga.

The 2011 Transportation Tomorrow Survey (TTS) data shows the existing transit model split is approximately 29%. As a conservative analysis, the Cooksville Mobility Hub is assumed to achieve the same transit model split post 2021 after the introduction of the LRT.

4.3 Future Internal Road Network

The most significant ultimate improvement to the internal road network in close proximity to the site is the future extension of Cook Street from its existing terminus on the south side of the T.L. Kennedy Secondary School property to Hillcrest Avenue at the approximate location of the existing GO east driveway. This will provide a north-south vehicular, pedestrian and bicycle connection to the GO station.

The northerly connection of Cook Street to Hillcrest Avenue may become an essential component of the future road network as Cooksville redevelopment occurs along the north side of Dundas Street. Cook Street south of Agnes Street is northbound only, Agnes Street at Hurontario Street is expected to provide only southbound access, while Agnes Street at Confederation Parkway would become the primary access intersection for the area, but remain unsignalized. The connection of Cook Street to Hillcrest Avenue would therefore provide a signalized outlet (at the GO east access intersection) for local traffic generated by future redevelopment.

4.4 Redistribution of Traffic

The LRT is also expected to restrict northbound left turns on Hurontario Street to Dundas Street. Therefore the westbound trips from Hurontario Street to Dundas Street have been redistributed as follows:

- 50% redistributed to Confederation Parkway via King Street;
- 25% redistributed to Confederation Parkway via Queensway West; and
- 25% redistributed to Mavis Road via Queensway West

Figures showing the projected redistribution to the road network are provided in **Appendix B.**

4.5 Future Background Growth

Using the City's Strategic Travel Demand model and supporting traffic data, the City's Transportation Planning section provided growth rate forecasts on Hurontario Street, Dundas Street, Confederation Parkway and King Street. The rates from existing the 2021 represent a one-time reduction/addition (as projected), this mainly represents the changes in travel patterns as a result of the LRT implementation on Hurontario Street and road network changes in the study area. From 2021 to 2031 the rates represent a compounded annual growth rate.

The following growth rates were therefore applied to each of the 2021 and 2031 planning horizons.

Table 1 Growth Rates

Street	2021				2031			
	AM Peak Hour		AM Peak Hour		AM Peak Hour		PM Peak Hour	
	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Hurontario Street north of Dundas Street	-28.0%	-23.0%	-19.0%	-23.0%	0.5%	0.0%	1.0%	0.0%
Hurontario Street south of Dundas Street	-24.0%	-28.0%	-21.0%	-21.0%	0.5%	0.0%	1.0%	0.0%
Confederation Parkway	2.0%	1.0%	1.0%	1.0%	1.0%	0.5%	1.0%	0.5%
Dundas Street	-1.0%	3.0%	2.0%	1.0%	0.5%	1.0%	1.0%	0.5%
King Street	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Figures showing the projected 2021 and 2031 arterial road traffic growth are provided in **Appendix B**. Additionally, pedestrian volumes were globally grown by 2% per annum.

A review of historical and existing counts on Jaguar Valley Drive, Little John Lane, and Kirwin Avenue / Camilla Road indicate negligible growth.

4.6 Future Background Developments

Future redevelopment within Cooksville is expected to be significant based on the growth projections from the Cooksville Mobility Hub, Master Plan Study of September 2011. This growth assumed linear growth from 2011 to 2031 and adopted 3.1 persons per household from the Mississauga 2006 Community Census (Statistics Canada).

The re-development potential and the proposed densities vary in different areas of Cooksville. The number of new residential units by 2021 in four local zones delineated by the Hurontario Street corridor are estimated at 399 in the southeast, 351 in the northeast, 672 in the south west, and 417 in the northwest (the location of the Cooksville GO Station). The number of new residential units in these same zones by 2031, assuming linear re-development growth, would be approximately 798 in the southeast, 702 in the northeast, 1247 in the south west, and 834 in the northwest

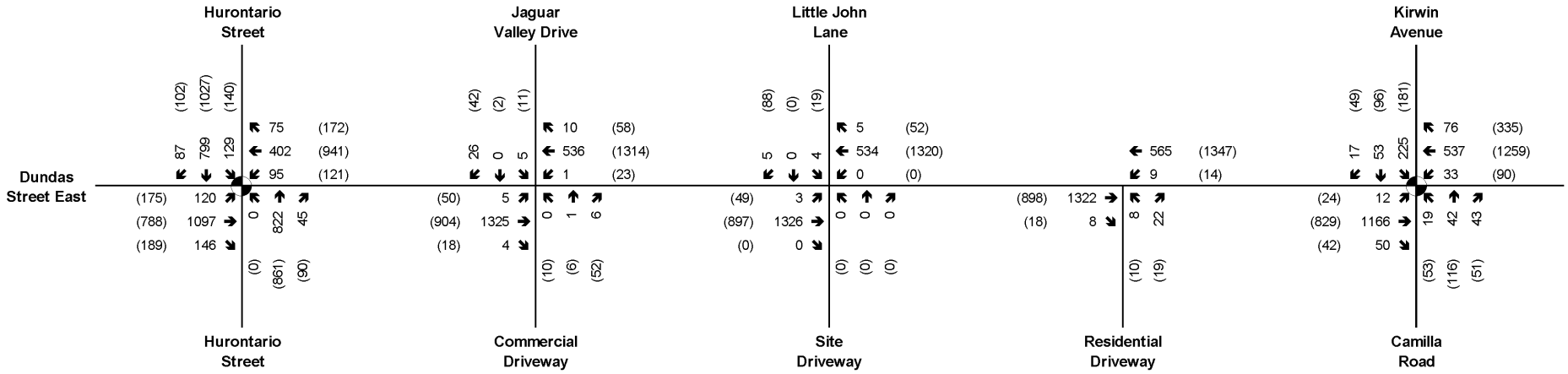
Automobile driver trips from future Cooksville redevelopment in both 2021 and 2031 horizon years were distributed of the basis of the 2011 TTS 6:00-9:00 am peak period origins in the four Cooksville zones (3862, 3867, 3871 and 3872) to destinations in all other zones in the GTHA, using the major arterial roads within Cooksville. These trips were distributed predominantly north or south on Hurontario Street and Confederation Parkway, with a lesser component east and west on Dundas Street. The 2011 Transportation Tomorrow Survey (TTS) data, within the four Cooksville zones, shows the existing non-auto modal split is approximately 28%. As a conservative analysis, the Cooksville Mobility Hub is assumed to achieve the same transit model split applied to both the 2021 and 2031 planning horizons.

The following background developments within the study area have been identified and are assumed to be constructed within the 2021 planning horizon. They are also within the identified re-developable areas of Cooksville and in this context their total residential unit count has been removed from the Cooksville redevelopment total number of new residential units listed above. Their corresponding commercial GFA has been included and distributed to the road network accordingly.

- 45 Agnes Street - 268 residential units located east of Cook Street;
- 71 Agnes Street - 264 residential units located west of Cook Street; and
- 90-110 Dundas Street – 140 residential units located west of Hurontario Street.

Figures and related trip generation tables showing Cooksville 2021 and 2031 redevelopment traffic growth and the aforementioned background developments are appended (**Appendix B**).

The existing traffic plus the corridor growth, redistribution of traffic, and the future background developments were combined to produce the 2021 and 2031 background am and pm peak hour traffic volumes. **Figure 5** summarizes the background traffic volumes at the 2021 planning horizon, and **Figure 6** summarizes the background traffic volumes at the 2031 planning horizon.



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

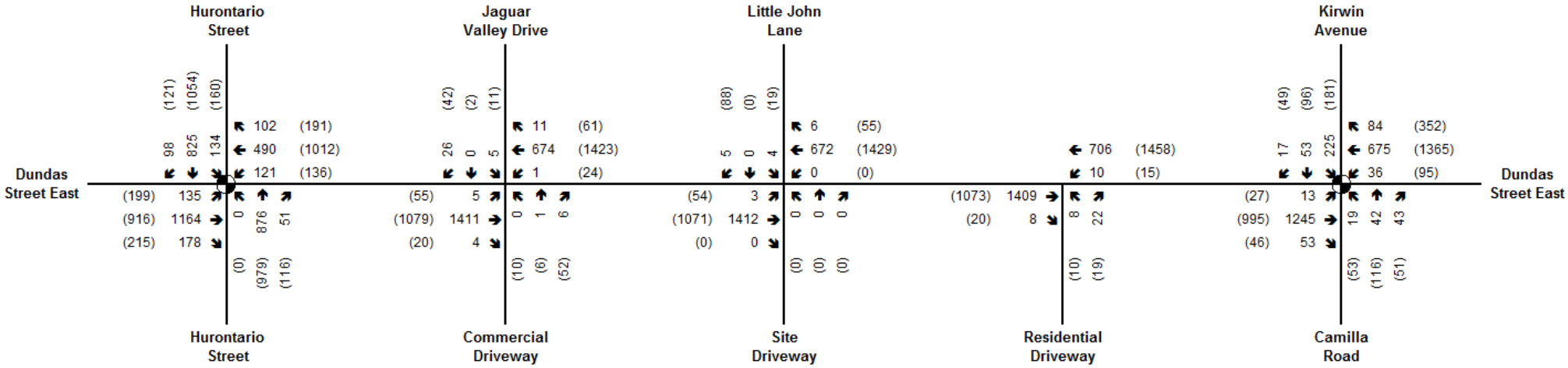
2021 Background Traffic

Job Number 12431
Revision A
Date July 2016

Figure 05

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:18 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

2031 Background Traffic

Job Number 12431
Revision A
Date Nov 2017

Figure 06

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:18 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg

5. Site Generated Traffic

5.1 Site Trip Generation

The proposed residential development consists of a maximum of 289 residential dwelling units and 158 sq.m. (1,701 sq.ft.) of commercial ground floor area (GFA). Site traffic generated by the proposed development for the weekday am and pm peak hours was estimated by applying the trip rates for the following Land Use Codes (LUC) in Trip Generation, 9th Edition, published by the Institute of Transportation Engineers (ITE):

- LUC #230 Residential Condominium / Townhouse;
- LUC #814 Retail Commercial; and
- LUC #932 High-turnover (Sit-Down) Restaurant.

Due to the relatively small size of the commercial use within the ground floor of the proposed development (158 sq.m.), with consideration for the comparatively large number of residential units within the same building (289 dwelling units) it is expected that patrons of the commercial use will primarily be residents of the proposed development. As a result, an internal capture rate of 50% was applied to the estimated trip generation for the commercial use.

The 2011 Transportation Tomorrow Survey (TTS) data shows the existing non-auto modal split is approximately 29% (GTA Zone 3867). As a conservative analysis, the subject site is assumed to achieve the same transit model split applied to both the 2021 and 2031 planning horizons.

Table 2 summarizes the estimated trip generation of the subject site. Several iterations of rounding may result in small margins of error.

Table 2 Site Trip Generation

Land Use Code	Units/ft^2	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Condominium Units	289 units	Trip Rate	0.07	0.35	0.42	0.33	0.17	0.50
		Trip Ratio	17%	83%	100%	67%	33%	100%
		Gross Trips	21	100	121	96	48	144
		29% Non-auto	-6	-29	-35	-28	-14	-42
		Vehicle Trips	15	71	86	68	34	102
Ground Floor Commercial	1,701 ft^2	Trip Rate	3.53	3.53	7.05	6.47	8.82	15.00
		Trip Ratio	48%	52%	100%	44%	56%	100%
		Gross Trips	6	6	12	11	15	26
		50% Int. Cap.	-3	-3	-6	-5	-8	-13
		Vehicle Trips	3	3	6	6	7	13
Total Site Trips			18	74	92	74	41	115

Accordingly, the proposed development is estimated to generate a total of 92 vehicle trips during the a.m. peak hour consisting of 18 inbound and 74 outbound new vehicle trips. During the p.m. peak

hour it is expected to generate a total of 115 vehicle trips consisting of 74 inbound and 41 outbound new vehicle trips.

5.2 Site Trip Distribution and Assignment

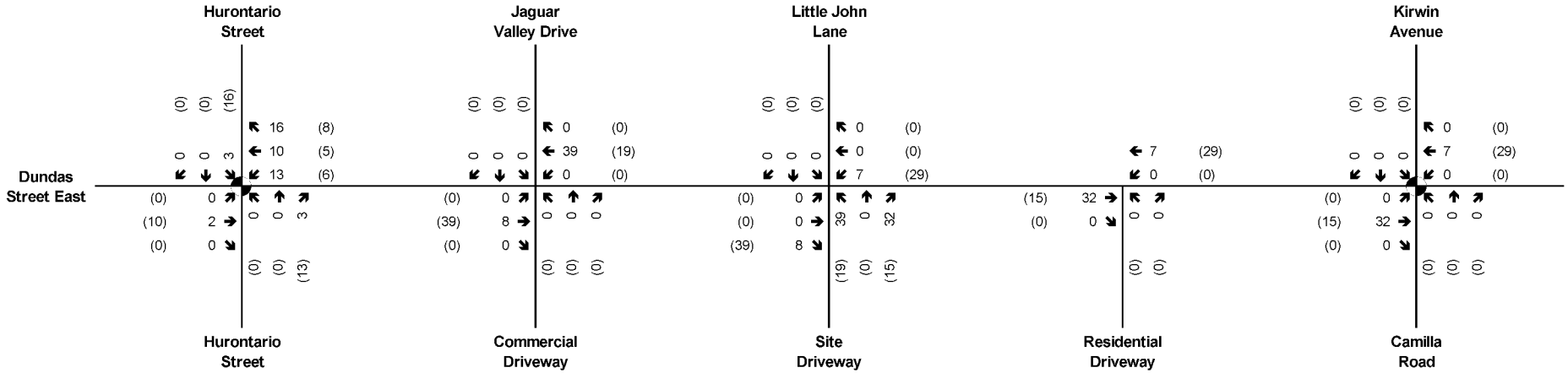
The distribution of site traffic was derived from 2011 Transportation Tomorrow Survey (TTS) summary data for all trips between 6:00 and 9:00 am in the four zones representing the Cooksville area of Mississauga. The origin zones are 3862, 3867, 3871 and 372 and the destination zones are all other GTHA zones. The resulting distribution was locally adapted based on existing traffic patterns in the vicinity of the site. **Table 3** summarizes the proportion of residential site trips distributed under the future conditions by direction of approach and departure.

Table 3 Site Trip Distribution

To/From Site	via	Inbound/Outbound Distribution (%)
North	Hurontario Street	23%
South	Hurontario Street	19%
East	East Dundas Street	44%
West	West Dundas Street	14%

The proportions of commercial site trips were evenly distributed to the study area road network, which were split 25% north and 25% south on Hurontario Street and 25% east and west on Dundas Street. The distribution again made an allowance for turning restrictions along Hurontario Street.

The estimated site trips generated by the proposed development assigned to the adjacent road network for the weekday a.m. and p.m. peak hours are shown in **Figure 7** (residential) and **Figure 8** (commercial). The combined total for these site trips can be seen in **Figure 9**.



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

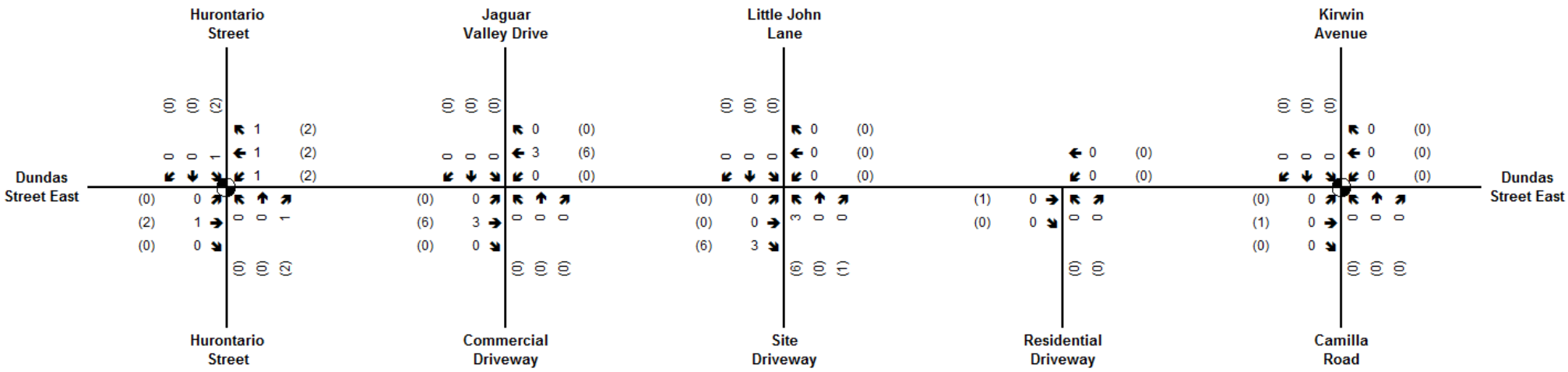
Residential Site Trips

Job Number 12431
Revision A
Date Feb 2018

Figure 07

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 T 1 416 213 7121 F 1 416 890 8499 E info@ghdcanada.com W www.ghd.com

Plot Date: 6 February 2018 - 10:58 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Report\Figures\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Higher Living Inc.

Proposed Residential Condominium

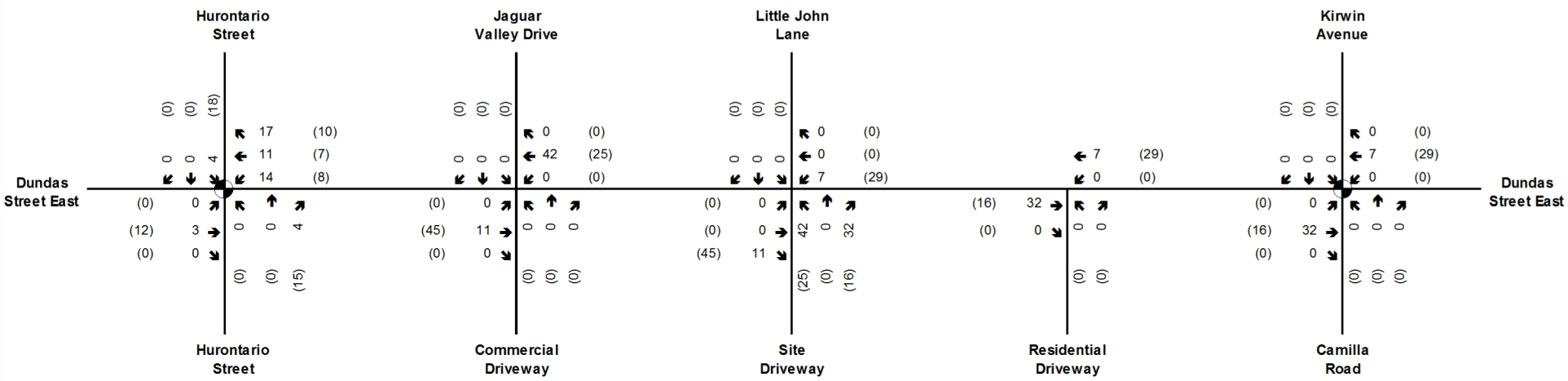
86-90 Dundas Street East

Commercial Site Trips

Job Number	12431
Revision	A
Date	Nov 2017

Figure 08

Plot Date: 15 July 2016 - 11:18 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

Combined Site Trips

Job Number 12431
Revision A
Date Sept 2018

Figure 9

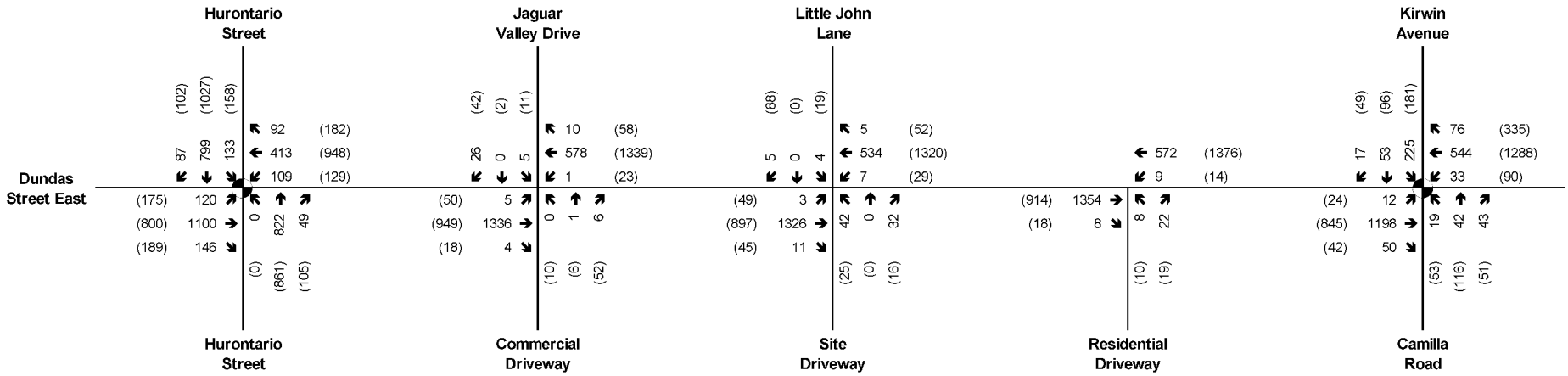
6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 17 September 2018 - 10:06 AM Plotted by: Adam Mildenberger
Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Report\Figures\Updated Figures_17Sept2018.dwg

6. Future Total Traffic

The future total traffic conditions in the weekday peak study hours for each of the 2021 and 2031 planning horizons were derived by combining the projected future background traffic with the corresponding estimates of the site generated traffic. The future background traffic conditions are after the opening of the LRT on Hurontario Street in 2021.

Figure 10 summarizes the future total traffic volumes at the 2021 planning horizon, and **Figure 11**summarizes the future total traffic volumes at the 2031 planning horizon.



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

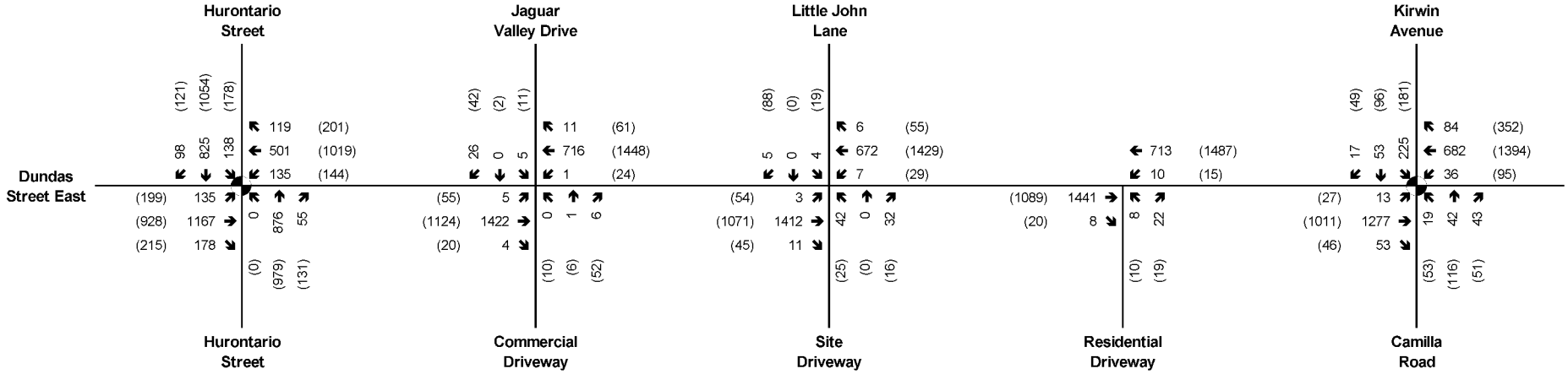
2021 Total Traffic

Job Number 12431
Revision A
Date Feb 2018

Figure 10

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 T 1 416 213 7121 F 1 416 890 8499 E info@ghdcanada.com W www.ghd.com

Plot Date: 6 February 2018 - 11:02 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Report\Figures\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

2031 Total Traffic

Job Number 12431
Revision A
Date Feb 2018

Figure 11

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 T 1 416 213 7121 F 1 416 890 8499 E info@ghdcanada.com W www.ghd.com

Plot Date: 6 February 2018 - 11:04 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Report\Figures\12431 Figures.dwg

7. Capacity Analysis

7.1 Intersection Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating and expected to operate in the future. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 9 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The pedestrian volumes under the future conditions were assumed to have grown by 2% per year to each of the planning horizons. This also accounted for any pedestrians that would have been generated by the proposed development.

In accordance with City of Mississauga Terms of Reference for Transportation Impact Studies, the analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic/transit volumes causes the following:

- Unsignalized: Level of service (LOS), based on average delay per vehicle, on individual movements exceed LOS 'E'
- Unsignalized: The estimated maximum queue length for an individual movement exceeds the available queue storage
- Signalized: v/c ratios for overall intersection operations, through movements or shared through/turning movements increase to 0.85 or above
- Signalized: v/c ratios for exclusive movements increase to 0.90 or above
- Signalized: Queues for an individual movement are projected to exceed available turning lane storage

The following tables summarize the HCM capacity results for the study intersections during the weekday am and pm peak hours under existing (2013), future background (2021 and 2031) and future total (2021 and 2031) traffic conditions. The detailed calculation sheets are appended.

7.2 Hurontario Street at Dundas Street

Capacity analyses during the weekday a.m. and p.m. peak hours is summarized in **Table 4** from detailed Synchro reports attached in the appendix.

The overall vehicular capacity of this intersection will ultimately be less when the Hurontario LRT is built. Under the future 2021 and 2031 conditions, Hurontario Street will be reduced to two northbound and southbound travel lanes, and the northbound left turns will be prohibited. The existing left turn storage lengths are 30 metres eastbound, 40 metres westbound, 55 metres northbound and 75 metres southbound. The available eastbound, westbound and northbound left turn storage length is however potentially longer because they transition into two-way left turn lanes.

Table 4 Capacity Analyses for Hurontario Street at Dundas Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2016	Overall: 0.61 (C) EBL: 0.22 (B) 24m EBT: 0.81 (D) 159m EBR: 0.25 (C) 29m WBL: 0.35 (C) 20m WBTR: 0.35 (C) 53m NBL: 0.46 (C) 33m NBTR: 0.59 (C) 111m SBL: 0.53 (C) 37m SBTR: 0.55 (C) 99m	Overall: 0.72 (D) EBL: 0.56 (C) **31m** EBT: 0.57 (C) 99m EBR: 0.27 (C) 28m WBL: 0.31 (B) 25m WBTR: 0.84 (D) 155m NBL: 0.65 (C) **57m** NBTR: 0.63 (C) 117m SBL: 0.56 (C) 39m SBTR: 0.80 (D) 153m
Future Background 2021	Overall: 0.65 (C) EBL: 0.24 (B) 26m EBT: 0.81 (D) 158m EBR: 0.27 (C) 30m WBL: 0.38 (C) 21m WBTR: 0.38 (C) 59m NBTR: 0.64 (C) 130m SBL: 0.39 (C) 31m SBTR: 0.57 (C) 119m	Overall: 0.76 (D) EBL: 0.69 (C) **44m** EBT: 0.59 (C) 107m EBR: 0.39 (C) 44m WBL: 0.32 (B) 25m WBTR: **0.85** (D) 164m NBTR: 0.75 (D) 149m SBL: 0.48 (C) 34m SBTR: 0.74 (C) 167m
Future Total 2021	Overall: 0.65 (C) EBL: 0.26 (B) 26m EBT: 0.81 (D) 159m EBR: 0.27 (C) 31m WBL: 0.43 (C) 24m WBTR: 0.41 (C) 63m NBTR: 0.65 (D) 131m SBL: 0.41 (C) 32m SBTR: 0.57 (C) 119m	Overall: 0.77 (D) EBL: 0.70 (C) **46m** EBT: 0.59 (C) 109m EBR: 0.40 (C) 45m WBL: 0.35 (B) 27m WBTR: **0.86** (D) 168m NBTR: 0.77 (D) 153m SBL: 0.56 (C) 38m SBTR: 0.74 (C) 167m
Future Total 2031	Overall: 0.70 (C) EBL: 0.32 (B) 29m EBT: 0.83 (D) 173m EBR: 0.38 (C) 44m WBL: 0.56 (C) 34m WBTR: 0.49 (C) 79m NBTR: 0.71 (D) 143m SBL: 0.47 (C) 33m SBTR: 0.62 (C) 126m	Overall: 0.85 (D) EBL: 0.85 (E) **74m** EBT: 0.66 (C) 131m EBR: 0.50 (C) 57m WBL: 0.43 (C) 30m WBTR: **0.90** (D) 189m NBTR: **0.91** (D) 198m SBL: 0.77 (D) 64m SBTR: 0.80 (D) 178m

This intersection typically has good existing signalized operational characteristics in both weekday peak hours with reserve capacity available to accommodate additional future growth.

Under future background traffic conditions in 2021, the introduction of the Hurontario LRT and subsequent changes to traffic volumes results in only a slight change to overall v/c ratios and LOS

under the future background 2021 traffic conditions. The reserve intersection capacity and overall delay remains acceptable during the weekday peak hours.

Under the future total 2021 traffic conditions, the impact on intersection operations from the addition of site traffic is negligible. The peak hour v/c ratios show a nominal increase, and no additional individual movements are expected to increase to critical levels.

Under the future total 2031 traffic conditions, the continued corridor growth will limit overall intersection capacity for the westbound and northbound through movements during the p.m. peak hour, with v/c ratios of 0.90 and 0.91, respectively. However the overall intersection is still expected to operate very satisfactorily during both peak hours.

If the overall reduced reserve capacity on Hurontario Street during the p.m. peak period is perceived to be indicative of congestion, then regularly commuting drivers are expected to adapt. The obvious alternative choices are to us the LRT instead of driving, divert to Confederation Parkway or use the ring road system in Cooksville to by-pass the core area. Furthermore, an overall v/c ratio of 0.85 during the p.m. peak hour is not considered unreasonable under urban conditions.

As a result there are no recommended improvements at this intersection that are not expected to be addressed by the design adopted for the future Hurontario LRT.

7.3 Dundas Street East at Jaguar Valley

Capacity analyses during the weekday a.m. and p.m. peak hours is summarized in **Table 8** from detailed Synchro reports attached in the appendix.

Table 5 Capacity Analyses for Dundas Street East at Jaguar Valley

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2016	EBL: 0.00 (A) <1 veh WBT: 0.00 (A) <1 veh NBL: 0.00 (A) <1 veh NBR: 0.01 (B) <1 veh SBL: 0.01 (B) <1 veh SBR: 0.04 (B) <1 veh	EBL: 0.09 (B) <1 veh WBT: 0.03 (A) <1 veh NBL: 0.03 (C) <1 veh NBR: 0.07 (B) <1 veh SBL: 0.05 (C) <1 veh SBR: 0.06 (B) <1 veh
Future Background 2021	EBL: 0.00 (A) <1 veh WBT: 0.00 (A) <1 veh NBL: 0.00 (A) <1 veh NBR: 0.01 (B) <1 veh SBL: 0.01 (B) <1 veh SBR: 0.04 (B) <1 veh	EBL: 0.10 (B) <1 veh WBT: 0.03 (A) <1 veh NBL: 0.03 (C) <1 veh NBR: 0.06 (B) <1 veh SBL: 0.06 (D) <1 veh SBR: 0.07 (B) <1 veh

Future Total 2021	EBL: 0.01 (A) <1 veh WBT: 0.00 (A) <1 veh NBL: 0.00 (A) <1 veh NBR: 0.01 (B) <1 veh SBL: 0.01 (B) <1 veh SBR: 0.04 (B) <1 veh	EBL: 0.10 (B) <1 veh WBT: 0.03 (A) <1 veh NBL: 0.03 (C) <1 veh NBR: 0.06 (B) <1 veh SBL: 0.06 (D) <1 veh SBR: 0.07 (B) <1 veh
Future Total 2031	EBL: 0.01 (A) <1 veh WBT: 0.00 (A) <1 veh NBL: 0.00 (A) <1 veh NBR: 0.01 (B) <1 veh SBL: 0.01 (C) <1 veh SBR: 0.04 (B) <1 veh	EBL: 0.12 (B) <1 veh WBT: 0.03 (A) <1 veh NBL: 0.04 (C) <1 veh NBR: 0.06 (B) <1 veh SBL: 0.07 (D) <1 veh SBR: 0.07 (B) <1 veh

The overall intersection and individual movements are expected to operate very well with substantial reserve capacity, acceptable delay, and negligible queueing, during both the a.m. and p.m. peak hours under existing, 2021 and 2031 traffic conditions.

7.4 Dundas Street East at Little John Street / Site Access

Capacity analyses during the weekday a.m. and p.m. peak hours is summarized in **Table 8** from detailed Synchro reports attached in the appendix.

Table 6 Capacity Analyses for Dundas Street East at Little John Street / Site Access

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2016	EBL: 0.00 (A) <1 veh NBLTR: 0.00 (A) <1 veh SBLTR: 0.01 (B) <1 veh	EBL: 0.08 (B) <1 veh NBLTR: 0.00 (A) <1 veh SBLTR: 0.20 (B) <1 veh
Future Background 2021	EBL: 0.00 (A) <1 veh NBLTR: 0.00 (A) <1 veh SBLTR: 0.01 (B) <1 veh	EBL: 0.09 (B) <1 veh NBLTR: 0.00 (A) <1 veh SBLTR: 0.21 (B) <1 veh

Future Total 2021	EBL: 0.00 (A) <1 veh WBL: 0.01 (B) <1 veh NBLTR: 0.25 (C) 7 m SBLTR: 0.01 (B) <1 veh	EBL: 0.09 (B) <1 veh WBL: 0.04 (A) <1 veh NBLTR: 0.11 (C) <1 veh SBLTR: 0.22 (B) 1 veh
Future Total 2031	EBL: 0.00 (A) <1 veh WBL: 0.03 (B) <1 veh NBLTR: 0.28 (C) 8m SBLTR: 0.02 (B) <1 veh	EBL: 0.12 (B) <1 veh WBL: 0.04 (B) <1 veh NBLTR: 0.13 (C) <1 veh SBLTR: 0.25 (C) 7m

The overall intersection and individual movements are expected to operate very well with substantial reserve capacity, acceptable delay, and negligible queueing, during both the a.m. and p.m. peak hours under existing, 2021 and 2031 traffic conditions. With the addition of the site traffic, the maximum queue length of the site access is not expected to exceed two vehicles during the a.m. peak hour under 2031 future total traffic conditions.

7.5 Dundas Street East at Residential Driveway

Capacity analyses during the weekday a.m. and p.m. peak hours is summarized in **Table 8** from detailed Synchro reports attached in the appendix.

Table 7 Capacity Analyses for Dundas Street East at Residential Driveway

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2016	WBL: 0.02 (B) <1 veh NBLR: 0.07 (B) <1 veh	WBL: 0.02 (A) <1 veh NBLR: 0.05 (B) <1 veh
Future Background 2021	WBL: 0.02 (B) <1 veh NBLR: 0.07 (B) <1 veh	WBL: 0.02 (A) <1 veh NBLR: 0.05 (B) <1 veh

Future Total 2021	WBL: 0.02 (B) <1 veh NBLR: 0.07 (B) <1 veh	WBL: 0.02 (B) <1 veh NBLR: 0.05 (B) <1 veh
Future Total 2031	WBL: 0.02 (B) <1 veh NBLR: 0.08 (B) <1 veh	WBL: 0.02 (B) <1 veh NBLR: 0.06 (B) <1 veh

The overall intersection and individual movements are expected to operate very well with substantial reserve capacity, acceptable delay, and negligible queueing, during both the a.m. and p.m. peak hours under existing, 2021 and 2031 traffic conditions.

7.6 Dundas Street East at Camilla Road

Capacity analyses during the weekday a.m. and p.m. peak hours is summarized in **Table 8** from detailed Synchro reports attached in the appendix.

Table 8 Capacity Analyses for Dundas Street East at Camilla Road

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2016	Overall: 0.60 (B) EBL: 0.03 (A) <1 veh EBT: 0.70 (B) 99m EBR: 0.04 (A) <1 veh WBL: 0.10 (A) <1 veh WBT: 0.27 (A) 25m WBR: 0.05 (A) <1 veh NBL: 0.11 (C) 10m NBT: 0.26 (C) 18m NBR: 0.03 (C) 8m SBL: 0.48 (C) 59m SBTR: 0.15 (C) 22m	Overall: 0.55 (B) EBL: 0.16 (A) 1 veh EBT: 0.49 (B) 66m EBR: 0.03 (B) <1 veh WBL: 0.19 (A) 10m WBT: 0.65 (B) 95mm WBR: 0.24 (A) 9m NBL: 0.22 (C) 22m NBT: 0.42 (C) 42m NBR: 0.04 (C) 10m SBL: 0.38 (B) 50m SBTR: 0.28 (C) 41m
Future Background 2021	Overall: 0.60 (B) EBL: 0.03 (A) <1 veh EBT: 0.73 (B) 99m EBR: 0.04 (A) <1 veh WBL: 0.11 (A) <1 veh WBT: 0.29 (A) 28m WBR: 0.05 (A) <1 veh NBL: 0.11 (C) 10m NBT: 0.26 (C) 18m NBR: 0.03 (C) 8m	Overall: 0.57 (B) EBL: 0.16 (A) 1 veh EBT: 0.51 (B) 73m EBR: 0.03 (B) <1 veh WBL: 0.20 (A) 10m WBT: 0.66 (B) 100m WBR: 0.24 (A) 9m NBL: 0.23 (C) 23m NBT: 0.43 (C) 44m NBR: 0.04 (C) 10m

	SBL: 0.48 (C) 60m SBTR: 0.15 (C) 22m	SBL: 0.40 (C) 53m SBTR: 0.29 (C) 43m
Future Total 2021	Overall: 0.61 (B) EBL: 0.03 (A) <1 veh EBT: 0.71 (B) 103m EBR: 0.04 (A) <1 veh WBL: 0.11 (A) <1 veh WBT: 0.29 (A) 28m WBR: 0.05 (A) <1 veh NBL: 0.12 (C) 10m NBT: 0.26 (C) 19m NBR: 0.03 (C) 8m SBL: 0.50 (C) 62m SBTR: 0.15 (C) 22m	Overall: 0.57 (B) EBL: 0.17 (A) 7m EBT: 0.51 (B) 74m EBR: 0.03 (B) <1 veh WBL: 0.21 (A) 10m WBT: 0.66 (B) 103m WBR: 0.24 (A) 9m NBL: 0.23 (C) 23m NBT: 0.44 (C) 44m NBR: 0.04 (C) 10m SBL: 0.40 (C) 53m SBTR: 0.29 (C) 43m
Future Total 2031	Overall: 0.63 (B) EBL: 0.04 (A) <1 veh EBT: 0.72 (B) 113m EBR: 0.04 (A) <1 veh WBL: 0.12 (A) <1 veh WBT: 0.35 (A) 36m WBR: 0.06 (A) <1 veh NBL: 0.12 (C) 11m NBT: 0.28 (C) 20m NBR: 0.03 (C) 9m SBL: 0.53 (C) 67m SBTR: 0.16 (C) 24m	Overall: 0.61 (B) EBL: 0.22 (B) 9m EBT: 0.60 (B) 94m EBR: 0.03 (B) <1 veh WBL: 0.24 (A) 10m WBT: 0.69 (B) 118m WBR: 0.27 (A) 12m NBL: 0.25 (C) 23m NBT: 0.46 (D) 44m NBR: 0.04 (C) 10m SBL: 0.43 (C) 53m SBTR: 0.31 (C) 43m

The overall intersection and individual movements are expected to operate very well with substantial reserve capacity, acceptable delay, and negligible queueing, during both the a.m. and p.m. peak hours under existing, 2021 and 2031 traffic conditions.

8. Travel Demand Management (TDM)

The proposed draft plan of the site proposes 289 dwelling units and 158 sq.m of ground floor commercial area. The development will be providing a total of 284 parking spaces for residents, 23 parking spaces for visitors and 251 bicycle parking spaces including dedicated resident, visitor, and commercial bicycle parking.

8.1 Objectives

Development of site specific TDM measures for the proposed site is consistent with the Region of Peel Official Plan which aims to increase the use of transit in order to increase the sustainability of the transportation system and help maximize the use of existing transportation infrastructure. Therefore, in the context that the primary objective is to reduce single occupancy vehicle use, the plan will review opportunities to increase the travel options available in Peel, manage travel demand and reduce traffic congestion.

8.2 Travel Demand Management

TDM refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system.

TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality
- Decreased traffic congestion to reduce travel time
- Increased travel options for businesses and commuters
- Reduced personal transportation costs and energy consumptions
- Support Provincial smart growth objectives

The combined benefits listed above will assist in creating a more active and liveable community through improvements to overall active transportation standards for the local businesses and surrounding community.

This report identifies several site-related TDM measures that address City of Mississauga and Peel Region requirements.

8.3 Existing TDM Opportunities

Public Transit – Existing and Future

Mi-Way Transit

Mississauga Transit currently operates routes 1, 19, 28, 62, 91, 101, 103, and 201 in the vicinity of the site. Routes 1 (Dundas), 101 (Dundas Express), and 201 (Dundas Rush Hour) provide east-west service along the Dundas corridor south of the site. Routes 19 (Hurontario) and 103 (Hurontario Express) provide north-south service along the Hurontario corridor west of the site. Route 28 provides service on Confederation Parkway west of the site. Routes 62 (Cooksville GO) and 91 (Hillcrest) provide local service through the Cooksville GO Station north of the site. The site location is therefore centrally located and in close proximity to excellent Mi-Way transit service.

GO Transit

GO Transit operates both train and bus service at the Cooksville GO Station. There are currently 8 trains in each of the am and pm peak periods with service along the Milton line for downtown Toronto. GO Transit also operates a regular daily bus service through the Cooksville GO Station serving all stations on the Milton line as well as the Meadowvale Town Centre and the City Centre Transit Terminal.

Future Hurontario LRT

There is a planned LRT Stop at the intersection of Dundas Street and Hurontario Street approximately 300 metres walking distance from the subject site.

Sidewalk Connectivity

The proposed site plan provides adequate pedestrian connections to the adjacent existing public sidewalk system. The pedestrian access points on the north side of the proposed building are directly

connected to the existing sidewalk infrastructure on the south side of Dundas Street East. There are boulevard sidewalks on both sides of the street along Dundas Street East. Sidewalk connections to and from the proposed site are provided connecting to the existing sidewalks along Hurontario Street.

Active Transportation

The City of Mississauga Cycling Master Plan identified Dundas Street West west of Confederation Parkway as a proposed primary boulevard bicycle route.

The Travel Demand Management Plan outlining pedestrian and cycling connectivity, including the sidewalks and transit facilities within the study area can be found as **Figure 12**.

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

Job Number	12431
Revision	A
Date	July 2016

Travel Demand Management Plan Figure 12

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 8 September 2016 - 11:14 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg

8.4 Proposed TDM Measures

The TDM plan proposes a mix of measures to meet the objectives and targets to reduce vehicular demand and encourage passenger, transit, cycling, and walking. Details are reviewed with each of the following TDM measures.

Bicycle Parking

Bicycle storage for residents should be considered to encourage cycling when appropriate.

As per the approved bicycle parking rates provided by the City, the required parking provision was calculated as follows:

- 289 dwelling units × 0.08 outdoor bicycle parking spaces, resulting in 24 outdoor bicycle parking spaces; and
- 289 dwelling units × 0.7 indoor bicycle parking spaces, resulting in 203 indoor bicycle parking spaces.

As per the approved non-residential bicycle parking rates provided by the City, the required parking provision was calculated as follows:

- 158 SQ.M with 0.10 spaces per 100 SQ.M GFA resulting in 1 internal parking space; and
- 158 SQ.M with 0.25 spaces per 100 SQ.M GFA resulting in 1 external parking space.

Therefore a total parking provision of 24 outdoor bicycle parking spaces and 204 indoor bicycle parking spaces are proposed, for a total bicycle parking provision of 228 spaces.

Vehicle Parking

The development's residential unit breakdown is as follows:

- 174 one bedroom units;
- 105 two bedroom units; and
- 10 three bedroom units.

As per the approved vehicle parking rates provided by the City, the required parking provision was calculated using the proposed unit breakdown as follows:

- 174 one bedroom units × 0.9 spaces per one bedroom units, resulting in 157 spaces;
- 105 two bedroom units × 1.0 spaces per two bedroom units, resulting in 105 spaces;
- 10 three bedroom units × 1.3 spaces per three bedroom units, resulting in 13 spaces; and
- 289 dwelling units × 0.15 visitor spaces, resulting in 44 visitor spaces.

Therefore a total parking provision of 275 resident spaces and 44 visitor/commercial spaces are proposed, for a total site parking provision of 319 spaces. This is considered appropriate given the proximity to transit corridors with increased service level and the expectation that patrons of the commercial use will primarily be residents of the proposed development, thus reducing parking demand and shifting peak-hour commuter trips to non-auto modes.

Pedestrian and Bicycle Network Facility Information Distribution

People who cycle for recreational purposes are good groups to target as potential commuter cyclists. They have access to a bicycle, and may already be familiar with the City's network of cycling and trail facilities. Many residents, however, may have simply never tried cycling and could be unfamiliar with

appropriate routes, techniques and advice for commuting to work / school by bike. This could be reinforced through a Bicycle Network Way-finder Map for residents that could be handed out as a pamphlet during regular communications throughout the year (i.e. Board meetings.).

Short-distance commuters could be targeted with messages focusing on the convenience, cost and health benefits of walking or cycling to work. In addition, practical advice regarding route selection, bike parking, and remaining active in cold or wet weather would be useful and affective. This information could be provided to residents during regular communications throughout the year

Elderly residents as well as people with physical limitations may be prevented from getting to their destination on their own. In these instances, carpooling and shuttle services are important transportation options. The marketing of these opportunities and availability of the services should be provided in further detail to better inform these individuals.

There should be consideration given to providing content and materials for inclusion into an information package for all new residents on available pedestrian trails, cycling, and transit facilities and carpool options including community map, MiWay Transit route map, GO Transit route map and schedules.

The Region of Peel and City of Mississauga should provide content and materials for inclusion into marketing material to distribute to prospective residents on available travel options.

Pre-loaded PRESTO cards

Given the location of the site adjacent to the various transit options, the property owner should consider providing each unit the ability to obtain a one-time twenty five dollar ($25) pre-loaded PRESTO card, to be provided to the first owner of each respective unit, as an incentive to promote transit usage.

9. Conclusions and Recommendations

The proposed mixed-use re-development located at 86-90 Dundas Street East is estimated to generate a total of 92 vehicle trips during the a.m. peak hour consisting of 18 inbound and 74 outbound new vehicle trips. During the p.m. peak hour it is expected to generate a total of 115 vehicle trips consisting of 74 inbound and 41 outbound new vehicle trips. As per Transportation Tomorrow Survey data and existing traffic patterns, residential traffic were split 45% east and 55% west on Dundas Street; commercial traffic were split 50% east and 50% west on Dundas Street.

The addition of the expected site traffic at the intersection of Dundas Street at Hurontario Street is expected to have a negligible impact on intersection operations in 2021. The change in overall v/c ratio during both weekday peak hours is nominal, with the site's impact on v/c ratios, LOS and queuing for individual movements expected to be negligible and unidentifiable from a driver's perspective.

There are no recommended improvements at the study intersections or site driveway to accommodate the proposed development.

Appendix A
Traffic data

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 8:00:00
To: 9:00:00

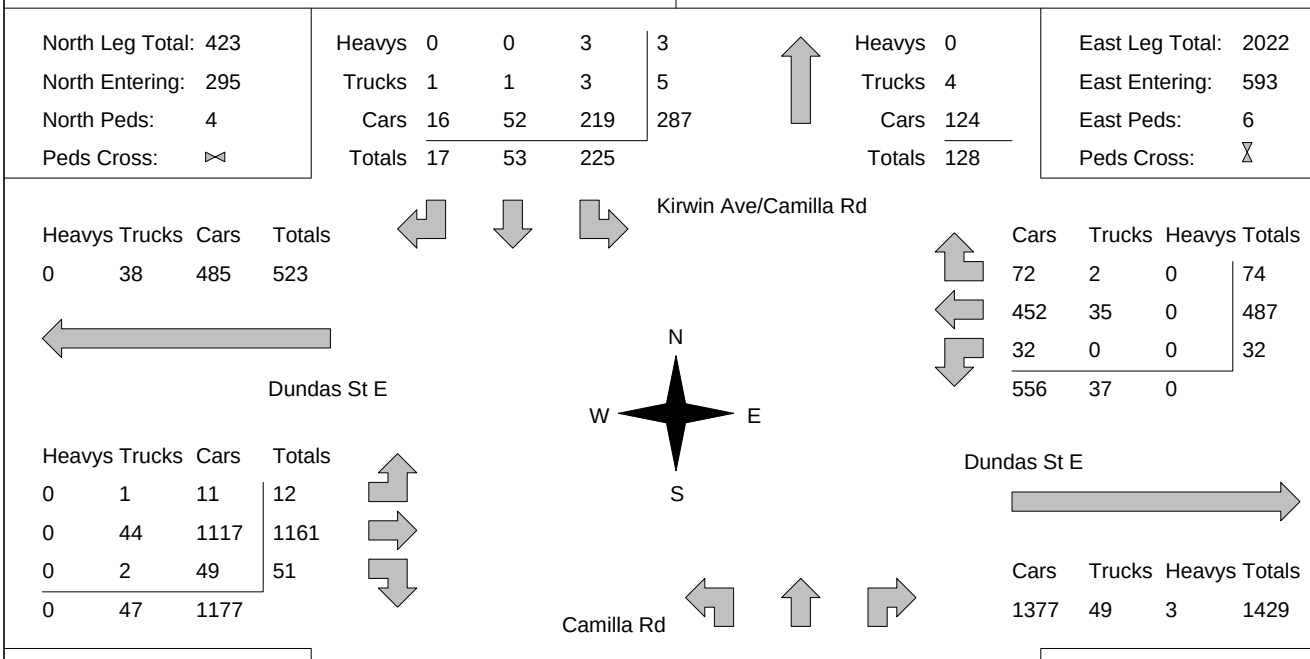
Municipality: Mississauga
Site #: 1612600001
Intersection: Dundas St E & Kirwin Ave/Camilla F
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

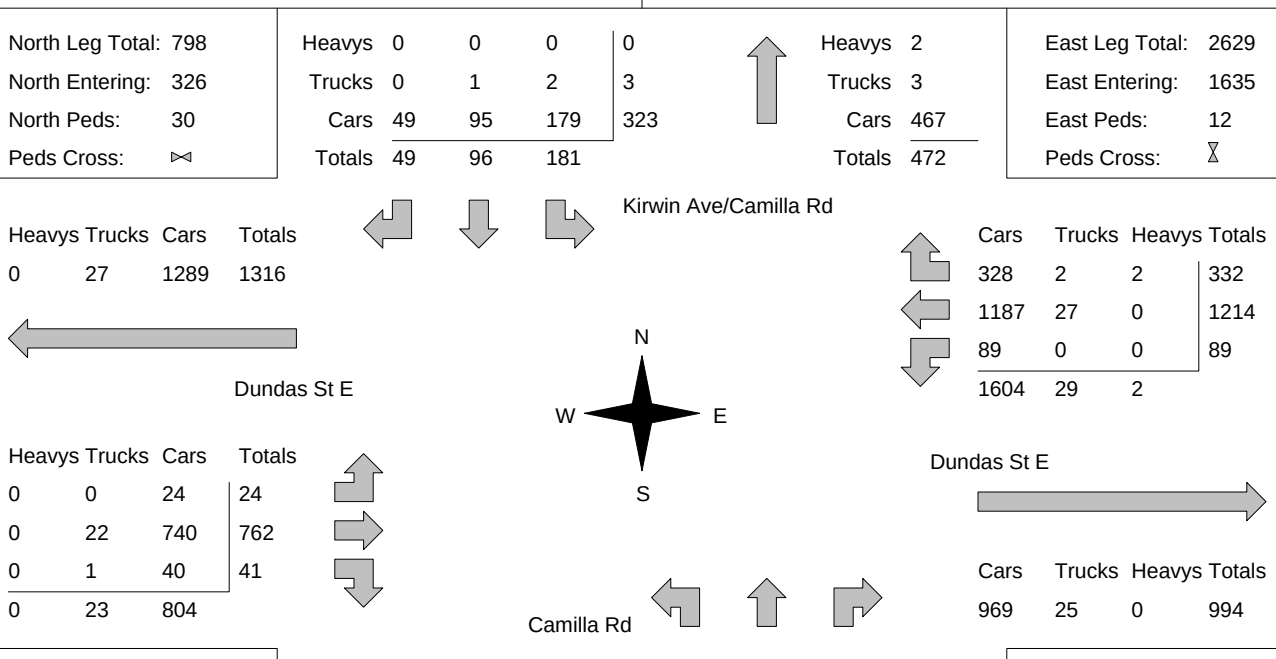
Municipality: Mississauga
Site #: 1612600001
Intersection: Dundas St E & Kirwin Ave/Camilla F
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Total Count Diagram

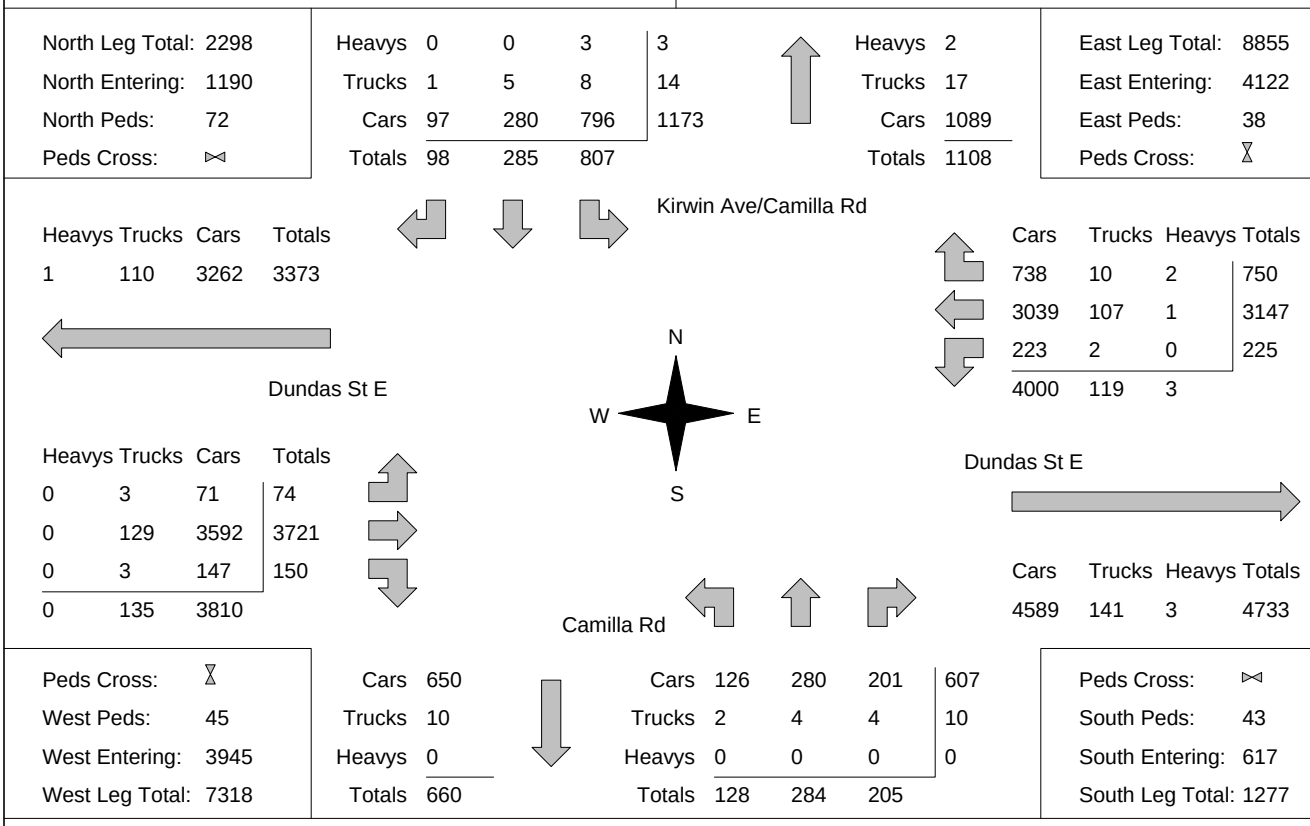
Municipality: Mississauga
Site #: 1612600001
Intersection: Dundas St E & Kirwin Ave/Camilla F
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc
Traffic Count Summary

Intersection: Dundas St E & Kirwin Ave/Camilla | **Count Date:** 12-Apr-16 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	204	53	11	268	2	362
9:00:00	225	53	17	295	4	399
16:00:00	0	0	0	0	0	2
17:00:00	197	83	21	301	36	498
18:00:00	181	96	49	326	30	546
Totals:	807	285	98	1190	72	1807

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	12	29	53	94	5
9:00:00	19	42	43	104	4
16:00:00	1	1	0	2	0
17:00:00	43	96	58	197	21
18:00:00	53	116	51	220	13
Totals:	128	284	205	617	43

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	12	309	60	381	2	1477
9:00:00	32	487	74	593	6	1817
16:00:00	0	3	0	3	0	4
17:00:00	92	1128	282	1502	18	2296
18:00:00	89	1214	332	1635	12	2462
Totals:	225	3141	748	4114	38	8056

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	9	1067	20	1096	5
9:00:00	12	1161	51	1224	11
16:00:00	0	0	1	1	0
17:00:00	29	728	37	794	18
18:00:00	24	762	41	827	11
Totals:	74	3718	150	3942	45

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	0	276	314	2	372	373

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	34	34	9	9	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2
7:30:00	88	54	23	14	3	3	2	2	1	0	0	0	0	0	0	0	0	0	2	0
7:45:00	135	47	39	16	8	5	3	1	1	0	0	0	0	0	0	0	0	0	2	0
8:00:00	201	66	51	12	11	3	3	0	2	1	0	0	0	0	0	0	0	0	2	0
8:15:00	242	41	60	9	13	2	3	0	3	1	0	0	0	0	0	0	0	0	2	0
8:30:00	296	54	74	14	18	5	5	2	3	0	0	0	2	2	0	0	0	0	4	2
8:45:00	347	51	86	12	21	3	5	0	3	0	1	1	3	1	0	0	0	0	5	1
9:00:00	420	73	103	17	27	6	6	1	3	0	1	0	3	0	0	0	0	0	6	1
9:00:13	420	0	103	0	27	0	6	0	3	0	1	0	3	0	0	0	0	0	6	0
16:00:00	420	0	103	0	27	0	6	0	3	0	1	0	3	0	0	0	0	0	6	0
16:15:00	465	45	126	23	34	7	6	0	3	0	1	0	3	0	0	0	0	0	11	5
16:30:00	516	51	145	19	40	6	6	0	4	1	1	0	3	0	0	0	0	0	22	11
16:45:00	562	46	161	16	44	4	6	0	4	0	1	0	3	0	0	0	0	0	29	7
17:00:00	617	55	185	24	48	4	6	0	4	0	1	0	3	0	0	0	0	0	42	13
17:15:00	646	29	201	16	60	12	7	1	4	0	1	0	3	0	0	0	0	0	47	5
17:30:00	700	54	235	34	74	14	7	0	4	0	1	0	3	0	0	0	0	0	57	10
17:45:00	750	50	256	21	88	14	7	0	5	1	1	0	3	0	0	0	0	0	61	4
18:00:00	796	46	280	24	97	9	8	1	5	0	1	0	3	0	0	0	0	0	72	11
18:15:00	796	0	280	0	97	0	8	0	5	0	1	0	3	0	0	0	0	0	72	0
18:15:14	796	0	280	0	97	0	8	0	5	0	1	0	3	0	0	0	0	0	72	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	58	58	14	14	0	0	5	5	0	0	0	0	0	0	0	0	0	0
7:30:00	4	1	136	78	22	8	0	0	13	8	0	0	0	0	0	0	0	0	0	0
7:45:00	8	4	205	69	49	27	0	0	17	4	0	0	0	0	0	0	0	0	1	1
8:00:00	12	4	283	78	60	11	0	0	25	8	0	0	0	0	1	1	0	0	2	1
8:15:00	15	3	367	84	74	14	0	0	30	5	0	0	0	0	1	0	0	0	6	4
8:30:00	23	8	474	107	95	21	0	0	36	6	0	0	0	0	1	0	0	0	7	1
8:45:00	25	2	617	143	115	20	0	0	47	11	2	2	0	0	1	0	0	0	8	1
9:00:00	44	19	735	118	132	17	0	0	60	13	2	0	0	0	1	0	0	0	8	0
9:00:13	44	0	735	0	132	0	0	0	60	0	2	0	0	0	1	0	0	0	8	0
16:00:00	44	0	738	3	132	0	0	0	60	0	2	0	0	0	1	0	0	0	8	0
16:15:00	62	18	981	243	203	71	0	0	66	6	3	1	0	0	1	0	0	0	12	4
16:30:00	88	26	1277	296	261	58	0	0	70	4	4	1	0	0	1	0	0	0	18	6
16:45:00	113	25	1570	293	347	86	1	1	77	7	7	3	0	0	1	0	0	0	22	4
17:00:00	134	21	1846	276	408	61	2	1	80	3	8	1	0	0	1	0	0	0	26	4
17:15:00	151	17	2141	295	489	81	2	0	85	5	8	0	0	0	1	0	0	0	27	1
17:30:00	178	27	2463	322	583	94	2	0	93	8	9	1	0	0	1	0	2	2	31	4
17:45:00	200	22	2730	267	668	85	2	0	99	6	10	1	0	0	1	0	2	0	31	0
18:00:00	223	23	3033	303	736	68	2	0	107	8	10	0	0	0	1	0	2	0	38	7
18:15:00	223	0	3033	0	736	0	2	0	107	0	10	0	0	0	1	0	2	0	38	0
18:15:14	223	0	3039	6	738	2	2	0	107	0	10	0	0	0	1	0	2	0	38	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	1	1	11	11	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30:00	5	2	10	9	27	16	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:45:00	8	3	19	9	44	17	0	0	1	1	0	0	0	0	0	0	0	0	3	2
8:00:00	12	4	28	9	53	9	0	0	1	0	0	0	0	0	0	0	0	0	5	2
8:15:00	13	1	31	3	60	7	0	0	1	0	1	1	0	0	0	0	0	0	7	2
8:30:00	18	5	45	14	70	10	1	1	1	0	2	1	0	0	0	0	0	0	7	0
8:45:00	26	8	54	9	79	9	1	0	2	1	2	0	0	0	0	0	0	0	8	1
9:00:00	29	3	69	15	94	15	2	1	2	0	2	0	0	0	0	0	0	0	9	1
9:00:13	30	1	70	1	94	0	2	0	2	0	2	0	0	0	0	0	0	0	9	0
16:00:00	30	0	70	0	94	0	2	0	2	0	2	0	0	0	0	0	0	0	9	0
16:15:00	44	14	95	25	112	18	2	0	2	0	2	0	0	0	0	0	0	0	18	9
16:30:00	54	10	116	21	124	12	2	0	2	0	2	0	0	0	0	0	0	0	22	4
16:45:00	66	12	144	28	142	18	2	0	3	1	3	1	0	0	0	0	0	0	29	7
17:00:00	73	7	165	21	151	9	2	0	3	0	3	0	0	0	0	0	0	0	30	1
17:15:00	91	18	205	40	165	14	2	0	3	0	3	0	0	0	0	0	0	0	35	5
17:30:00	105	14	230	25	174	9	2	0	4	1	3	0	0	0	0	0	0	0	35	0
17:45:00	118	13	256	26	192	18	2	0	4	0	3	0	0	0	0	0	0	0	39	4
18:00:00	126	8	280	24	201	9	2	0	4	0	4	1	0	0	0	0	0	0	43	4
18:15:00	126	0	280	0	201	0	2	0	4	0	4	0	0	0	0	0	0	0	43	0
18:15:14	126	0	280	0	201	0	2	0	4	0	4	0	0	0	0	0	0	0	43	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	3	3	188	188	4	4	0	0	2	2	0	0	0	0	0	0	0	0	1	1
7:30:00	7	4	440	252	13	9	2	2	14	12	0	0	0	0	0	0	0	0	4	3
7:45:00	7	0	719	279	18	5	2	0	24	10	0	0	0	0	0	0	0	0	4	0
8:00:00	7	0	1033	314	20	2	2	0	34	10	0	0	0	0	0	0	0	0	5	1
8:15:00	10	3	1344	311	29	9	2	0	46	12	1	1	0	0	0	0	0	0	5	0
8:30:00	11	1	1601	257	44	15	3	1	61	15	1	0	0	0	0	0	0	0	8	3
8:45:00	13	2	1927	326	52	8	3	0	68	7	1	0	0	0	0	0	0	0	9	1
9:00:00	18	5	2150	223	69	17	3	0	78	10	2	1	0	0	0	0	0	0	16	7
9:00:13	18	0	2150	0	70	1	3	0	78	0	2	0	0	0	0	0	0	0	16	0
16:00:00	18	0	2150	0	70	0	3	0	78	0	2	0	0	0	0	0	0	0	16	0
16:15:00	26	8	2346	196	82	12	3	0	85	7	2	0	0	0	0	0	0	0	20	4
16:30:00	33	7	2496	150	90	8	3	0	91	6	2	0	0	0	0	0	0	0	25	5
16:45:00	41	8	2668	172	97	7	3	0	100	9	2	0	0	0	0	0	0	0	34	9
17:00:00	47	6	2849	181	107	10	3	0	107	7	2	0	0	0	0	0	0	0	34	0
17:15:00	51	4	3025	176	115	8	3	0	111	4	3	1	0	0	0	0	0	0	38	4
17:30:00	56	5	3218	193	129	14	3	0	118	7	3	0	0	0	0	0	0	0	40	2
17:45:00	63	7	3399	181	139	10	3	0	121	3	3	0	0	0	0	0	0	0	41	1
18:00:00	71	8	3589	190	147	8	3	0	129	8	3	0	0	0	0	0	0	0	45	4
18:15:00	71	0	3592	3	147	0	3	0	129	0	3	0	0	0	0	0	0	0	45	0
18:15:14	71	0	3592	0	147	0	3	0	129	0	3	0	0	0	0	0	0	0	45	0

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

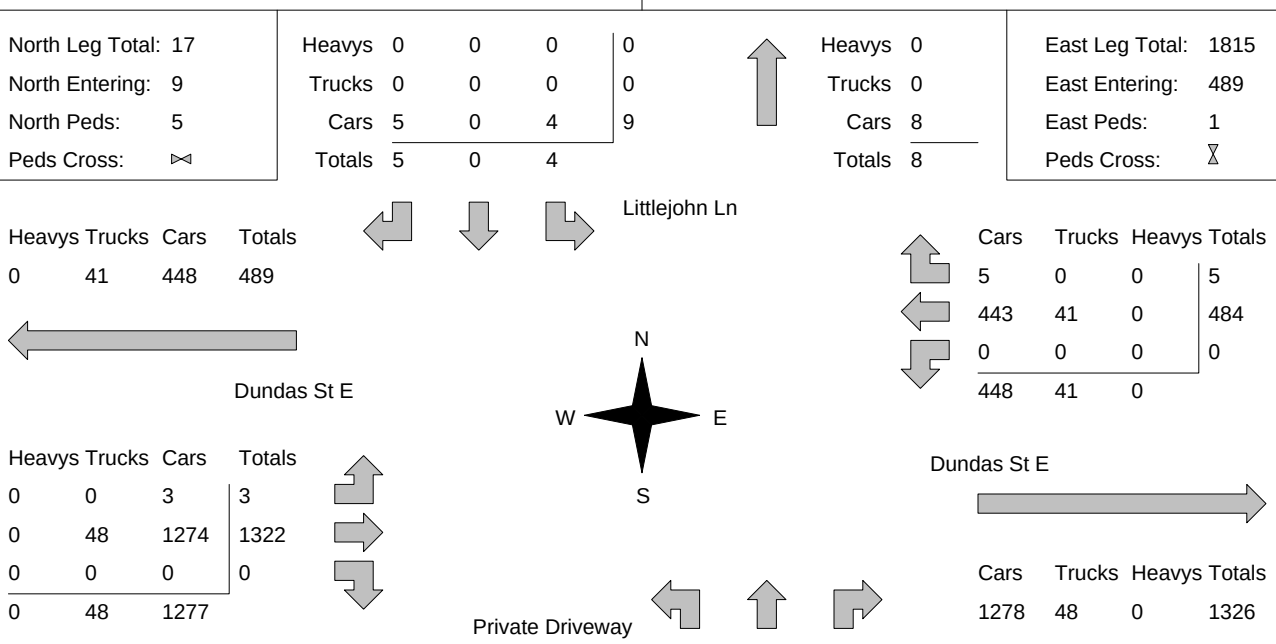
Municipality: Mississauga
Site #: 1612600002
Intersection: Dundas St E & Littlejohn Ln
TFR File #: 11
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

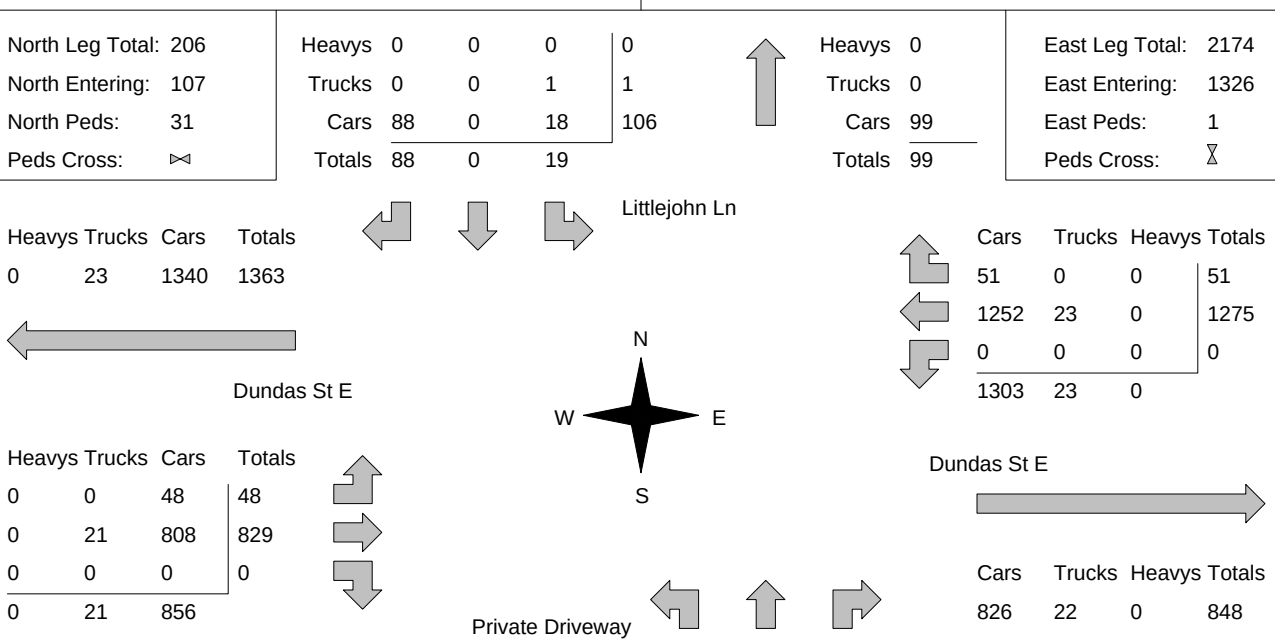
Municipality: Mississauga
Site #: 1612600002
Intersection: Dundas St E & Littlejohn Ln
TFR File #: 11
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Total Count Diagram

Municipality: Mississauga
Site #: 1612600002
Intersection: Dundas St E & Littlejohn Ln
TFR File #: 11
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E

North Leg Total: 396
North Entering: 197
North Peds: 85
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	2	2
Cars	155	0	40	195
Totals	155	0	42	

Heavys	0
Trucks	2
Cars	197
Totals	199

East Leg Total: 7458
East Entering: 3389
East Peds: 4
Peds Cross: ⧖

Littlejohn Ln

Heavys	Trucks	Cars	Totals
0	118	3323	3441

Cars	Trucks	Heavys	Totals
103	0	0	103
3168	118	0	3286
0	0	0	0
3271	118	0	

Dundas St E

N
W E
S

Heavys	Trucks	Cars	Totals
0	2	94	96
0	134	3893	4027
0	0	0	0
0	136	3987	

Dundas St E

Cars	Trucks	Heavys	Totals
3933	136	0	4069

Private Driveway

Peds Cross: ⧖
West Peds: 3
West Entering: 4123
West Leg Total: 7564

Cars	0
Trucks	0
Heavys	0
Totals	0

Cars	0	0	0	0
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	0	0	0	

Peds Cross: ⋈
South Peds: 100
South Entering: 0
South Leg Total: 0

Comments

Ontario Traffic Inc
Traffic Count Summary

Intersection: Dundas St E & Littlejohn Ln | **Count Date:** 12-Apr-16 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	0	2	3	0	3
9:00:00	5	0	6	11	6	11
16:00:00	0	0	0	0	0	0
17:00:00	17	0	57	74	48	74
18:00:00	19	0	88	107	31	107
Totals:	42	0	153	195	85	195

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	10
9:00:00	0	0	0	0	8
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	35
18:00:00	0	0	0	0	47
Totals:	0	0	0	0	100

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	1
8:00:00	0	345	3	348	0	1474
9:00:00	0	520	5	525	1	1774
16:00:00	0	3	0	3	0	29
17:00:00	0	1143	42	1185	2	2025
18:00:00	0	1275	51	1326	1	2203
Totals:	0	3286	101	3387	4	7506

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	1	0	1	0
8:00:00	3	1123	0	1126	0
9:00:00	4	1245	0	1249	1
16:00:00	1	25	0	26	0
17:00:00	40	800	0	840	0
18:00:00	48	829	0	877	2
Totals:	96	4023	0	4119	3

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	0	1	7	0	19	22

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	1	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	1	0	0	0	5	3	1	0	0	0	0	0	0	0	0	0	0	0	3	3
8:45:00	4	3	0	0	7	2	1	0	0	0	0	0	0	0	0	0	0	0	5	2
9:00:00	5	1	0	0	8	1	1	0	0	0	0	0	0	0	0	0	0	0	6	1
9:00:46	5	0	0	0	8	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0
16:00:00	5	0	0	0	8	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0
16:15:00	12	7	0	0	27	19	1	0	0	0	0	0	0	0	0	0	0	0	16	10
16:30:00	14	2	0	0	42	15	1	0	0	0	0	0	0	0	0	0	0	0	24	8
16:45:00	17	3	0	0	53	11	1	0	0	0	0	0	0	0	0	0	0	0	37	13
17:00:00	22	5	0	0	65	12	1	0	0	0	0	0	0	0	0	0	0	0	54	17
17:15:00	26	4	0	0	90	25	2	1	0	0	0	0	0	0	0	0	0	0	68	14
17:30:00	32	6	0	0	104	14	2	0	0	0	0	0	0	0	0	0	0	0	75	7
17:45:00	36	4	0	0	124	20	2	0	0	0	0	0	0	0	0	0	0	0	75	0
18:00:00	40	4	0	0	153	29	2	0	0	0	0	0	0	0	0	0	0	0	85	10
18:15:00	40	0	0	0	154	1	2	0	0	0	0	0	0	0	0	0	0	0	85	0
18:15:15	40	0	0	0	155	1	2	0	0	0	0	0	0	0	0	0	0	0	85	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	58	58	2	2	0	0	5	5	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	146	88	2	0	0	0	13	8	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	227	81	2	0	0	0	18	5	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	316	89	3	1	0	0	29	11	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	408	92	5	2	0	0	38	9	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	524	116	6	1	0	0	46	8	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	670	146	7	1	0	0	59	13	0	0	0	0	0	0	0	0	1	1
9:00:00	0	0	790	120	8	1	0	0	75	16	0	0	0	0	0	0	0	0	1	0
9:00:46	0	0	792	2	8	0	0	0	75	0	0	0	0	0	0	0	0	0	1	0
16:00:00	0	0	793	1	8	0	0	0	75	0	0	0	0	0	0	0	0	0	1	0
16:15:00	0	0	1057	264	18	10	0	0	81	6	0	0	0	0	0	0	0	0	2	1
16:30:00	0	0	1346	289	26	8	0	0	86	5	0	0	0	0	0	0	0	0	3	1
16:45:00	0	0	1632	286	40	14	0	0	91	5	0	0	0	0	0	0	0	0	3	0
17:00:00	0	0	1916	284	50	10	0	0	95	4	0	0	0	0	0	0	0	0	3	0
17:15:00	0	0	2238	322	63	13	0	0	98	3	0	0	0	0	0	0	0	0	3	0
17:30:00	0	0	2554	316	83	20	0	0	105	7	0	0	0	0	0	0	0	0	4	1
17:45:00	0	0	2853	299	92	9	0	0	111	6	0	0	0	0	0	0	0	0	4	0
18:00:00	0	0	3168	315	101	9	0	0	118	7	0	0	0	0	0	0	0	0	4	0
18:15:00	0	0	3168	0	102	1	0	0	118	0	0	0	0	0	0	0	0	0	4	0
18:15:15	0	0	3168	0	103	1	0	0	118	0	0	0	0	0	0	0	0	0	4	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	3
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	2
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	5
9:00:46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	4
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	5
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	12
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	14
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	13
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	11
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	7
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	16
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
18:15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	210	209	0	0	1	1	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	1	0	485	275	0	0	1	0	14	12	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	758	273	0	0	2	1	22	8	0	0	0	0	0	0	0	0	0	0
8:00:00	1	0	1089	331	0	0	2	0	35	13	0	0	0	0	0	0	0	0	0	0
8:15:00	1	0	1420	331	0	0	2	0	49	14	0	0	0	0	0	0	0	0	0	0
8:30:00	2	1	1708	288	0	0	2	0	64	15	0	0	0	0	0	0	0	0	0	0
8:45:00	4	2	2032	324	0	0	2	0	70	6	0	0	0	0	0	0	0	0	1	1
9:00:00	5	1	2288	256	0	0	2	0	81	11	0	0	0	0	0	0	0	0	1	0
9:00:46	6	1	2312	24	0	0	2	0	81	0	0	0	0	0	0	0	0	0	1	0
16:00:00	6	0	2313	1	0	0	2	0	81	0	0	0	0	0	0	0	0	0	1	0
16:15:00	12	6	2514	201	0	0	2	0	86	5	0	0	0	0	0	0	0	0	1	0
16:30:00	20	8	2688	174	0	0	2	0	94	8	0	0	0	0	0	0	0	0	1	0
16:45:00	31	11	2877	189	0	0	2	0	104	10	0	0	0	0	0	0	0	0	1	0
17:00:00	46	15	3081	204	0	0	2	0	113	9	0	0	0	0	0	0	0	0	1	0
17:15:00	51	5	3278	197	0	0	2	0	116	3	0	0	0	0	0	0	0	0	1	0
17:30:00	62	11	3493	215	0	0	2	0	122	6	0	0	0	0	0	0	0	0	2	1
17:45:00	77	15	3694	201	0	0	2	0	126	4	0	0	0	0	0	0	0	0	2	0
18:00:00	94	17	3889	195	0	0	2	0	134	8	0	0	0	0	0	0	0	0	3	1
18:15:00	94	0	3891	2	0	0	2	0	134	0	0	0	0	0	0	0	0	0	3	0
18:15:15	94	0	3893	2	0	0	2	0	134	0	0	0	0	0	0	0	0	0	3	0

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

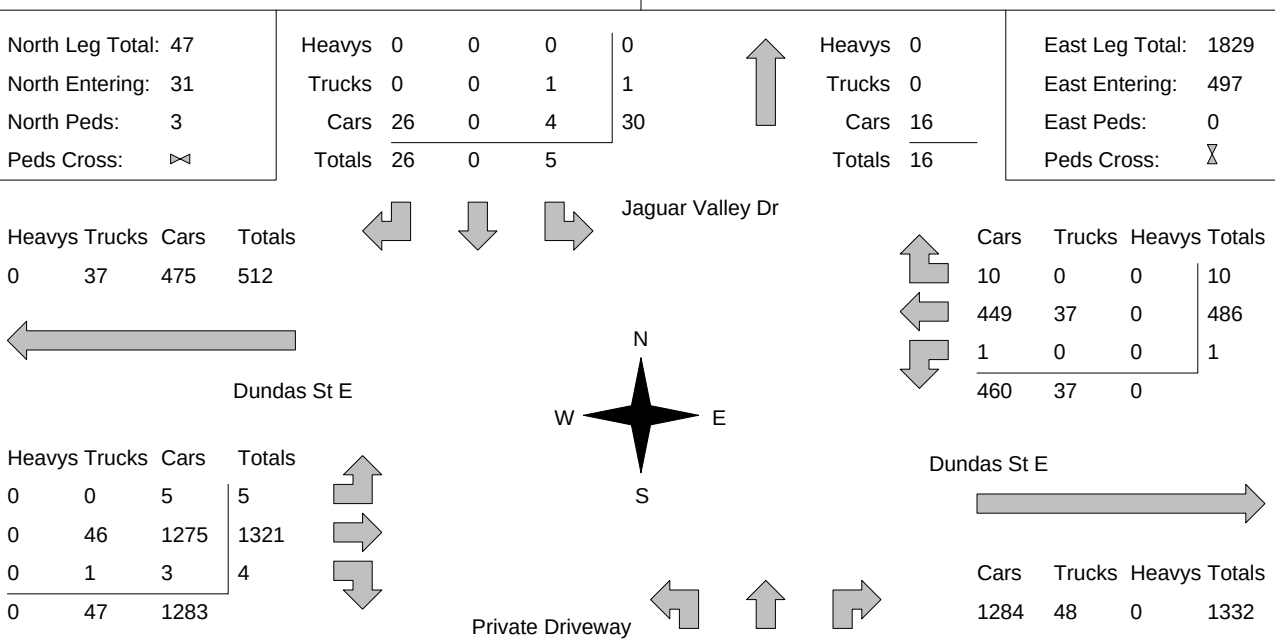
Municipality: Mississauga
Site #: 1612600003
Intersection: Dundas St E & Jaguar Valley Dr
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

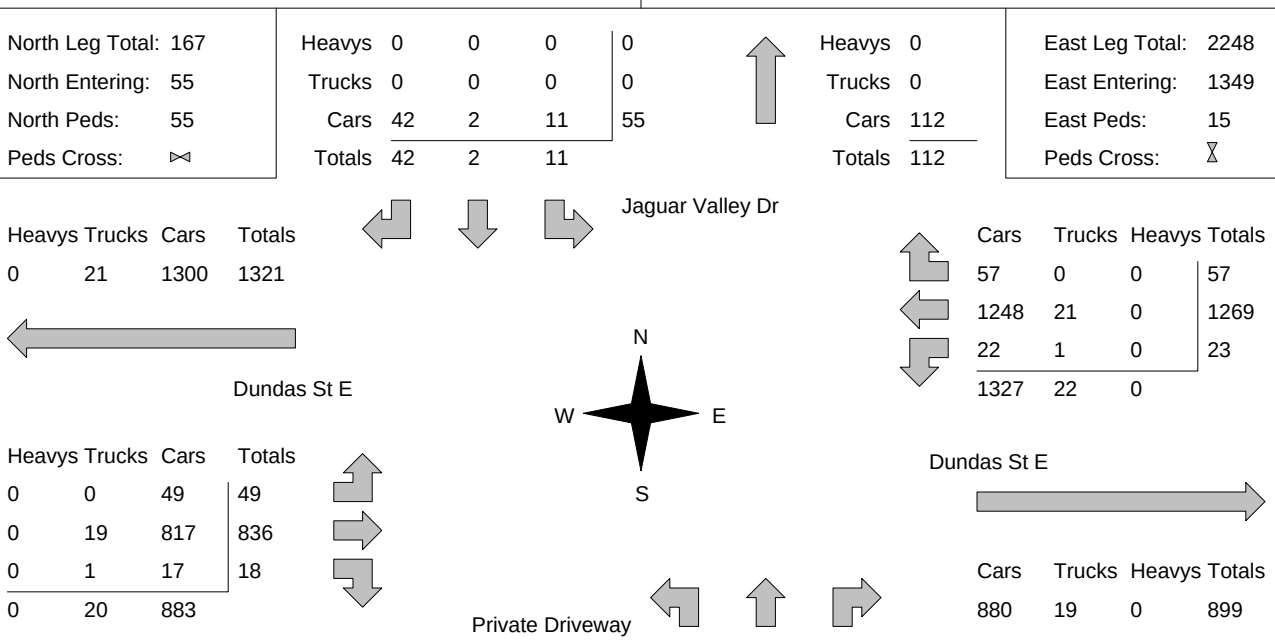
Municipality: Mississauga
Site #: 1612600003
Intersection: Dundas St E & Jaguar Valley Dr
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc

Total Count Diagram

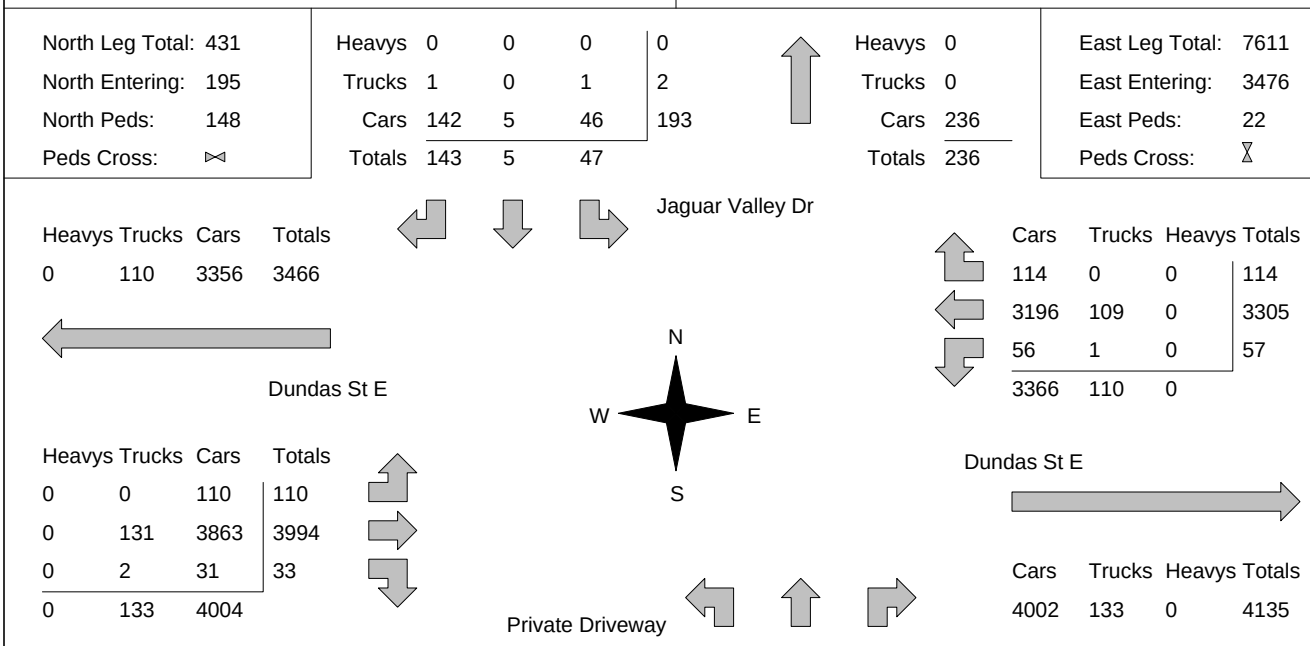
Municipality: Mississauga
Site #: 1612600003
Intersection: Dundas St E & Jaguar Valley Dr
TFR File #: 1
Count date: 12-Apr-16

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Dundas St E runs W/E



Comments

Ontario Traffic Inc
Traffic Count Summary

Intersection: Dundas St E & Jaguar Valley Dr | **Count Date:** 12-Apr-16 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	1	0	1	2	0	2
8:00:00	17	0	20	37	1	39
9:00:00	5	0	24	29	6	36
16:00:00	0	0	0	0	0	0
17:00:00	13	3	56	72	86	119
18:00:00	11	2	42	55	55	123
Totals:	47	5	143	195	148	319

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	2	2	12
9:00:00	0	1	6	7	14
16:00:00	0	0	0	0	0
17:00:00	8	5	34	47	39
18:00:00	10	6	52	68	48
Totals:	18	12	94	124	113

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	7	1	8	0	11
8:00:00	1	349	9	359	0	1472
9:00:00	4	524	11	539	0	1800
16:00:00	0	0	0	0	0	3
17:00:00	29	1150	36	1215	7	2067
18:00:00	23	1269	57	1349	15	2252
Totals:	57	3299	114	3470	22	7605

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	3	0	3	0
8:00:00	9	1103	1	1113	0
9:00:00	9	1249	3	1261	0
16:00:00	0	3	0	3	0
17:00:00	43	798	11	852	4
18:00:00	49	836	18	903	2
Totals:	110	3992	33	4135	6

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	1	17	6	0	37	44

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600003

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	7	6	0	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	12	5	0	0	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	15	3	0	0	13	4	0	0	0	0	1	1	0	0	0	0	0	0	1	1
8:00:00	17	2	0	0	20	7	1	1	0	0	1	0	0	0	0	0	0	0	1	0
8:15:00	18	1	0	0	24	4	1	0	0	0	1	0	0	0	0	0	0	0	1	0
8:30:00	19	1	0	0	29	5	1	0	0	0	1	0	0	0	0	0	0	0	3	2
8:45:00	19	0	0	0	39	10	1	0	0	0	1	0	0	0	0	0	0	0	4	1
9:00:00	22	3	0	0	44	5	1	0	0	0	1	0	0	0	0	0	0	0	7	3
9:00:06	22	0	0	0	44	0	1	0	0	0	1	0	0	0	0	0	0	0	7	0
16:00:00	22	0	0	0	44	0	1	0	0	0	1	0	0	0	0	0	0	0	7	0
16:15:00	26	4	0	0	62	18	1	0	0	0	1	0	0	0	0	0	0	0	24	17
16:30:00	28	2	2	2	76	14	1	0	0	0	1	0	0	0	0	0	0	0	35	11
16:45:00	33	5	2	0	89	13	1	0	0	0	1	0	0	0	0	0	0	0	59	24
17:00:00	35	2	3	1	100	11	1	0	0	0	1	0	0	0	0	0	0	0	93	34
17:15:00	37	2	3	0	116	16	1	0	0	0	1	0	0	0	0	0	0	0	110	17
17:30:00	40	3	3	0	125	9	1	0	0	0	1	0	0	0	0	0	0	0	123	13
17:45:00	44	4	5	2	133	8	1	0	0	0	1	0	0	0	0	0	0	0	134	11
18:00:00	46	2	5	0	142	9	1	0	0	0	1	0	0	0	0	0	0	0	148	14
18:15:00	46	0	5	0	142	0	1	0	0	0	1	0	0	0	0	0	0	0	148	0
18:15:05	46	0	5	0	142	0	1	0	0	0	1	0	0	0	0	0	0	0	148	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600003

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	4	4	1	1	0	0	3	3	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	66	62	3	2	0	0	8	5	0	0	0	0	0	0	0	0	0	0
7:30:00	1	1	155	89	6	3	0	0	13	5	0	0	0	0	0	0	0	0	0	0
7:45:00	1	0	238	83	9	3	0	0	19	6	0	0	0	0	0	0	0	0	0	0
8:00:00	1	0	327	89	10	1	0	0	29	10	0	0	0	0	0	0	0	0	0	0
8:15:00	1	0	418	91	14	4	0	0	38	9	0	0	0	0	0	0	0	0	0	0
8:30:00	2	1	536	118	15	1	0	0	45	7	0	0	0	0	0	0	0	0	0	0
8:45:00	2	0	687	151	19	4	0	0	56	11	0	0	0	0	0	0	0	0	0	0
9:00:00	5	3	809	122	21	2	0	0	71	15	0	0	0	0	0	0	0	0	0	0
9:00:06	5	0	809	0	21	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0
16:00:00	5	0	809	0	21	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0
16:15:00	10	5	1081	272	30	9	0	0	76	5	0	0	0	0	0	0	0	0	4	4
16:30:00	22	12	1363	282	38	8	0	0	79	3	0	0	0	0	0	0	0	0	4	0
16:45:00	30	8	1648	285	47	9	0	0	84	5	0	0	0	0	0	0	0	0	7	3
17:00:00	34	4	1942	294	57	10	0	0	88	4	0	0	0	0	0	0	0	0	7	0
17:15:00	39	5	2265	323	70	13	0	0	91	3	0	0	0	0	0	0	0	0	8	1
17:30:00	42	3	2573	308	87	17	0	0	98	7	0	0	0	0	0	0	0	0	10	2
17:45:00	51	9	2883	310	104	17	0	0	103	5	0	0	0	0	0	0	0	0	13	3
18:00:00	56	5	3190	307	114	10	1	1	109	6	0	0	0	0	0	0	0	0	22	9
18:15:00	56	0	3193	3	114	0	1	0	109	0	0	0	0	0	0	0	0	0	22	0
18:15:05	56	0	3196	3	114	0	1	0	109	0	0	0	0	0	0	0	0	0	22	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600003

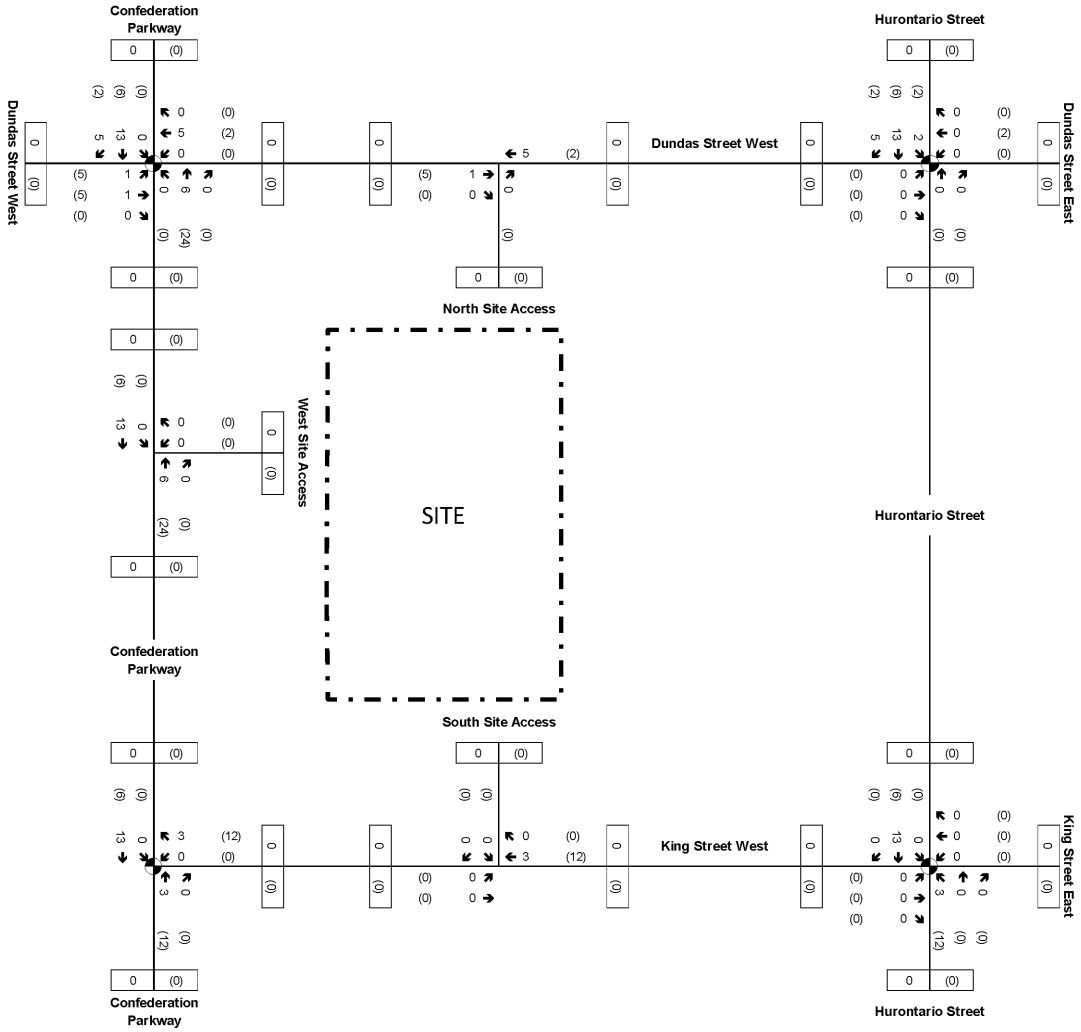
Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5	5
7:30:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	10	5
7:45:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1
8:00:00	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	12	1
8:15:00	0	0	1	1	3	2	0	0	0	0	1	0	0	0	0	0	0	0	16	4
8:30:00	0	0	1	0	5	2	0	0	0	0	1	0	0	0	0	0	0	0	17	1
8:45:00	0	0	1	0	6	1	0	0	0	0	1	0	0	0	0	0	0	0	21	4
9:00:00	0	0	1	0	7	1	0	0	0	0	1	0	0	0	0	0	0	0	26	5
9:00:06	0	0	1	0	7	0	0	0	0	0	1	0	0	0	0	0	0	0	26	0
16:00:00	0	0	1	0	7	0	0	0	0	0	1	0	0	0	0	0	0	0	26	0
16:15:00	3	3	1	0	18	11	0	0	0	0	1	0	0	0	0	0	0	0	39	13
16:30:00	4	1	4	3	30	12	0	0	0	0	1	0	0	0	0	0	0	0	42	3
16:45:00	6	2	6	2	34	4	0	0	0	0	1	0	0	0	0	0	0	0	55	13
17:00:00	8	2	6	0	41	7	0	0	0	0	1	0	0	0	0	0	0	0	65	10
17:15:00	9	1	9	3	46	5	0	0	0	0	1	0	0	0	0	0	0	0	77	12
17:30:00	10	1	10	1	55	9	0	0	0	0	1	0	0	0	0	0	0	0	90	13
17:45:00	13	3	11	1	75	20	0	0	0	0	1	0	0	0	0	0	0	0	102	12
18:00:00	18	5	12	1	93	18	0	0	0	0	1	0	0	0	0	0	0	0	113	11
18:15:00	18	0	12	0	93	0	0	0	0	0	1	0	0	0	0	0	0	0	113	0
18:15:05	18	0	12	0	93	0	0	0	0	0	1	0	0	0	0	0	0	0	113	0

Ontario Traffic Inc

Count Date: 12-Apr-16 Site #: 1612600003

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	199	196	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
7:30:00	7	6	472	273	0	0	0	0	15	12	0	0	0	0	0	0	0	0	0	0
7:45:00	9	2	747	275	0	0	0	0	24	9	0	0	0	0	0	0	0	0	0	0
8:00:00	9	0	1071	324	0	0	0	0	35	11	1	1	0	0	0	0	0	0	0	0
8:15:00	10	1	1403	332	2	2	0	0	49	14	1	0	0	0	0	0	0	0	0	0
8:30:00	13	3	1692	289	3	1	0	0	63	14	1	0	0	0	0	0	0	0	0	0
8:45:00	14	1	2022	330	3	0	0	0	70	7	1	0	0	0	0	0	0	0	0	0
9:00:00	18	4	2272	250	3	0	0	0	83	13	1	0	0	0	0	0	0	0	0	0
9:00:06	18	0	2275	3	3	0	0	0	83	0	1	0	0	0	0	0	0	0	0	0
16:00:00	18	0	2275	0	3	0	0	0	83	0	1	0	0	0	0	0	0	0	0	0
16:15:00	28	10	2473	198	6	3	0	0	88	5	1	0	0	0	0	0	0	0	2	2
16:30:00	37	9	2640	167	10	4	0	0	95	7	1	0	0	0	0	0	0	0	4	2
16:45:00	51	14	2832	192	12	2	0	0	104	9	1	0	0	0	0	0	0	0	4	0
17:00:00	61	10	3044	212	14	2	0	0	112	8	1	0	0	0	0	0	0	0	4	0
17:15:00	73	12	3233	189	19	5	0	0	115	3	2	1	0	0	0	0	0	0	4	0
17:30:00	85	12	3455	222	22	3	0	0	121	6	2	0	0	0	0	0	0	0	4	0
17:45:00	95	10	3656	201	26	4	0	0	124	3	2	0	0	0	0	0	0	0	5	1
18:00:00	110	15	3861	205	31	5	0	0	131	7	2	0	0	0	0	0	0	0	6	1
18:15:00	110	0	3862	1	31	0	0	0	131	0	2	0	0	0	0	0	0	0	6	0
18:15:05	110	0	3863	1	31	0	0	0	131	0	2	0	0	0	0	0	0	0	6	0

Appendix B
Background information



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

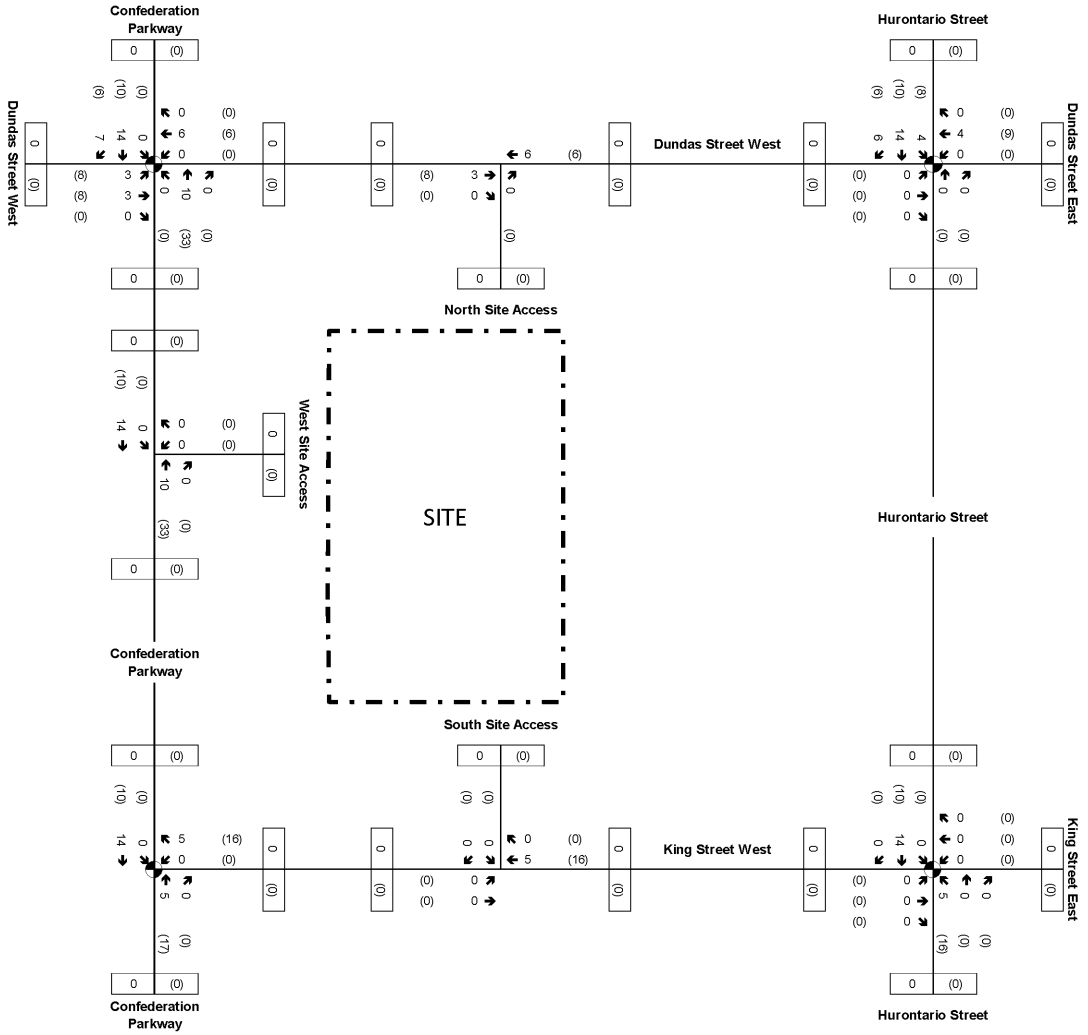
71 Agnes Site Trips

Job Number	12431
Revision	A
Date	July 2016

Figure A1

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:20 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

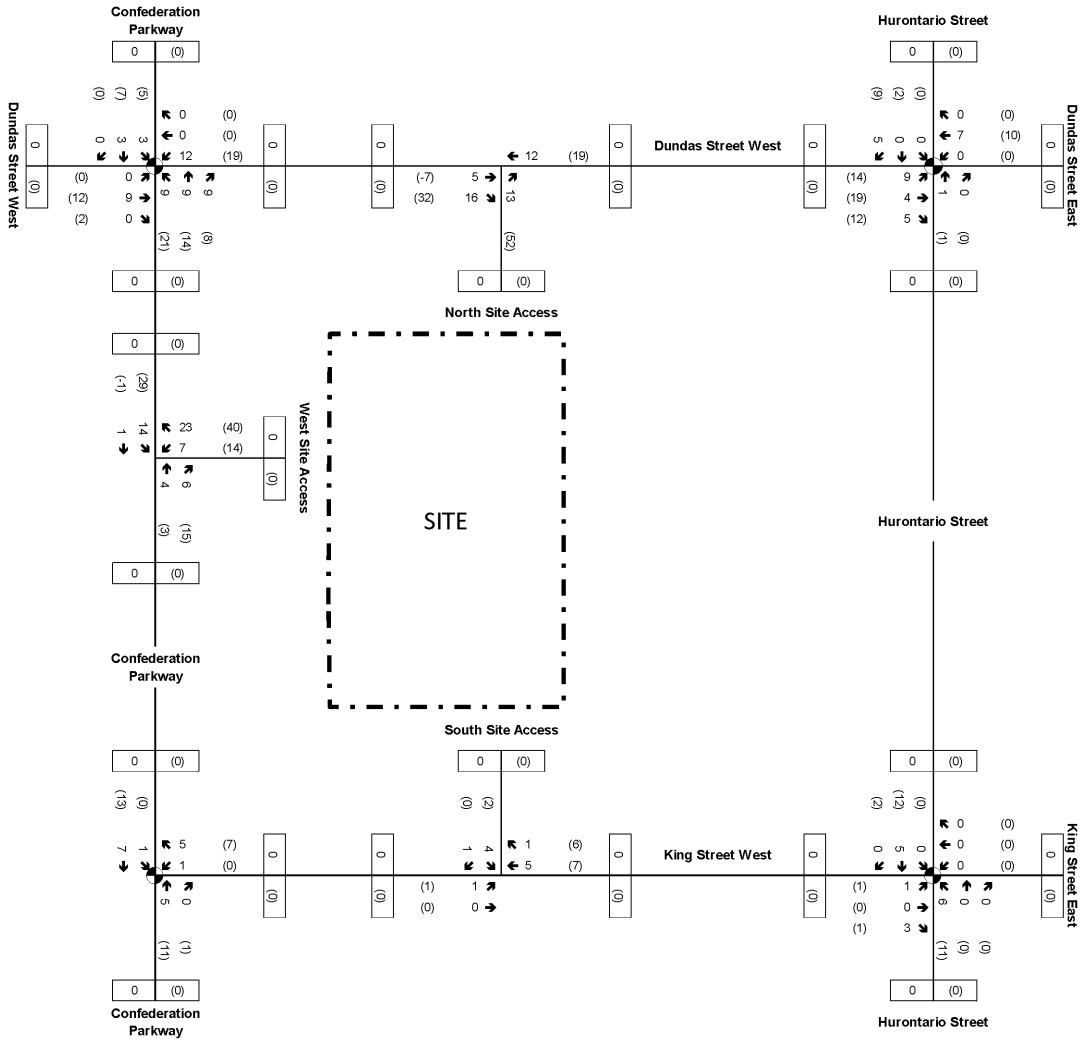
45 Agnes Site Trips

Job Number	12431
Revision	A
Date	July 2016

Figure A2

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:20 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

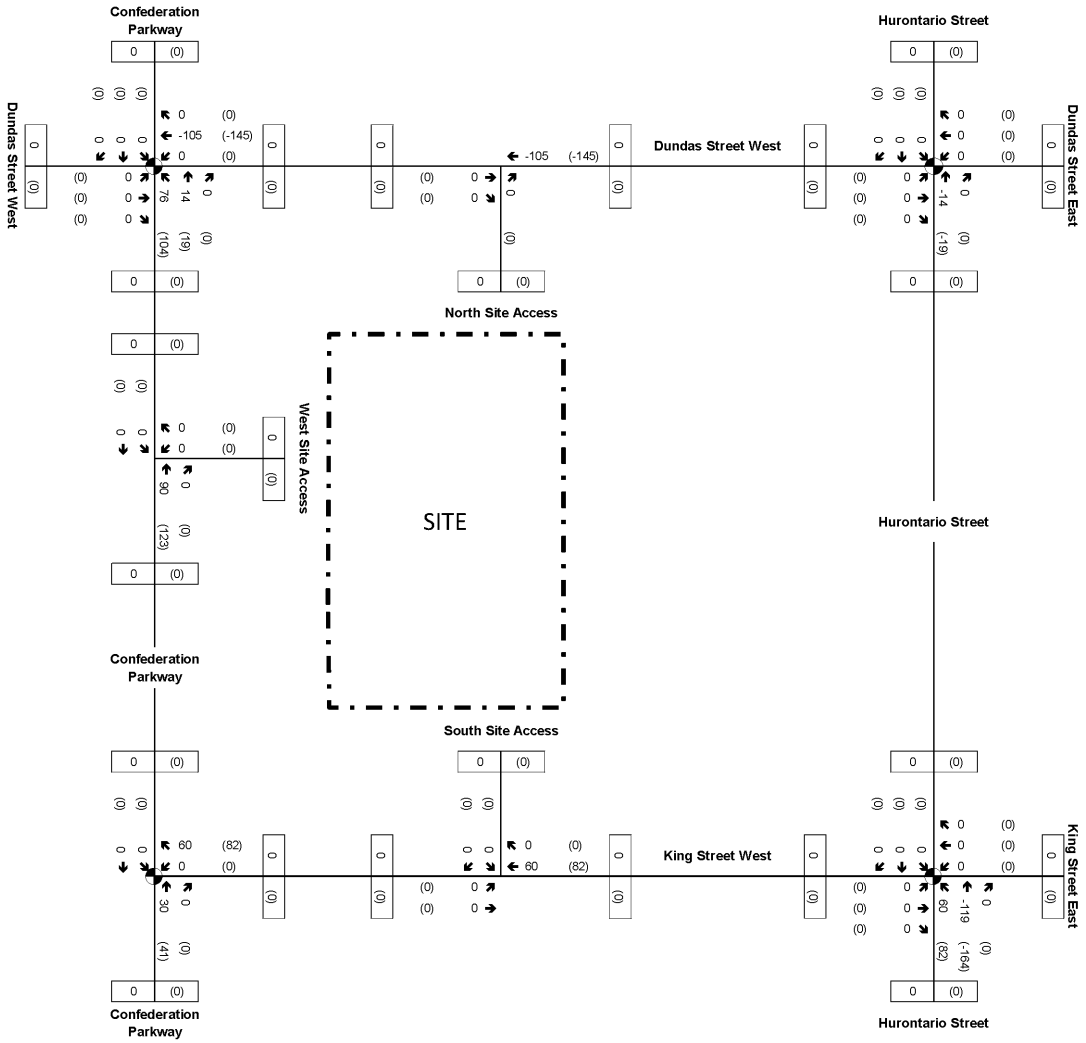
100 Dundas Site Trips

Job Number	12431
Revision	A
Date	July 2016

Figure A3

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:20 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

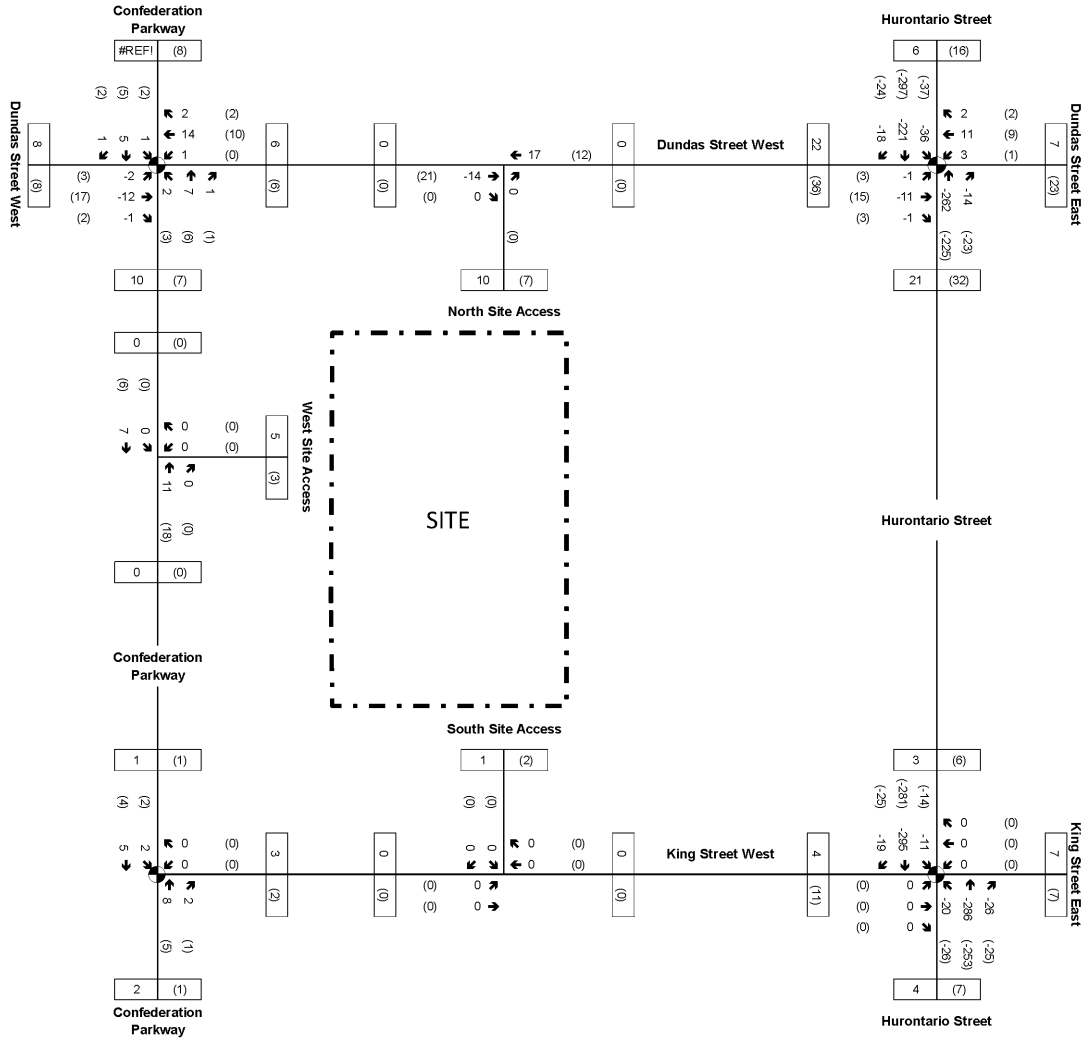
Redistribution

Job Number 12431
Revision A
Date July 2016

Figure A4

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:21 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

2021 Growth

Job Number 12431

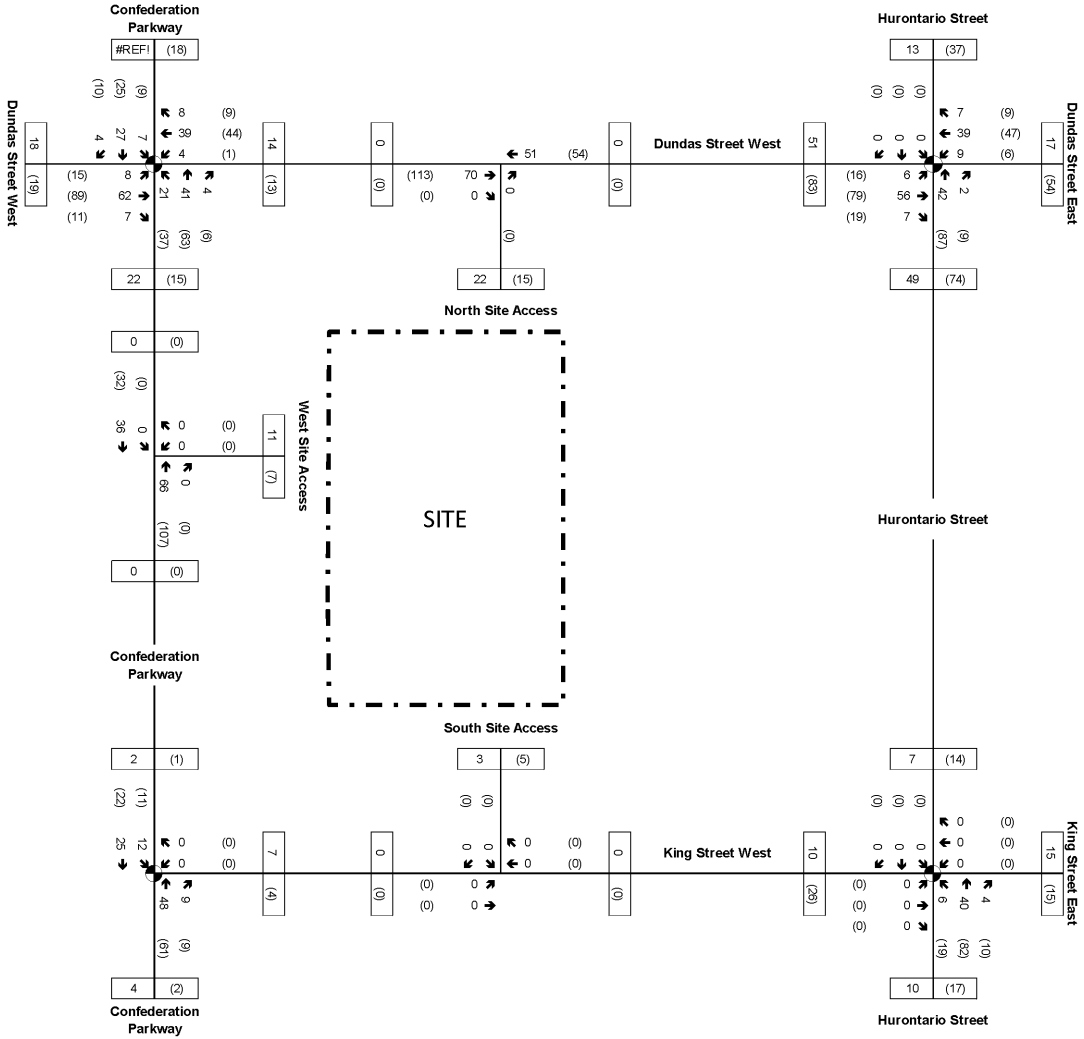
Revision A

Date July 2016

Figure A5

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:21 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

2031 Growth

Job Number 12431

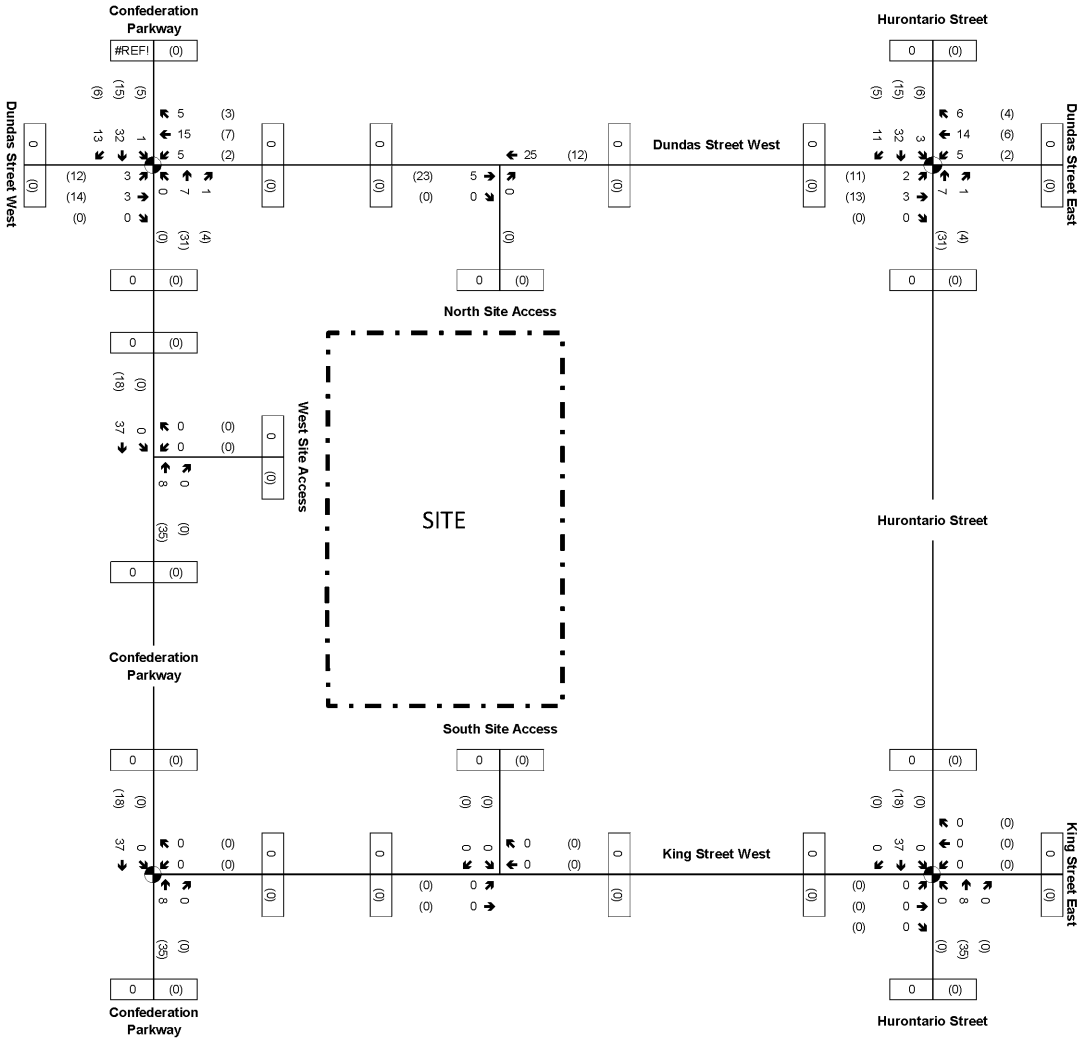
Revision A

Date July 2016

Figure A6

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:21 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend
XX AM Peak Hour Volumes
(XX) PM Peak Hour Volumes
Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.
Proposed Residential Condominium
86-90 Dundas Street East

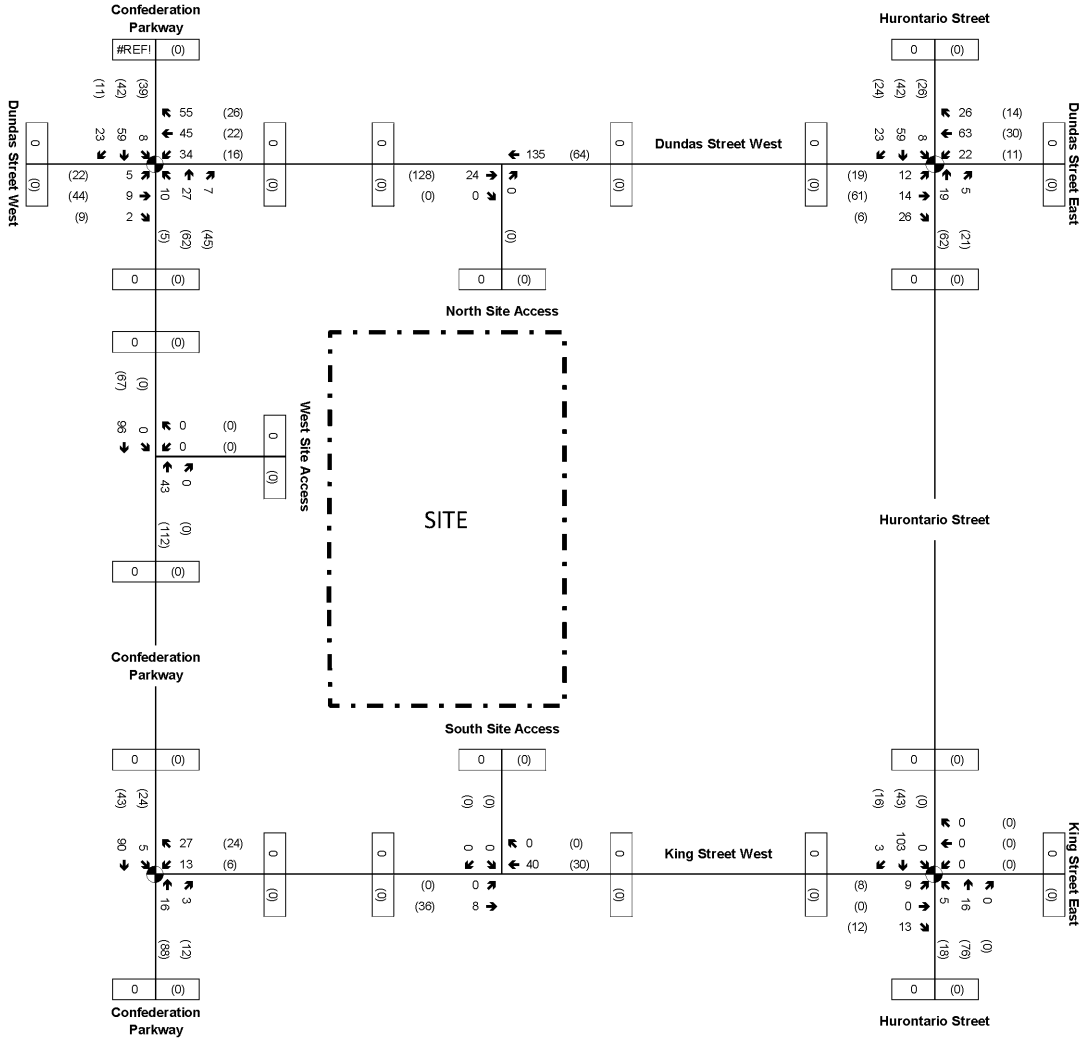
2021 Cooksville

Job Number 12431
Revision A
Date July 2016

Figure A7

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:22 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg



Legend

XX AM Peak Hour Volumes

(XX) PM Peak Hour Volumes

Signalized Intersection

The Sernas Group Inc. (A GHD Company)

Higher Living Inc.

Proposed Residential Condominium

86-90 Dundas Street East

2031 Cooksville

Job Number 12431

Revision A

Date July 2016

Figure A8

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 15 July 2016 - 11:22 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2012\12431 86-90 DUNDAS APARTMENT\Analysis\12431 Figures.dwg

45 AGNES STREET

Residential 268 units

Commercial 8.460 1,000 sq.ft.

ITE Trip Generation Average Rate

	Check +/-	Enter:	Enter X:	Enter:	Non-Auto Mode	Pass-by	Trips	Total ITE Rate	Adjusted Rate	ITE Page	ITE Code		Ratio		Pass-by Trips	Primary Trips	North Hurontario	North Confed	South/Agnes/ Huron	South/Agnes/ Confed	South/King/ Confd	East Dundas/ Cook	East Dundas/ Huron	West Dundas/ Cook	West Dundas/ Confed	West Dundas/ Huron
			Units		in 2021					(9th ed. 2008)			In/Out	In/Out	In/Out	In/Out										
										2021	**AM**		**IN**			**100%**	***22%***	***23%***	***0%***	***19%***	***19%***	***3%***	***0%***	***7%***	***7%***	***0%***
													OUT				***0%***	***45%***	***19%***	***19%***	***0%***	***0%***	***3%***	***0%***	***7%***	***7%***
	Residential Condominium Apartments (AM)																									
1	117.920	0.44	268		29%	0%	84	0.44	0.31	pg 395	am 230	In	0.17	14	0	14	3	3	0	3	3	0	0	1	1	0
												Out	0.83	70	0	70	0	32	13	13	0	0	2	0	5	5
										2021	**PM**		**IN**			**100%**	***22%***	***23%***	***0%***	***19%***	***19%***	***3%***	***0%***	***7%***	***7%***	***0%***
													OUT				***0%***	***45%***	***19%***	***19%***	***0%***	***0%***	***3%***	***0%***	***7%***	***7%***
	Residential Condominium Apartments (PM)																									
2	139.360	0.52	268		29%	0%	99	0.52	0.37	pg396	pm 230	In	0.67	66	0	66	14	14	0	13	13	2	0	5	5	0
												Out	0.33	33	0	33	0	15	6	6	0	0	2	0	2	2
										2031	**AM**		**IN**			**100%**	***12.5%***	***12.5%***	***0.0%***	***12.5%***	***12.5%***	***25.0%***	***0.0%***	***12.5%***	***12.5%***	***0.0%***
													OUT				***0.0%***	***25.0%***	***12.5%***	***12.5%***	***0.0%***	***0.0%***	***25.0%***	***0.0%***	***12.5%***	***12.5%***
	Shopping Centre (AM)																									
3	34.556	0.61	8.460	2.24	29%	0%	25	4.08	2.95	pg 1562	am 80	In	0.62	16	0	16	2	2	0	2	2	4	0	2	2	0
												Out	0.38	9	0	9	0	2	1	1	0	0	2	0	2	1
				In 2023						**2031**	**PM**		**IN**			**100%**	***12.5%***	***12.5%***	***0.0%***	***12.5%***	***12.5%***	***25.0%***	***0.0%***	***12.5%***	***12.5%***	***0.0%***
	Shopping Centre (PM)																									
4	114.516	0.67	8.460	3.31	29%	34%	81	13.54	9.57	pg 1562	am 820	In	0.48	39	13	26	3	3	0	4	3	7	0	3	3	0
												Out	0.52	42	13	29	0	7	4	4	0	0	6	0	4	4

ADJUSTED

			Total	Pass-by	Primary	North Hurontario	North Confed	South/Agnes/ Huron	South/Agnes/ Confed	South/King/ Confd	East Dundas/ Cook	East Dundas/ Huron	West Dundas/ Cook	West Dundas/ Confed	West Dundas/ Huron
Combined Traffic	**AM**	**IN**	30	0	30	5	5	0	5	5	4	0	3	3	0
		OUT	79	0	79	0	34	14	14	0	0	4	0	7	6
	PM	**IN**	105	13	92	17	17	0	17	16	9	0	8	8	0
		OUT	75	13	62	0	22	10	10	0	0	8	0	6	6

71 AGNES STREET

Residential 264 units

Commercial 0.000 1,000 sq.ft.

ITE Trip Generation Average Rate

	Check +/-	Enter:	Enter X:	Enter:	Non-Auto Mode	Non-Auto Pass-by	Non-Auto Trips	Total ITE Rate	Adjusted Rate	ITE Page	ITE Code		Ratio		Pass-by Trips	Primary Trips	North Hurontario	North Confed	South/Agnes/ Huron	South/Agnes/ Confed	South/King/ Confd	East Dundas/ Cook	East Dundas/ Huron	West Dundas/ Cook	West Dundas/ Confed	West Dundas/ Huron
			Units		in 2021					(9th ed. 2008)			In/Out	In/Out	In/Out	In/Out										
		Residential Condominium Apartments (AM)								**2021**	**AM**		**IN**			**100%**	***22%***	***23%***	***0%***	***19%***	***19%***	***3%***	***0%***	***7%***	***7%***	***0%***
													OUT				***0%***	***45%***	***19%***	***19%***	***0%***	***0%***	***3%***	***0%***	***7%***	***7%***
1	116.160	0.44	264		29%	0%	82	0.44	0.31	pg 395	am 230	In	0.17	14	0	14	3	3	0	3	3	0	0	1	1	0
												Out	0.83	68	0	68	0	30	13	13	0	0	2	0	5	5
										2021	**PM**		**IN**			**100%**	***22%***	***23%***	***0%***	***19%***	***19%***	***3%***	***0%***	***7%***	***7%***	***0%***
		Residential Condominium Apartments (PM)											**OUT**				***0%***	***45%***	***19%***	***19%***	***0%***	***0%***	***3%***	***0%***	***7%***	***7%***
2	137.280	0.52	264		29%	0%	97	0.52	0.37	pg396	pm 230	In	0.67	65	0	65	14	15	0	12	12	2	0	5	5	0
												Out	0.33	32	0	32	0	14	6	6	0	0	2	0	2	2

ADJUSTED

			Total	Pass-by	Primary	North Hurontario	North Confed	South/Agnes/ Huron	South/Agnes/ Confed	South/King/ Confd	East Dundas/ Cook	East Dundas/ Huron	West Dundas/ Cook	West Dundas/ Confed	West Dundas/ Huron
Combined Traffic	**AM**	**IN**	14	0	14	3	3	0	3	3	0	0	1	1	0
		OUT	68	0	68	0	30	13	13	0	0	2	0	5	5
	PM	**IN**	65	0	65	14	15	0	12	12	2	0	5	5	0
		OUT	32	0	32	0	14	6	6	0	0	2	0	2	2

110 DUNDAS STREET

Residential	140	units
Commercial/Office	8.073	1,000 sq.ft.

16.146

ITE Trip Generation Average Rate

	Check +/-	Enter:	Enter X: Units	Enter:	Non-Auto Mode in 2021	Pass-by	Trips	Total ITE Rate	Adjusted Rate
Residential Condominium Apartments (AM)									
1	61.600	0.44	140		29%	0%	44	0.44	0.31
Residential Condominium Apartments (PM)									
2	72.800	0.52	140		29%	0%	52	0.52	0.37
Office Building (AM)									
3	25.555	0.80	8.073	1.57	29%	0%	18	3.17	2.23
Office Building (PM)				In 2023					
4	83.869	0.67	8.073	78.46	29%	0%	60	10.39	7.43

	ITE Page (9th ed. 2008)	ITE Code		Ratio In/Out	In/Out	Pass-by Trips In/Out	In/Out	Primary Trips In/Out
2021		AM	IN					100%
	pg 395	am 230	In	0.17	7	0	7	
			Out	0.83	37	0	37	
2021		PM	IN					100%
	pg396	pm 230	In	0.67	35	0	35	
			Out	0.33	17	0	17	
						Commrecial Distribution		
2031		AM	IN					100%
	pg 1260	am 710	In	0.88	16	0	16	
			Out	0.12	2	0	2	
2031		PM	IN					100%
	pg 1261	am 710	In	0.17	10	0	10	
			Out	0.83	50	0	50	

	North Hurontario			North Confederation			South Hurontario			South Confederation			East Dundas			West Dundas		
	22%	22%	22%	23%	23%	23%	19%	19%	19%	19%	19%	19%	3%	3%	3%	14%	14%	14%
	North Driveway	West Driveway	South Driveway	North Driveway	West Driveway	South Driveway	North Driveway	West Driveway	South Driveway	North Driveway	West Driveway	South Driveway	North Driveway	West Driveway	South Driveway	North Driveway	West Driveway	South Driveway
	0%	70%	30%	25%	70%	5%	0%	40%	60%	10%	80%	10%	0%	90%	10%	55%	40%	5%
	50%	45%	5%	0%	95%	5%	40%	20%	40%	0%	90%	10%	50%	40%	10%	0%	95%	5%
	0	1	0	0	1	1	0	1	1	0	1	0	0	0	0	1	0	0
	4	4	1	0	8	0	3	1	3	0	6	1	1	0	0	0	5	0
	0%	70%	30%	25%	70%	5%	0%	40%	60%	10%	80%	10%	0%	90%	10%	55%	40%	5%
	50%	45%	5%	0%	95%	5%	40%	20%	40%	0%	90%	10%	50%	40%	10%	0%	95%	5%
	0	5	2	2	6	0	0	3	4	1	5	1	0	1	0	3	2	0
	2	2	1	0	4	0	1	1	1	0	3	0	0	0	0	0	2	0
	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%	25%	25%	25%	25%	25%	25%
	0.0%	100.0%	0.0%	75.0%	25.0%	0.0%	0.0%	100.0%	0.0%	80.0%	20.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%
	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	0	2	0	2	1	0	0	2	0	2	0	0	0	3	0	4	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
	0.0%	100.0%	0.0%	75.0%	25.0%	0.0%	0.0%	100.0%	0.0%	80.0%	20.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%
	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	0	1	0	1	0	0	0	1	0	1	0	0	0	3	0	3	0	0
	6	0	0	0	6	0	6	0	0	0	6	0	13	0	0	0	13	0

ADJUSTED

			Total	Pass-by	Primary
Combined Traffic	AM	IN	23	0	23
		OUT	39	0	39
	PM	IN	45	0	45
		OUT	67	0	67

North Hurontario			North Confederation			South Hurontario			North Confederation			East Dundas			West Dundas		
North Driveway	South Driveway	West Driveway	North Driveway	South Driveway	West Driveway	North Driveway	South Driveway	West Driveway	North Driveway	South Driveway	West Driveway	North Driveway	South Driveway	West Driveway	North Driveway	South Driveway	West Driveway
0	3	0	2	2	1	0	3	1	2	1	0	0	3	0	5	0	0
4	4	1	0	8	0	3	1	3	0	6	1	2	0	0	0	6	0
0	6	2	3	6	0	0	4	4	2	5	1	0	4	0	6	2	0
8	2	1	0	10	0	7	1	1	0	9	0	13	0	0	0	15	0

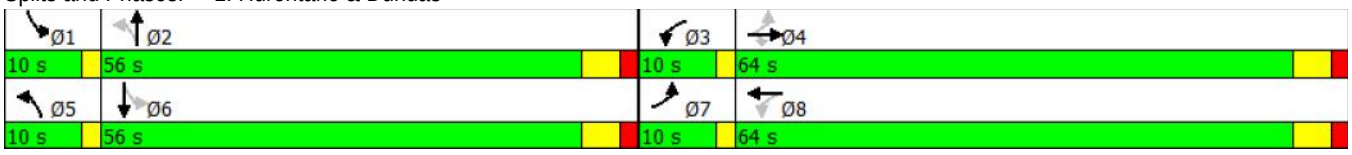
Appendix C
Capacity analysis

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	110	1101	142	88	366	138	1090	156	960
Future Volume (vph)	110	1101	142	88	366	138	1090	156	960
Lane Group Flow (vph)	110	1101	142	88	433	138	1148	156	1037
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	10.0	64.0	64.0	10.0	64.0	10.0	56.0	10.0	56.0
Total Split (%)	7.1%	45.7%	45.7%	7.1%	45.7%	7.1%	40.0%	7.1%	40.0%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-5.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	-3.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.22	0.81	0.33	0.34	0.35	0.45	0.59	0.51	0.55
Control Delay	16.9	41.4	16.4	19.2	28.1	22.4	34.1	23.9	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	41.4	16.4	19.2	28.1	22.4	34.1	23.9	33.1
Queue Length 50th (m)	14.1	133.1	12.7	11.2	39.9	18.3	86.9	20.8	76.5
Queue Length 95th (m)	23.7	159.0	28.9	19.6	53.0	33.3	111.2	37.0	99.0
Internal Link Dist (m)		409.5			216.3		425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0		45.0		70.0	
Base Capacity (vph)	512	1598	496	261	1446	310	1933	305	1880
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	0.21	0.69	0.29	0.34	0.30	0.45	0.59	0.51	0.55

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 131.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	1101	142	88	366	67	138	1090	58	156	960	77
Future Volume (vph)	110	1101	142	88	366	67	138	1090	58	156	960	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0		-3.0	5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.66	1.00	0.98		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3539	1028	1787	3185		1675	4947		1770	4797	
Flt Permitted	0.46	1.00	1.00	0.11	1.00		0.20	1.00		0.16	1.00	
Satd. Flow (perm)	839	3539	1028	200	3185		346	4947		301	4797	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	1101	142	88	366	67	138	1090	58	156	960	77
RTOR Reduction (vph)	0	0	42	0	11	0	0	4	0	0	6	0
Lane Group Flow (vph)	110	1101	100	88	422	0	138	1144	0	156	1031	0
Confl. Peds. (#/hr)	55		201	201		55	212		71	71		212
Heavy Vehicles (%)	2%	2%	3%	1%	7%	15%	7%	3%	5%	2%	4%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	57.2	49.4	49.4	56.8	49.2		58.2	50.3		58.2	50.3	
Effective Green, g (s)	64.0	50.4	50.4	64.0	50.2		65.2	51.3		65.2	51.3	
Actuated g/C Ratio	0.49	0.38	0.38	0.49	0.38		0.50	0.39		0.50	0.39	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0		2.0	6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	495	1359	394	249	1218		302	1934		294	1875	
v/s Ratio Prot	0.02	c0.31		c0.03	0.13		0.04	c0.23		c0.05	0.21	
v/s Ratio Perm	0.09		0.10	0.14			0.18			0.21		
v/c Ratio	0.22	0.81	0.25	0.35	0.35		0.46	0.59		0.53	0.55	
Uniform Delay, d1	18.4	36.1	27.6	22.4	28.8		19.1	31.7		19.8	31.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	3.8	0.3	0.9	0.2		1.1	1.3		1.8	1.2	
Delay (s)	18.7	39.9	27.9	23.3	29.0		20.2	33.0		21.6	32.2	
Level of Service	B	D	C	C	C		C	C		C	C	
Approach Delay (s)		36.9			28.0			31.6			30.8	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	131.2	Sum of lost time (s)	4.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1321	4	1	486	10	0	1	6	5	0	26
Future Volume (Veh/h)	5	1321	4	1	486	10	0	1	6	5	0	26
Sign Control		Free			Free			Stop			Stop	
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)	5	1452	4	1	534	11	0	1	7	5	0	29
Pedestrians								10			3	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	1.00			0.72			0.72	0.72	0.72	0.72	0.72	1.00
vC, conflicting volume	548			1466			1772	2024	738	1281	2020	276
vC1, stage 1 conf vol							1474	1474		544	544	
vC2, stage 2 conf vol							298	550		736	1476	
vCu, unblocked vol	542			858			1274	1625	0	589	1620	269
tC, single (s)	4.1			4.1			7.5	6.5	7.2	7.9	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.9	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.5	3.7	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	96
cM capacity (veh/h)	1032			562			213	235	737	413	235	731

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	968	488	268	278	0	8	5	29
Volume Left	5	0	0	1	0	0	0	5	0
Volume Right	0	0	4	0	11	0	7	0	29
cSH	1032	1700	1700	562	1700	1700	842	413	731
Volume to Capacity	0.00	0.57	0.29	0.00	0.16	0.00	0.01	0.01	0.04
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.9
Control Delay (s)	8.5	0.0	0.0	0.1	0.0	0.0	11.2	13.8	10.1
Lane LOS	A			A		A	B	B	B
Approach Delay (s)	0.0			0.0		11.2		10.7	
Approach LOS						B		B	

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	53.3%	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)	3	1322	0	0	484	5	0	0	0	4	0	5
Future Volume (Veh/h)	3	1322	0	0	484	5	0	0	0	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1437	0	0	526	5	0	0	0	4	0	5
Pedestrians		1			1			4			5	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.96			0.72			0.74	0.74	0.72	0.74	0.74	0.96
vC, conflicting volume	536			1441			1716	1983	724	1259	1980	272
vC1, stage 1 conf vol							1447	1447		534	534	
vC2, stage 2 conf vol							269	536		726	1447	
vCu, unblocked vol	441			830			1030	1393	0	410	1389	166
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	99
cM capacity (veh/h)	1083			581			229	252	780	515	253	820

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	958	479	0	351	180	0	9
Volume Left	3	0	0	0	0	0	0	4
Volume Right	0	0	0	0	0	5	0	5
cSH	1083	1700	1700	1700	1700	1700	1700	649
Volume to Capacity	0.00	0.56	0.28	0.00	0.21	0.11	0.00	0.01
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS	A						A	B
Approach Delay (s)	0.0			0.0			0.0	10.6
Approach LOS							A	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1318	8	9	514	8	22
Future Volume (Veh/h)	1318	8	9	514	8	22
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)	1433	9	10	559	9	24
Pedestrians	9				23	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				2	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.72		0.74	0.72
vC, conflicting volume			1465		1769	744
vC1, stage 1 conf vol					1460	
vC2, stage 2 conf vol					308	
vCu, unblocked vol			863		1027	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			546		257	764

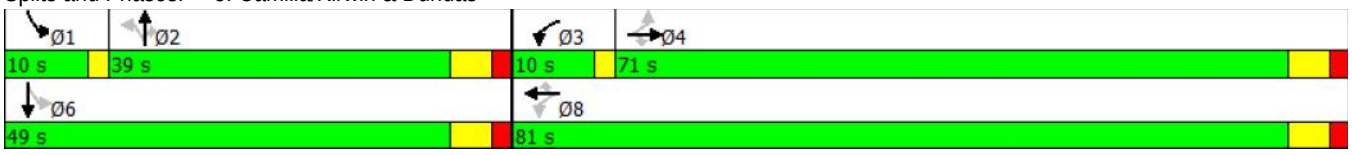
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	955	487	10	280	280	33
Volume Left	0	0	10	0	0	9
Volume Right	0	9	0	0	0	24
cSH	1700	1700	546	1700	1700	496
Volume to Capacity	0.56	0.29	0.02	0.16	0.16	0.07
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.6
Control Delay (s)	0.0	0.0	11.7	0.0	0.0	12.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.2			12.8
Approach LOS						B

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	12	1161	51	32	487	74	19	42	43	225	53
Future Volume (vph)	12	1161	51	32	487	74	19	42	43	225	53
Lane Group Flow (vph)	13	1290	57	36	541	82	21	47	48	250	78
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	71.0	71.0	71.0	10.0	81.0	81.0	39.0	39.0	39.0	10.0	49.0
Total Split (%)	54.6%	54.6%	54.6%	7.7%	62.3%	62.3%	30.0%	30.0%	30.0%	7.7%	37.7%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.03	0.69	0.07	0.08	0.27	0.09	0.09	0.19	0.19	0.42	0.18
Control Delay	7.2	14.5	2.7	3.3	6.8	1.6	32.5	36.2	10.3	23.2	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	14.5	2.7	3.3	6.8	1.6	32.5	36.2	10.3	23.2	23.5
Queue Length 50th (m)	0.8	69.8	0.0	1.2	16.2	0.0	2.6	6.2	0.0	26.5	7.3
Queue Length 95th (m)	3.0	98.7	4.6	3.4	25.1	4.2	9.9	18.3	8.1	59.2	21.5
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	709	3019	1325	519	3174	1444	719	1015	849	591	1180
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.43	0.04	0.07	0.17	0.06	0.03	0.05	0.06	0.42	0.07

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 69.9
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1161	51	32	487	74	19	42	43	225	53	17
Future Volume (vph)	12	1161	51	32	487	74	19	42	43	225	53	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1669	3471	1518	1805	3374	1533	1615	1863	1514	1782	1769	
Flt Permitted	0.45	1.00	1.00	0.15	1.00	1.00	0.71	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	791	3471	1518	276	3374	1533	1201	1863	1514	1363	1769	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1290	57	36	541	82	21	47	48	250	59	19
RTOR Reduction (vph)	0	0	27	0	0	33	0	0	43	0	10	0
Lane Group Flow (vph)	13	1290	30	36	541	49	21	47	5	250	68	0
Confl. Peds. (#/hr)	4		4	4		4	11		6	6		11
Heavy Vehicles (%)	8%	4%	4%	0%	7%	3%	11%	2%	5%	1%	2%	6%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	36.8	36.8	36.8	41.9	41.9	41.9	6.1	6.1	6.1	17.7	17.7	
Effective Green, g (s)	41.8	37.8	37.8	46.9	42.9	42.9	11.1	7.1	7.1	22.7	18.7	
Actuated g/C Ratio	0.58	0.53	0.53	0.66	0.60	0.60	0.16	0.10	0.10	0.32	0.26	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	461	1832	801	353	2021	918	186	184	150	517	462	
v/s Ratio Prot		c0.37		0.01	c0.16			0.03		c0.10	0.04	
v/s Ratio Perm	0.02		0.02	0.06		0.03	0.02		0.00	0.05		
v/c Ratio	0.03	0.70	0.04	0.10	0.27	0.05	0.11	0.26	0.03	0.48	0.15	
Uniform Delay, d1	6.3	12.7	8.1	5.5	6.9	5.9	26.0	29.8	29.1	19.4	20.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.3	0.0	0.1	0.1	0.0	0.3	0.7	0.1	0.7	0.1	
Delay (s)	6.3	13.9	8.2	5.7	6.9	6.0	26.3	30.5	29.2	20.1	20.5	
Level of Service	A	B	A	A	A	A	C	C	C	C	C	
Approach Delay (s)		13.6			6.7			29.2			20.2	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

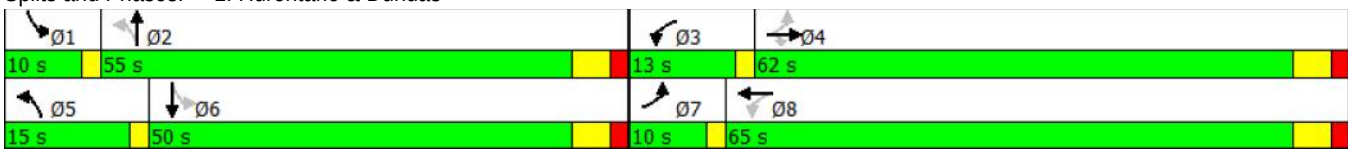
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	147	742	174	118	905	184	1073	161	1291
Future Volume (vph)	147	742	174	118	905	184	1073	161	1291
Lane Group Flow (vph)	147	742	174	118	1071	184	1182	161	1395
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	10.0	22.0	10.0	22.0
Total Split (s)	10.0	62.0	62.0	13.0	65.0	15.0	55.0	10.0	50.0
Total Split (%)	7.1%	44.3%	44.3%	9.3%	46.4%	10.7%	39.3%	7.1%	35.7%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-5.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	-3.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	Max	None	Max
v/c Ratio	0.54	0.57	0.41	0.31	0.84	0.64	0.64	0.55	0.80
Control Delay	24.0	34.2	12.7	17.6	42.4	37.0	35.1	25.3	42.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	34.2	12.7	17.6	42.4	37.0	35.1	25.3	42.8
Queue Length 50th (m)	19.0	79.2	9.0	15.0	128.1	27.6	90.0	21.4	120.2
Queue Length 95th (m)	30.7	99.3	28.0	24.8	154.7	57.2	117.2	38.7	153.3
Internal Link Dist (m)		409.5			216.3		425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0		45.0		70.0	
Base Capacity (vph)	270	1539	482	401	1530	306	1861	293	1748
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	0.54	0.48	0.36	0.29	0.70	0.60	0.64	0.55	0.80

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 130.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	742	174	118	905	166	184	1073	109	161	1291	104
Future Volume (vph)	147	742	174	118	905	166	184	1073	109	161	1291	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0		-3.0	5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.61	1.00	0.95		1.00	0.97		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505	961	1757	3290		1770	4817		1770	4870	
Flt Permitted	0.12	1.00	1.00	0.26	1.00		0.09	1.00		0.15	1.00	
Satd. Flow (perm)	219	3505	961	482	3290		160	4817		282	4870	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	742	174	118	905	166	184	1073	109	161	1291	104
RTOR Reduction (vph)	0	0	76	0	12	0	0	8	0	0	6	0
Lane Group Flow (vph)	147	742	98	118	1059	0	184	1174	0	161	1389	0
Confl. Peds. (#/hr)	153		304	304		153	344		224	224		344
Heavy Vehicles (%)	2%	3%	2%	1%	2%	1%	2%	3%	0%	2%	2%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	55.6	47.6	47.6	58.6	49.1		59.2	49.2		53.7	45.7	
Effective Green, g (s)	64.1	48.6	48.6	64.1	50.1		64.2	50.2		63.7	46.7	
Actuated g/C Ratio	0.49	0.37	0.37	0.49	0.38		0.49	0.39		0.49	0.36	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0		2.0	6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	262	1307	358	379	1264		282	1855		286	1745	
v/s Ratio Prot	c0.06	0.21		0.03	c0.32		c0.08	0.24		0.06	c0.29	
v/s Ratio Perm	0.22		0.10	0.12			0.24			0.22		
v/c Ratio	0.56	0.57	0.27	0.31	0.84		0.65	0.63		0.56	0.80	
Uniform Delay, d1	22.8	32.5	28.5	19.0	36.4		27.4	32.6		20.5	37.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.6	0.4	0.5	5.0		5.3	1.7		2.5	3.9	
Delay (s)	25.5	33.1	28.9	19.5	41.4		32.8	34.2		23.0	41.4	
Level of Service	C	C	C	B	D		C	C		C	D	
Approach Delay (s)		31.3			39.3			34.0			39.5	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.3	Sum of lost time (s)	4.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	836	18	23	1269	57	10	6	52	11	2	42
Future Volume (Veh/h)	49	836	18	23	1269	57	10	6	52	11	2	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	49	844	18	23	1282	58	10	6	53	11	2	42
Pedestrians		2			15			48			55	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			4			5	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.76			0.85			0.84	0.84	0.85	0.84	0.84	0.76
vC, conflicting volume	1395			910			1731	2440	494	1950	2420	727
vC1, stage 1 conf vol							999	999		1412	1412	
vC2, stage 2 conf vol							732	1441		538	1008	
vCu, unblocked vol	900			552			699	1546	65	961	1522	26
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			97	97	93	95	99	95
cM capacity (veh/h)	557			820			306	174	803	202	207	764

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	49	563	299	664	699	10	59	11	44
Volume Left	49	0	0	23	0	10	0	11	0
Volume Right	0	0	18	0	58	0	53	0	42
cSH	557	1700	1700	820	1700	306	894	202	681
Volume to Capacity	0.09	0.33	0.18	0.03	0.41	0.03	0.07	0.05	0.06
Queue Length 95th (m)	2.2	0.0	0.0	0.7	0.0	0.8	1.6	1.3	1.6
Control Delay (s)	12.1	0.0	0.0	0.7	0.0	17.2	11.5	23.8	10.7
Lane LOS	B			A		C	B	C	B
Approach Delay (s)	0.7			0.4		12.3		13.3	
Approach LOS						B		B	

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	829	0	0	1275	51	0	0	0	19	0	88
Future Volume (Veh/h)	48	829	0	0	1275	51	0	0	0	19	0	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	49	855	0	0	1314	53	0	0	0	20	0	91
Pedestrians		2			1			47			31	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			4			3	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.75			0.88			0.81	0.81	0.88	0.81	0.81	0.75
vC, conflicting volume	1398			902			1750	2398	476	1898	2372	716
vC1, stage 1 conf vol							1000	1000		1372	1372	
vC2, stage 2 conf vol							750	1398		526	1000	
vCu, unblocked vol	851			608			766	1569	122	949	1536	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			100	100	100	91	100	88
cM capacity (veh/h)	578			826			287	196	769	232	226	791

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	49	570	285	0	876	491	0	111
Volume Left	49	0	0	0	0	0	0	20
Volume Right	0	0	0	0	0	53	0	91
cSH	578	1700	1700	1700	1700	1700	1700	551
Volume to Capacity	0.08	0.34	0.17	0.00	0.52	0.29	0.00	0.20
Queue Length 95th (m)	2.1	0.0	0.0	0.0	0.0	0.0	0.0	5.7
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0	0.0	13.2
Lane LOS	B						A	B
Approach Delay (s)	0.6			0.0			0.0	13.2
Approach LOS							A	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	53.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	830	18	14	1302	10	19
Future Volume (Veh/h)	830	18	14	1302	10	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	856	19	14	1342	10	20
Pedestrians	5				56	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	0				5	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.88		0.81	0.88
vC, conflicting volume			931		1626	494
vC1, stage 1 conf vol					922	
vC2, stage 2 conf vol					704	
vCu, unblocked vol			650		625	153
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			782		396	727

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	571	304	14	671	671	30
Volume Left	0	0	14	0	0	10
Volume Right	0	19	0	0	0	20
cSH	1700	1700	782	1700	1700	568
Volume to Capacity	0.34	0.18	0.02	0.39	0.39	0.05
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	9.7	0.0	0.0	11.7
Lane LOS			A			B
Approach Delay (s)	0.0		0.1			11.7
Approach LOS						B

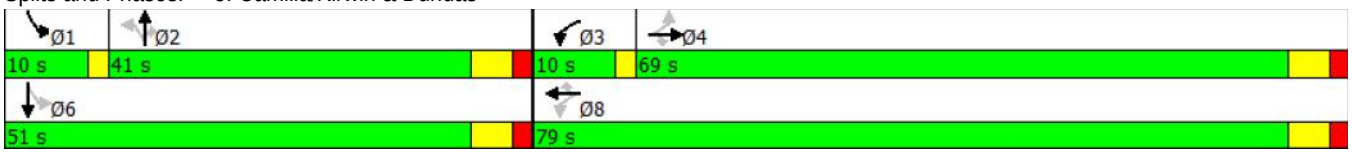
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	24	762	41	89	1214	332	53	116	51	181	96
Future Volume (vph)	24	762	41	89	1214	332	53	116	51	181	96
Lane Group Flow (vph)	26	837	45	98	1334	365	58	127	56	199	159
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	69.0	69.0	69.0	10.0	79.0	79.0	41.0	41.0	41.0	10.0	51.0
Total Split (%)	53.1%	53.1%	53.1%	7.7%	60.8%	60.8%	31.5%	31.5%	31.5%	7.7%	39.2%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.16	0.49	0.06	0.17	0.65	0.35	0.22	0.42	0.19	0.34	0.30
Control Delay	12.8	15.0	2.3	5.0	12.8	1.8	32.8	38.4	11.3	21.6	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	15.0	2.3	5.0	12.8	1.8	32.8	38.4	11.3	21.6	23.7
Queue Length 50th (m)	1.9	43.2	0.0	4.0	62.9	0.0	7.1	16.9	0.0	19.3	15.3
Queue Length 95th (m)	7.0	65.7	3.6	9.8	94.6	9.4	21.8	41.7	10.0	49.6	40.8
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	264	2874	1259	592	3179	1399	650	893	762	588	1085
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.29	0.04	0.17	0.42	0.26	0.09	0.14	0.07	0.34	0.15

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 79.4
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	762	41	89	1214	332	53	116	51	181	96	49
Future Volume (vph)	24	762	41	89	1214	332	53	116	51	181	96	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1800	3505	1534	1803	3539	1536	1793	1881	1550	1778	1779	
Flt Permitted	0.16	1.00	1.00	0.29	1.00	1.00	0.66	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	309	3505	1534	557	3539	1536	1239	1881	1550	1265	1779	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	837	45	98	1334	365	58	127	56	199	105	54
RTOR Reduction (vph)	0	0	23	0	0	152	0	0	47	0	16	0
Lane Group Flow (vph)	26	837	22	98	1334	213	58	127	9	199	143	0
Confl. Peds. (#/hr)	30		17	17		30	11		12	12		11
Heavy Vehicles (%)	0%	3%	2%	0%	2%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	37.8	37.8	37.8	45.2	45.2	45.2	11.7	11.7	11.7	22.1	22.1	
Effective Green, g (s)	42.8	38.8	38.8	50.2	46.2	46.2	16.7	12.7	12.7	27.1	23.1	
Actuated g/C Ratio	0.54	0.49	0.49	0.63	0.58	0.58	0.21	0.16	0.16	0.34	0.29	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	166	1714	750	516	2061	894	260	301	248	518	518	
v/s Ratio Prot		0.24		0.02	c0.38			0.07		c0.06	0.08	
v/s Ratio Perm	0.08		0.01	0.10		0.14	0.05		0.01	0.07		
v/c Ratio	0.16	0.49	0.03	0.19	0.65	0.24	0.22	0.42	0.04	0.38	0.28	
Uniform Delay, d1	9.2	13.6	10.5	5.8	11.1	8.0	25.9	30.0	28.1	19.3	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.2	0.0	0.2	0.7	0.1	0.4	1.0	0.1	0.5	0.3	
Delay (s)	9.6	13.8	10.5	6.0	11.8	8.2	26.4	31.0	28.2	19.8	22.0	
Level of Service	A	B	B	A	B	A	C	C	C	B	C	
Approach Delay (s)		13.5			10.7			29.2			20.8	
Approach LOS		B			B			C			C	

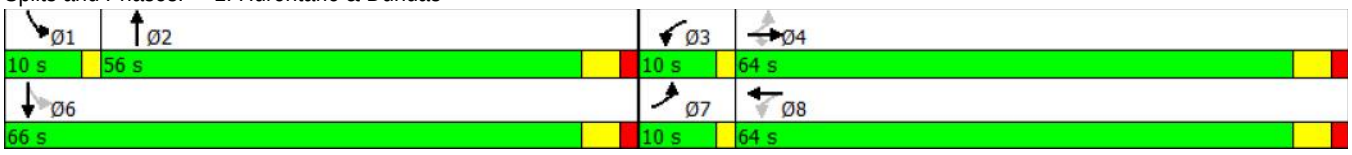
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	1097	146	95	402	822	129	799
Future Volume (vph)	120	1097	146	95	402	822	129	799
Lane Group Flow (vph)	120	1097	146	95	477	867	129	886
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	64.0	64.0	10.0	64.0	56.0	10.0	66.0
Total Split (%)	7.1%	45.7%	45.7%	7.1%	45.7%	40.0%	7.1%	47.1%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.25	0.81	0.34	0.37	0.39	0.64	0.38	0.58
Control Delay	17.2	41.5	16.7	19.7	28.8	36.2	20.8	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	41.5	16.7	19.7	28.8	36.2	20.8	28.1
Queue Length 50th (m)	15.5	132.4	13.1	12.1	44.7	96.6	16.8	87.0
Queue Length 95th (m)	25.6	158.2	29.8	20.9	58.6	130.0	31.3	118.8
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	488	1597	488	261	1440	1348	341	1540
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.69	0.30	0.36	0.33	0.64	0.38	0.58

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 131.2
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1097	146	95	402	75	0	822	45	129	799	87
Future Volume (vph)	120	1097	146	95	402	75	0	822	45	129	799	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.64	1.00	0.97			0.99		1.00	0.96	
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1723	3539	1010	1787	3173			3438		1770	3292	
Flt Permitted	0.43	1.00	1.00	0.11	1.00			1.00		0.21	1.00	
Satd. Flow (perm)	781	3539	1010	201	3173			3438		387	3292	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1097	146	95	402	75	0	822	45	129	799	87
RTOR Reduction (vph)	0	0	43	0	12	0	0	2	0	0	5	0
Lane Group Flow (vph)	120	1097	103	95	465	0	0	865	0	129	881	0
Confl. Peds. (#/hr)	62		226	226		62	238		79	79		238
Heavy Vehicles (%)	2%	2%	3%	1%	7%	15%	7%	3%	5%	2%	4%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	57.1	49.2	49.2	56.7	49.0			50.4		60.2	60.2	
Effective Green, g (s)	63.9	50.2	50.2	63.9	50.0			51.4		65.2	61.2	
Actuated g/C Ratio	0.49	0.38	0.38	0.49	0.38			0.39		0.50	0.47	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	473	1355	386	251	1210			1347		327	1536	
v/s Ratio Prot	0.02	c0.31		c0.04	0.15			c0.25		0.04	c0.27	
v/s Ratio Perm	0.10		0.10	0.15						0.16		
v/c Ratio	0.25	0.81	0.27	0.38	0.38			0.64		0.39	0.57	
Uniform Delay, d1	18.6	36.2	27.8	22.5	29.4			32.4		19.6	25.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.7	0.4	1.0	0.2			2.4		0.8	1.6	
Delay (s)	18.9	39.9	28.2	23.5	29.6			34.7		20.4	27.0	
Level of Service	B	D	C	C	C			C		C	C	
Approach Delay (s)		36.8			28.6			34.7			26.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	131.1	Sum of lost time (s)	7.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1325	4	1	536	10	0	1	6	5	0	26
Future Volume (Veh/h)	5	1325	4	1	536	10	0	1	6	5	0	26
Sign Control		Free			Free			Stop			Stop	
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)	5	1456	4	1	589	11	0	1	7	5	0	29
Pedestrians								11			3	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.98			0.72			0.73	0.73	0.72	0.73	0.73	0.98
vC, conflicting volume	603			1471			1804	2084	741	1338	2080	303
vC1, stage 1 conf vol							1479	1479		600	600	
vC2, stage 2 conf vol							326	605		738	1481	
vCu, unblocked vol	556			868			1236	1620	0	594	1616	250
tC, single (s)	4.1			4.1			7.5	6.5	7.2	7.9	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.9	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.5	3.7	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	96
cM capacity (veh/h)	1002			558			211	233	737	402	232	740

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	971	489	296	306	0	8	5	29
Volume Left	5	0	0	1	0	0	0	5	0
Volume Right	0	0	4	0	11	0	7	0	29
cSH	1002	1700	1700	558	1700	1700	842	402	740
Volume to Capacity	0.00	0.57	0.29	0.00	0.18	0.00	0.01	0.01	0.04
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.9
Control Delay (s)	8.6	0.0	0.0	0.1	0.0	0.0	11.3	14.1	10.1
Lane LOS	A			A		A	B	B	B
Approach Delay (s)	0.0			0.0		11.3		10.7	
Approach LOS						B		B	

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	53.4%	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)	3	1326	0	0	534	5	0	0	0	4	0	5
Future Volume (Veh/h)	3	1326	0	0	534	5	0	0	0	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1441	0	0	580	5	0	0	0	4	0	5
Pedestrians		1			1			4			6	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.95			0.72			0.74	0.74	0.72	0.74	0.74	0.95
vC, conflicting volume	591			1445			1747	2042	726	1316	2040	300
vC1, stage 1 conf vol							1451	1451		588	588	
vC2, stage 2 conf vol							296	591		728	1451	
vCu, unblocked vol	462			838			1011	1407	0	432	1404	155
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	100	99
cM capacity (veh/h)	1048			577			227	249	781	497	250	820

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	961	480	0	387	198	0	9
Volume Left	3	0	0	0	0	0	0	4
Volume Right	0	0	0	0	0	5	0	5
cSH	1048	1700	1700	1700	1700	1700	1700	636
Volume to Capacity	0.00	0.57	0.28	0.00	0.23	0.12	0.00	0.01
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	0.0	0.0	10.7
Lane LOS	A						A	B
Approach Delay (s)	0.0			0.0			0.0	10.7
Approach LOS							A	B

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	47.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1322	8	9	565	8	22
Future Volume (Veh/h)	1322	8	9	565	8	22
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)	1437	9	10	614	9	24
Pedestrians	10				25	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				2	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.72		0.75	0.72
vC, conflicting volume			1471		1804	748
vC1, stage 1 conf vol					1466	
vC2, stage 2 conf vol					337	
vCu, unblocked vol			874		1018	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			541		253	764

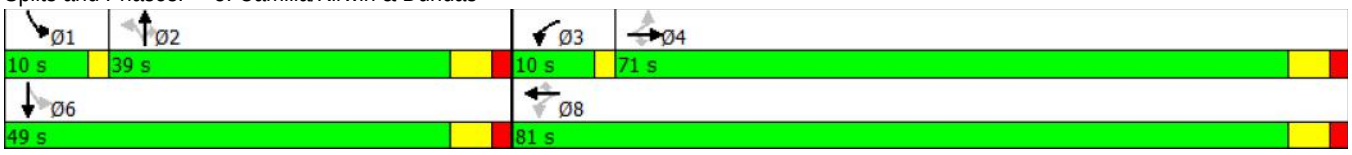
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	958	488	10	307	307	33
Volume Left	0	0	10	0	0	9
Volume Right	0	9	0	0	0	24
cSH	1700	1700	541	1700	1700	493
Volume to Capacity	0.56	0.29	0.02	0.18	0.18	0.07
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.6
Control Delay (s)	0.0	0.0	11.8	0.0	0.0	12.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.2			12.8
Approach LOS						B

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	12	1166	50	33	537	76	19	42	43	225	53
Future Volume (vph)	12	1166	50	33	537	76	19	42	43	225	53
Lane Group Flow (vph)	13	1296	56	37	597	84	21	47	48	250	78
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	71.0	71.0	71.0	10.0	81.0	81.0	39.0	39.0	39.0	10.0	49.0
Total Split (%)	54.6%	54.6%	54.6%	7.7%	62.3%	62.3%	30.0%	30.0%	30.0%	7.7%	37.7%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.03	0.69	0.06	0.08	0.29	0.09	0.09	0.19	0.19	0.42	0.18
Control Delay	7.2	14.6	2.6	3.3	7.0	1.6	32.7	36.3	10.3	23.3	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	14.6	2.6	3.3	7.0	1.6	32.7	36.3	10.3	23.3	23.6
Queue Length 50th (m)	0.8	70.4	0.0	1.2	18.2	0.0	2.6	6.3	0.0	26.6	7.4
Queue Length 95th (m)	3.0	99.3	4.4	3.5	27.8	4.2	10.0	18.4	8.1	59.6	21.6
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	671	3014	1356	518	3169	1442	717	1013	846	590	1178
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.43	0.04	0.07	0.19	0.06	0.03	0.05	0.06	0.42	0.07

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 70.1
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1166	50	33	537	76	19	42	43	225	53	17
Future Volume (vph)	12	1166	50	33	537	76	19	42	43	225	53	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1670	3471	1553	1805	3374	1533	1614	1863	1513	1782	1769	
Flt Permitted	0.43	1.00	1.00	0.14	1.00	1.00	0.71	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	749	3471	1553	274	3374	1533	1200	1863	1513	1362	1769	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1296	56	37	597	84	21	47	48	250	59	19
RTOR Reduction (vph)	0	0	26	0	0	34	0	0	43	0	10	0
Lane Group Flow (vph)	13	1296	30	37	597	50	21	47	5	250	68	0
Confl. Peds. (#/hr)	4					4	12		7	7		12
Heavy Vehicles (%)	8%	4%	4%	0%	7%	3%	11%	2%	5%	1%	2%	6%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	37.0	37.0	37.0	42.1	42.1	42.1	6.1	6.1	6.1	17.7	17.7	
Effective Green, g (s)	42.0	38.0	38.0	47.1	43.1	43.1	11.1	7.1	7.1	22.7	18.7	
Actuated g/C Ratio	0.58	0.53	0.53	0.66	0.60	0.60	0.15	0.10	0.10	0.32	0.26	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	438	1837	821	352	2025	920	185	184	149	516	460	
v/s Ratio Prot		c0.37		0.01	c0.18			0.03		c0.10	0.04	
v/s Ratio Perm	0.02		0.02	0.06		0.03	0.02		0.00	0.05		
v/c Ratio	0.03	0.71	0.04	0.11	0.29	0.05	0.11	0.26	0.03	0.48	0.15	
Uniform Delay, d1	6.3	12.7	8.1	5.6	7.0	5.9	26.1	29.9	29.2	19.5	20.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.3	0.0	0.1	0.1	0.0	0.3	0.7	0.1	0.7	0.2	
Delay (s)	6.3	14.0	8.1	5.7	7.1	6.0	26.4	30.6	29.3	20.2	20.6	
Level of Service	A	B	A	A	A	A	C	C	C	C	C	
Approach Delay (s)		13.6			6.9			29.3			20.3	
Approach LOS		B			A			C			C	

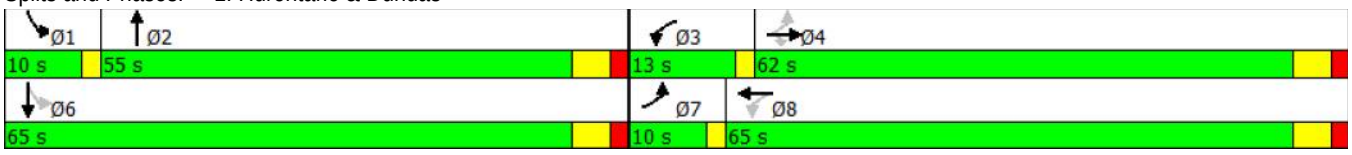
Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	175	788	189	121	941	861	140	1027
Future Volume (vph)	175	788	189	121	941	861	140	1027
Lane Group Flow (vph)	175	788	189	121	1113	951	140	1129
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	62.0	62.0	13.0	65.0	55.0	10.0	65.0
Total Split (%)	7.1%	44.3%	44.3%	9.3%	46.4%	39.3%	7.1%	46.4%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.67	0.59	0.47	0.31	0.85	0.75	0.47	0.74
Control Delay	32.5	34.4	21.6	17.5	42.9	40.8	23.8	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	34.4	21.6	17.5	42.9	40.8	23.8	34.3
Queue Length 50th (m)	23.0	85.8	21.2	15.4	136.0	114.7	19.4	128.6
Queue Length 95th (m)	44.2	106.7	44.0	25.4	163.6	149.0	34.1	166.6
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	261	1511	440	401	1501	1273	299	1524
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.52	0.43	0.30	0.74	0.75	0.47	0.74

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 132.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	788	189	121	941	172	0	861	90	140	1027	102
Future Volume (vph)	175	788	189	121	941	172	0	861	90	140	1027	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.59	1.00	0.95			0.97		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505	933	1787	3286			3344		1770	3352	
Flt Permitted	0.11	1.00	1.00	0.24	1.00			1.00		0.16	1.00	
Satd. Flow (perm)	203	3505	933	454	3286			3344		302	3352	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	788	189	121	941	172	0	861	90	140	1027	102
RTOR Reduction (vph)	0	0	48	0	11	0	0	6	0	0	5	0
Lane Group Flow (vph)	175	788	141	121	1102	0	0	945	0	140	1124	0
Confl. Peds. (#/hr)	169		336	336		169	380		247	247		380
Heavy Vehicles (%)	2%	3%	2%	1%	2%	1%	2%	3%	0%	2%	2%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	57.9	49.9	49.9	60.9	51.4			49.3		59.2	59.2	
Effective Green, g (s)	66.4	50.9	50.9	66.4	52.4			50.3		64.2	60.2	
Actuated g/C Ratio	0.50	0.38	0.38	0.50	0.40			0.38		0.48	0.45	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	255	1345	358	373	1298			1268		289	1521	
v/s Ratio Prot	c0.07	0.22		0.04	c0.34			0.28		0.05	c0.34	
v/s Ratio Perm	0.28		0.15	0.13						0.19		
v/c Ratio	0.69	0.59	0.39	0.32	0.85			0.75		0.48	0.74	
Uniform Delay, d1	23.9	32.5	29.7	19.0	36.5			35.6		22.0	29.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	7.5	0.7	0.7	0.5	5.4			4.0		1.3	3.3	
Delay (s)	31.4	33.1	30.4	19.5	41.9			39.6		23.3	33.0	
Level of Service	C	C	C	B	D			D		C	C	
Approach Delay (s)		32.4			39.7			39.6			31.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	132.6	Sum of lost time (s)	7.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	904	18	23	1314	58	10	6	52	11	2	42
Future Volume (Veh/h)	50	904	18	23	1314	58	10	6	52	11	2	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	51	913	18	23	1327	59	10	6	53	11	2	42
Pedestrians		2			17						61	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						5	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.75			0.83			0.84	0.84	0.83	0.84	0.84	0.75
vC, conflicting volume	1447			931			1778	2517	482	2042	2496	756
vC1, stage 1 conf vol							1024	1024		1464	1464	
vC2, stage 2 conf vol							754	1493		578	1033	
vCu, unblocked vol	942			518			648	1529	0	962	1505	26
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			97	96	94	94	99	94
cM capacity (veh/h)	527			859			321	163	896	188	202	751

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	51	609	322	686	722	10	59	11	44
Volume Left	51	0	0	23	0	10	0	11	0
Volume Right	0	0	18	0	59	0	53	0	42
cSH	527	1700	1700	859	1700	321	998	188	669
Volume to Capacity	0.10	0.36	0.19	0.03	0.42	0.03	0.06	0.06	0.07
Queue Length 95th (m)	2.4	0.0	0.0	0.6	0.0	0.7	1.4	1.4	1.6
Control Delay (s)	12.6	0.0	0.0	0.7	0.0	16.6	11.2	25.3	10.8
Lane LOS	B			A		C	B	D	B
Approach Delay (s)	0.7			0.3		11.9		13.7	
Approach LOS						B		B	

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	897	0	0	1320	52	0	0	0	19	0	88
Future Volume (Veh/h)	49	897	0	0	1320	52	0	0	0	19	0	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	51	925	0	0	1361	54	0	0	0	20	0	91
Pedestrians		2			1						34	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						3	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.74			0.85			0.81	0.81	0.85	0.81	0.81	0.74
vC, conflicting volume	1449			925			1800	2476	464	1988	2449	744
vC1, stage 1 conf vol							1027	1027		1422	1422	
vC2, stage 2 conf vol							774	1449		566	1027	
vCu, unblocked vol	896			560			694	1526	18	924	1493	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	100	100	91	100	88
cM capacity (veh/h)	549			868			305	188	903	217	224	780

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	51	617	308	0	907	508	0	111
Volume Left	51	0	0	0	0	0	0	20
Volume Right	0	0	0	0	0	54	0	91
cSH	549	1700	1700	1700	1700	1700	1700	531
Volume to Capacity	0.09	0.36	0.18	0.00	0.53	0.30	0.00	0.21
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0	0.0	0.0	5.9
Control Delay (s)	12.2	0.0	0.0	0.0	0.0	0.0	0.0	13.6
Lane LOS	B						A	B
Approach Delay (s)	0.6			0.0			0.0	13.6
Approach LOS							A	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	54.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	898	18	14	1347	10	19
Future Volume (Veh/h)	898	18	14	1347	10	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	926	19	14	1389	10	20
Pedestrians	6				62	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				5	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.85		0.81	0.85
vC, conflicting volume			1007		1726	534
vC1, stage 1 conf vol					998	
vC2, stage 2 conf vol					728	
vCu, unblocked vol			663		612	109
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			745		378	747

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	617	328	14	694	694	30
Volume Left	0	0	14	0	0	10
Volume Right	0	19	0	0	0	20
cSH	1700	1700	745	1700	1700	564
Volume to Capacity	0.36	0.19	0.02	0.41	0.41	0.05
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	9.9	0.0	0.0	11.7
Lane LOS			A			B
Approach Delay (s)	0.0		0.1			11.7
Approach LOS						B

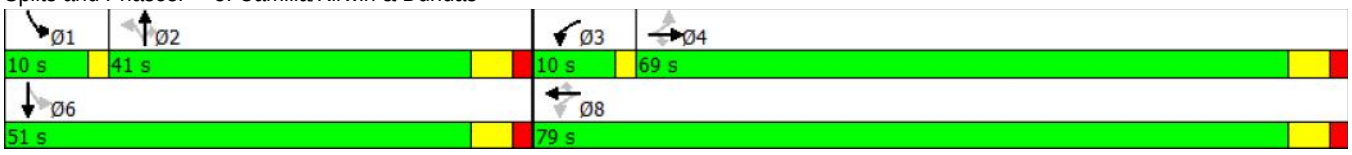
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	24	829	42	90	1259	335	53	116	51	181	96
Future Volume (vph)	24	829	42	90	1259	335	53	116	51	181	96
Lane Group Flow (vph)	26	911	46	99	1384	368	58	127	56	199	159
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	69.0	69.0	69.0	10.0	79.0	79.0	41.0	41.0	41.0	10.0	51.0
Total Split (%)	53.1%	53.1%	53.1%	7.7%	60.8%	60.8%	31.5%	31.5%	31.5%	7.7%	39.2%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.16	0.51	0.06	0.18	0.66	0.35	0.23	0.43	0.19	0.35	0.31
Control Delay	12.8	15.0	2.2	5.0	12.8	1.8	34.6	40.4	11.6	23.3	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	15.0	2.2	5.0	12.8	1.8	34.6	40.4	11.6	23.3	25.3
Queue Length 50th (m)	1.9	48.5	0.0	4.1	67.2	0.0	7.4	17.6	0.0	20.4	16.0
Queue Length 95th (m)	7.1	72.5	3.6	9.8	99.7	9.2	22.7	43.7	10.4	52.6	42.9
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	240	2792	1273	561	3109	1372	626	860	736	570	1046
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.04	0.18	0.45	0.27	0.09	0.15	0.08	0.35	0.15

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 82.6
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	829	42	90	1259	335	53	116	51	181	96	49
Future Volume (vph)	24	829	42	90	1259	335	53	116	51	181	96	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1800	3505	1583	1805	3539	1531	1792	1881	1549	1777	1779	
Flt Permitted	0.15	1.00	1.00	0.26	1.00	1.00	0.66	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	287	3505	1583	500	3539	1531	1238	1881	1549	1264	1779	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	911	46	99	1384	368	58	127	56	199	105	54
RTOR Reduction (vph)	0	0	23	0	0	149	0	0	47	0	16	0
Lane Group Flow (vph)	26	911	23	99	1384	219	58	127	9	199	143	0
Confl. Peds. (#/hr)	33					33	12		13	13		12
Heavy Vehicles (%)	0%	3%	2%	0%	2%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	40.7	40.7	40.7	48.2	48.2	48.2	11.9	11.9	11.9	22.3	22.3	
Effective Green, g (s)	45.7	41.7	41.7	53.2	49.2	49.2	16.9	12.9	12.9	27.3	23.3	
Actuated g/C Ratio	0.55	0.51	0.51	0.64	0.60	0.60	0.20	0.16	0.16	0.33	0.28	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	158	1771	800	488	2110	913	253	294	242	501	502	
v/s Ratio Prot		0.26		0.03	c0.39			0.07		c0.06	0.08	
v/s Ratio Perm	0.09		0.01	0.10		0.14	0.05		0.01	0.07		
v/c Ratio	0.16	0.51	0.03	0.20	0.66	0.24	0.23	0.43	0.04	0.40	0.29	
Uniform Delay, d1	9.0	13.6	10.2	5.8	11.0	7.8	27.4	31.5	29.5	20.8	23.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	0.0	0.2	0.7	0.1	0.5	1.0	0.1	0.5	0.3	
Delay (s)	9.5	13.9	10.3	6.0	11.8	8.0	27.8	32.5	29.6	21.3	23.4	
Level of Service	A	B	B	A	B	A	C	C	C	C	C	
Approach Delay (s)		13.6			10.7			30.7			22.2	
Approach LOS		B			B			C			C	

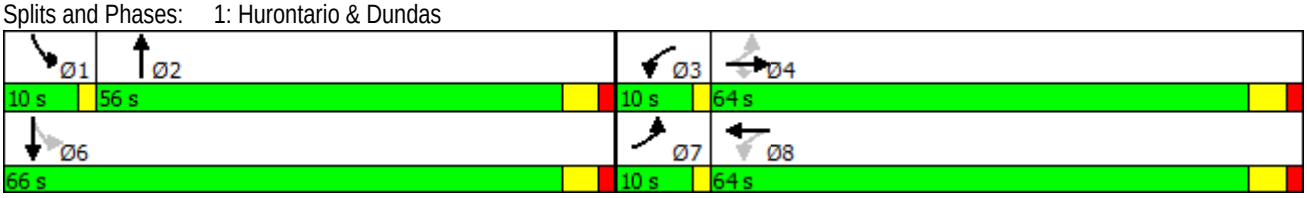
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

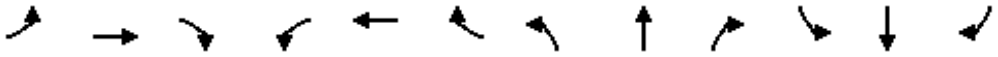
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	1100	146	109	413	822	133	799
Future Volume (vph)	120	1100	146	109	413	822	133	799
Lane Group Flow (vph)	120	1100	146	109	505	871	133	886
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	64.0	64.0	10.0	64.0	56.0	10.0	66.0
Total Split (%)	7.1%	45.7%	45.7%	7.1%	45.7%	40.0%	7.1%	47.1%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.25	0.81	0.34	0.42	0.42	0.65	0.39	0.58
Control Delay	17.3	41.5	17.2	20.9	29.1	36.4	21.1	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	41.5	17.2	20.9	29.1	36.4	21.1	28.2
Queue Length 50th (m)	15.5	133.0	13.7	14.0	47.7	97.5	17.5	87.3
Queue Length 95th (m)	25.6	158.9	30.5	23.5	62.2	130.4	32.0	118.8
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	476	1595	487	260	1427	1345	339	1537
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.69	0.30	0.42	0.35	0.65	0.39	0.58

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 131.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas

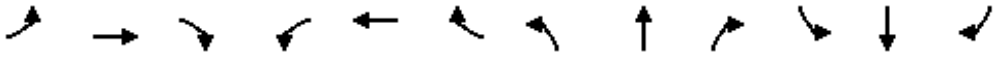




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1100	146	109	413	92	0	822	49	133	799	87
Future Volume (vph)	120	1100	146	109	413	92	0	822	49	133	799	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.65	1.00	0.97			0.99		1.00	0.96	
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97			0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1729	3539	1012	1787	3144			3432		1770	3293	
Flt Permitted	0.41	1.00	1.00	0.11	1.00			1.00		0.21	1.00	
Satd. Flow (perm)	749	3539	1012	199	3144			3432		383	3293	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1100	146	109	413	92	0	822	49	133	799	87
RTOR Reduction (vph)	0	0	41	0	14	0	0	3	0	0	5	0
Lane Group Flow (vph)	120	1100	105	109	491	0	0	868	0	133	881	0
Confl. Peds. (#/hr)	61		222	222		61	234		78	78		234
Heavy Vehicles (%)	2%	2%	3%	1%	7%	15%	7%	3%	5%	2%	4%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	57.3	49.4	49.4	57.1	49.3			50.4		60.2	60.2	
Effective Green, g (s)	64.2	50.4	50.4	64.2	50.3			51.4		65.2	61.2	
Actuated g/C Ratio	0.49	0.38	0.38	0.49	0.38			0.39		0.50	0.47	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	462	1357	388	251	1203			1342		325	1533	
v/s Ratio Prot	0.03	c0.31		c0.04	0.16			c0.25		0.04	c0.27	
v/s Ratio Perm	0.10		0.10	0.17						0.16		
v/c Ratio	0.26	0.81	0.27	0.43	0.41			0.65		0.41	0.57	
Uniform Delay, d1	18.6	36.2	27.8	22.8	29.7			32.6		19.9	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.8	0.4	1.2	0.2			2.4		0.8	1.6	
Delay (s)	18.9	40.0	28.2	24.0	29.9			35.0		20.7	27.2	
Level of Service	B	D	C	C	C			D		C	C	
Approach Delay (s)		36.9			28.8			35.0			26.3	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	131.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

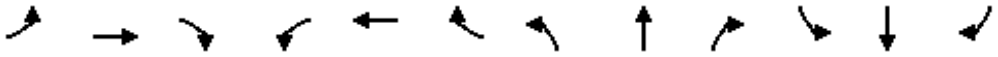
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1336	4	1	578	10	0	1	6	5	0	26
Future Volume (Veh/h)	5	1336	4	1	578	10	0	1	6	5	0	26
Sign Control		Free			Free			Stop			Stop	
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)	5	1468	4	1	635	11	0	1	7	5	0	29
Pedestrians								11			3	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.98			0.72			0.73	0.73	0.72	0.73	0.73	0.98
vC, conflicting volume	649			1483			1840	2142	747	1390	2138	326
vC1, stage 1 conf vol							1491	1491		646	646	
vC2, stage 2 conf vol							348	651		744	1493	
vCu, unblocked vol	605			882			1286	1703	0	667	1698	276
tC, single (s)	4.1			4.1			7.5	6.5	7.2	7.9	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.9	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.5	3.7	4.0	3.3
p0 queue free %	99			100			100	100	99	99	100	96
cM capacity (veh/h)	962			550			206	226	736	375	226	712

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	979	493	318	328	0	8	5	29
Volume Left	5	0	0	1	0	0	0	5	0
Volume Right	0	0	4	0	11	0	7	0	29
cSH	962	1700	1700	550	1700	1700	841	375	712
Volume to Capacity	0.01	0.58	0.29	0.00	0.19	0.00	0.01	0.01	0.04
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.0
Control Delay (s)	8.8	0.0	0.0	0.1	0.0	0.0	11.3	14.7	10.3
Lane LOS	A			A		A	B	B	B
Approach Delay (s)	0.0			0.0		11.3		10.9	
Approach LOS						B		B	

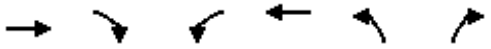
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	53.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1326	11	6	534	5	42	0	30	4	0	5
Future Volume (Veh/h)	3	1326	11	6	534	5	42	0	30	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1441	12	7	580	5	46	0	33	4	0	5
Pedestrians		1			1			4			6	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.95			0.72			0.74	0.74	0.72	0.74	0.74	0.95
vC, conflicting volume	591			1457			1767	2062	732	1363	2066	300
vC1, stage 1 conf vol							1457	1457		602	602	
vC2, stage 2 conf vol							310	605		760	1463	
vCu, unblocked vol	465			852			1040	1437	0	497	1442	158
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			80	100	96	99	100	99
cM capacity (veh/h)	1047			569			224	246	780	470	239	818

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	961	492	7	387	198	79	9
Volume Left	3	0	0	7	0	0	46	4
Volume Right	0	0	12	0	0	5	33	5
cSH	1047	1700	1700	569	1700	1700	320	615
Volume to Capacity	0.00	0.57	0.29	0.01	0.23	0.12	0.25	0.01
Queue Length 95th (m)	0.1	0.0	0.0	0.3	0.0	0.0	7.3	0.3
Control Delay (s)	8.4	0.0	0.0	11.4	0.0	0.0	19.9	10.9
Lane LOS	A			B			C	B
Approach Delay (s)	0.0			0.1			19.9	10.9
Approach LOS							C	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	49.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1352	8	9	571	8	22
Future Volume (Veh/h)	1352	8	9	571	8	22
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)	1470	9	10	621	9	24
Pedestrians	10				25	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				2	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.72		0.75	0.72
vC, conflicting volume			1504		1840	764
vC1, stage 1 conf vol					1500	
vC2, stage 2 conf vol					340	
vCu, unblocked vol			922		1067	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			519		240	764

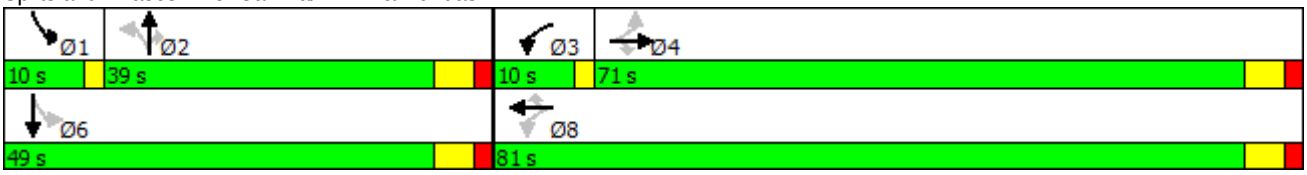
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	980	499	10	310	310	33
Volume Left	0	0	10	0	0	9
Volume Right	0	9	0	0	0	24
cSH	1700	1700	519	1700	1700	478
Volume to Capacity	0.58	0.29	0.02	0.18	0.18	0.07
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.7
Control Delay (s)	0.0	0.0	12.1	0.0	0.0	13.1
Lane LOS			B			B
Approach Delay (s)	0.0		0.2			13.1
Approach LOS						B

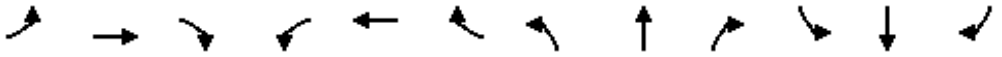
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	47.6%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	12	1196	50	33	543	76	19	42	43	225	53
Future Volume (vph)	12	1196	50	33	543	76	19	42	43	225	53
Lane Group Flow (vph)	13	1329	56	37	603	84	21	47	48	250	78
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	71.0	71.0	71.0	10.0	81.0	81.0	39.0	39.0	39.0	10.0	49.0
Total Split (%)	54.6%	54.6%	54.6%	7.7%	62.3%	62.3%	30.0%	30.0%	30.0%	7.7%	37.7%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.03	0.69	0.06	0.08	0.29	0.09	0.09	0.19	0.19	0.43	0.18
Control Delay	7.1	14.5	2.5	3.3	6.8	1.5	33.8	37.4	10.7	24.4	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	14.5	2.5	3.3	6.8	1.5	33.8	37.4	10.7	24.4	24.5
Queue Length 50th (m)	0.8	73.4	0.0	1.2	18.5	0.0	2.7	6.5	0.0	27.9	7.6
Queue Length 95th (m)	3.0	102.7	4.4	3.4	28.0	4.2	10.1	18.9	8.1	61.6	22.2
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	658	2971	1338	507	3121	1422	707	995	832	579	1160
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.45	0.04	0.07	0.19	0.06	0.03	0.05	0.06	0.43	0.07

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 71.7
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1196	50	33	543	76	19	42	43	225	53	17
Future Volume (vph)	12	1196	50	33	543	76	19	42	43	225	53	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1670	3471	1553	1805	3374	1533	1614	1863	1512	1781	1769	
Flt Permitted	0.42	1.00	1.00	0.14	1.00	1.00	0.71	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	745	3471	1553	262	3374	1533	1200	1863	1512	1362	1769	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	1329	56	37	603	84	21	47	48	250	59	19
RTOR Reduction (vph)	0	0	26	0	0	33	0	0	43	0	10	0
Lane Group Flow (vph)	13	1329	30	37	603	51	21	47	5	250	68	0
Confl. Peds. (#/hr)	4					4	12		7	7		12
Heavy Vehicles (%)	8%	4%	4%	0%	7%	3%	11%	2%	5%	1%	2%	6%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	38.5	38.5	38.5	43.5	43.5	43.5	6.1	6.1	6.1	17.7	17.7	
Effective Green, g (s)	43.5	39.5	39.5	48.5	44.5	44.5	11.1	7.1	7.1	22.7	18.7	
Actuated g/C Ratio	0.59	0.54	0.54	0.66	0.61	0.61	0.15	0.10	0.10	0.31	0.26	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	442	1873	838	342	2051	931	181	180	146	505	451	
v/s Ratio Prot		c0.38		0.01	c0.18			0.03		c0.10	0.04	
v/s Ratio Perm	0.02		0.02	0.06		0.03	0.02		0.00	0.05		
v/c Ratio	0.03	0.71	0.04	0.11	0.29	0.05	0.12	0.26	0.03	0.50	0.15	
Uniform Delay, d1	6.1	12.6	7.9	5.6	6.9	5.8	26.8	30.6	29.9	20.3	21.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.3	0.0	0.1	0.1	0.0	0.3	0.8	0.1	0.8	0.2	
Delay (s)	6.2	13.8	7.9	5.8	6.9	5.8	27.1	31.4	30.0	21.0	21.3	
Level of Service	A	B	A	A	A	A	C	C	C	C	C	
Approach Delay (s)		13.5			6.7			30.1			21.1	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

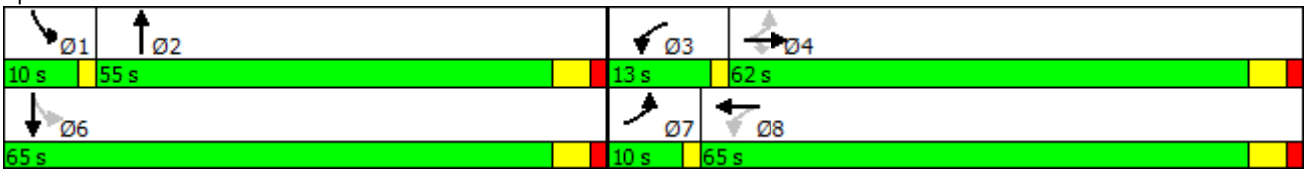
c Critical Lane Group

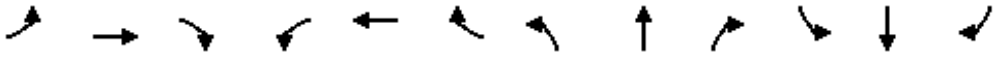
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	175	799	189	129	948	861	157	1027
Future Volume (vph)	175	799	189	129	948	861	157	1027
Lane Group Flow (vph)	175	799	189	129	1130	966	157	1129
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	62.0	62.0	13.0	65.0	55.0	10.0	65.0
Total Split (%)	7.1%	44.3%	44.3%	9.3%	46.4%	39.3%	7.1%	46.4%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.68	0.59	0.47	0.34	0.86	0.77	0.54	0.74
Control Delay	33.8	34.6	22.3	17.8	43.5	42.0	25.9	34.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	34.6	22.3	17.8	43.5	42.0	25.9	34.7
Queue Length 50th (m)	23.0	87.7	22.2	16.4	139.3	119.4	22.4	130.8
Queue Length 95th (m)	#46.0	108.5	45.0	26.9	167.7	152.7	38.0	166.6
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	258	1503	435	398	1488	1256	292	1516
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.53	0.43	0.32	0.76	0.77	0.54	0.74

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 133.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario & Dundas

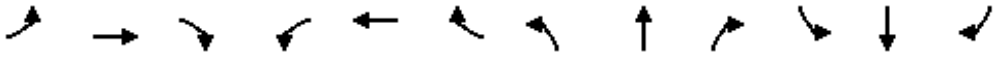




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	799	189	129	948	182	0	861	105	157	1027	102
Future Volume (vph)	175	799	189	129	948	182	0	861	105	157	1027	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.59	1.00	0.95			0.96		1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505	932	1787	3273			3320		1770	3352	
Flt Permitted	0.10	1.00	1.00	0.24	1.00			1.00		0.15	1.00	
Satd. Flow (perm)	195	3505	932	444	3273			3320		286	3352	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	799	189	129	948	182	0	861	105	157	1027	102
RTOR Reduction (vph)	0	0	46	0	12	0	0	6	0	0	5	0
Lane Group Flow (vph)	175	799	144	129	1118	0	0	960	0	157	1124	0
Confl. Peds. (#/hr)	169		336	336		179	380		247	247		380
Heavy Vehicles (%)	2%	3%	2%	1%	2%	1%	2%	3%	0%	2%	2%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	58.3	50.3	50.3	61.7	52.0			49.2		59.2	59.2	
Effective Green, g (s)	67.0	51.3	51.3	67.0	53.0			50.2		64.2	60.2	
Actuated g/C Ratio	0.50	0.39	0.39	0.50	0.40			0.38		0.48	0.45	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	251	1349	358	371	1302			1251		282	1514	
v/s Ratio Prot	c0.07	0.23		0.04	c0.34			0.29		0.05	c0.34	
v/s Ratio Perm	0.28		0.15	0.14						0.21		
v/c Ratio	0.70	0.59	0.40	0.35	0.86			0.77		0.56	0.74	
Uniform Delay, d1	24.2	32.6	29.8	19.1	36.7			36.4		22.8	30.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	8.2	0.7	0.7	0.6	5.8			4.5		2.4	3.3	
Delay (s)	32.4	33.3	30.5	19.6	42.5			40.9		25.2	33.4	
Level of Service	C	C	C	B	D			D		C	C	
Approach Delay (s)		32.7			40.2			40.9			32.4	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	133.2	Sum of lost time (s)	7.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		

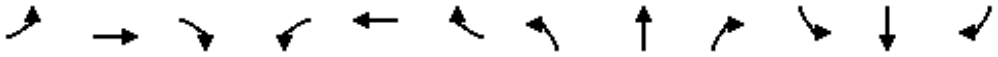
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	947	18	23	1339	58	10	6	52	11	2	42
Future Volume (Veh/h)	50	947	18	23	1339	58	10	6	52	11	2	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	51	957	18	23	1353	59	10	6	53	11	2	42
Pedestrians		2			17						61	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						5	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.75			0.83			0.84	0.84	0.83	0.84	0.84	0.75
vC, conflicting volume	1473			975			1836	2587	504	2090	2566	769
vC1, stage 1 conf vol							1068	1068		1490	1490	
vC2, stage 2 conf vol							768	1519		600	1077	
vCu, unblocked vol	972			560			697	1593	0	1000	1569	37
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			97			97	96	94	94	99	94
cM capacity (veh/h)	513			825			301	155	892	180	193	737

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	51	638	337	700	736	10	59	11	44
Volume Left	51	0	0	23	0	10	0	11	0
Volume Right	0	0	18	0	59	0	53	0	42
cSH	513	1700	1700	825	1700	301	993	180	653
Volume to Capacity	0.10	0.38	0.20	0.03	0.43	0.03	0.06	0.06	0.07
Queue Length 95th (m)	2.5	0.0	0.0	0.7	0.0	0.8	1.4	1.5	1.6
Control Delay (s)	12.8	0.0	0.0	0.7	0.0	17.4	11.3	26.3	10.9
Lane LOS	B			A		C	B	D	B
Approach Delay (s)	0.6			0.4		12.2		14.0	
Approach LOS						B		B	

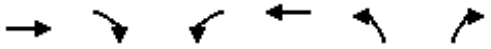
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	897	43	29	1320	52	25	0	15	19	0	88
Future Volume (Veh/h)	49	897	43	29	1320	52	25	0	15	19	0	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	51	925	44	30	1361	54	26	0	15	20	0	91
Pedestrians		2			1						34	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						3	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.73			0.85			0.81	0.81	0.85	0.81	0.81	0.73
vC, conflicting volume	1449			969			1882	2558	486	2062	2553	744
vC1, stage 1 conf vol							1049	1049		1482	1482	
vC2, stage 2 conf vol							834	1509		580	1071	
vCu, unblocked vol	889			599			769	1601	27	991	1595	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			96			91	100	98	89	100	88
cM capacity (veh/h)	550			836			293	164	886	187	196	777

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	51	617	352	30	907	508	41	111
Volume Left	51	0	0	30	0	0	26	20
Volume Right	0	0	44	0	0	54	15	91
cSH	550	1700	1700	836	1700	1700	388	496
Volume to Capacity	0.09	0.36	0.21	0.04	0.53	0.30	0.11	0.22
Queue Length 95th (m)	2.3	0.0	0.0	0.8	0.0	0.0	2.7	6.5
Control Delay (s)	12.2	0.0	0.0	9.5	0.0	0.0	15.4	14.3
Lane LOS	B			A			C	B
Approach Delay (s)	0.6			0.2			15.4	14.3
Approach LOS							C	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	54.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	913	18	14	1376	10	19
Future Volume (Veh/h)	913	18	14	1376	10	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	941	19	14	1419	10	20
Pedestrians	6				62	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				5	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.86		0.80	0.86
vC, conflicting volume			1022		1756	542
vC1, stage 1 conf vol					1012	
vC2, stage 2 conf vol					744	
vCu, unblocked vol			691		648	131
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			731		366	727

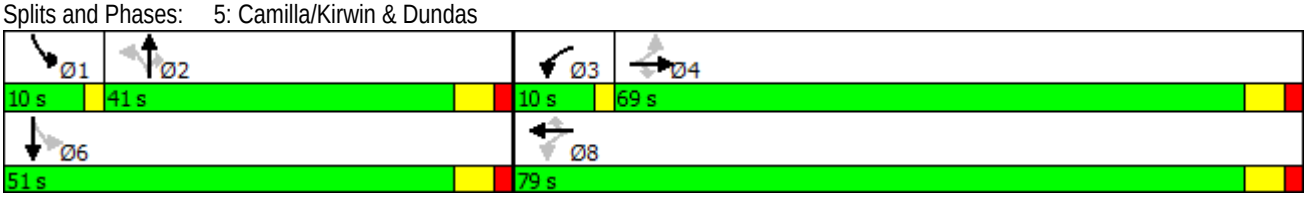
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	627	333	14	710	710	30
Volume Left	0	0	14	0	0	10
Volume Right	0	19	0	0	0	20
cSH	1700	1700	731	1700	1700	547
Volume to Capacity	0.37	0.20	0.02	0.42	0.42	0.05
Queue Length 95th (m)	0.0	0.0	0.4	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	10.0	0.0	0.0	12.0
Lane LOS			B			B
Approach Delay (s)	0.0		0.1			12.0
Approach LOS						B

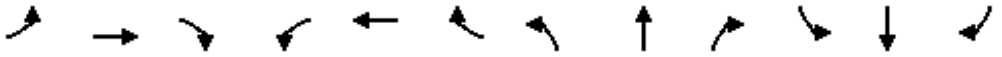
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	24	844	42	90	1288	335	53	116	51	181	96
Future Volume (vph)	24	844	42	90	1288	335	53	116	51	181	96
Lane Group Flow (vph)	26	927	46	99	1415	368	58	127	56	199	159
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	69.0	69.0	69.0	10.0	79.0	79.0	41.0	41.0	41.0	10.0	51.0
Total Split (%)	53.1%	53.1%	53.1%	7.7%	60.8%	60.8%	31.5%	31.5%	31.5%	7.7%	39.2%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.17	0.51	0.05	0.19	0.67	0.35	0.23	0.44	0.20	0.36	0.31
Control Delay	13.0	14.9	2.2	5.0	12.8	1.8	35.2	41.1	11.7	24.0	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	14.9	2.2	5.0	12.8	1.8	35.2	41.1	11.7	24.0	25.8
Queue Length 50th (m)	1.9	50.0	0.0	4.2	70.2	0.1	7.6	18.2	0.0	21.4	16.7
Queue Length 95th (m)	7.2	74.2	3.6	9.8	103.2	9.4	22.7	43.7	10.4	52.6	42.9
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	225	2749	1254	553	3078	1362	612	840	721	559	1023
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.34	0.04	0.18	0.46	0.27	0.09	0.15	0.08	0.36	0.16

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 84.2
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	844	42	90	1288	335	53	116	51	181	96	49
Future Volume (vph)	24	844	42	90	1288	335	53	116	51	181	96	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1800	3505	1583	1805	3539	1531	1791	1881	1548	1777	1778	
Flt Permitted	0.14	1.00	1.00	0.26	1.00	1.00	0.66	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	274	3505	1583	490	3539	1531	1237	1881	1548	1264	1778	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	26	927	46	99	1415	368	58	127	56	199	105	54
RTOR Reduction (vph)	0	0	22	0	0	145	0	0	47	0	16	0
Lane Group Flow (vph)	26	927	24	99	1415	223	58	127	9	199	143	0
Confl. Peds. (#/hr)	33					33	12		13	13		12
Heavy Vehicles (%)	0%	3%	2%	0%	2%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	42.3	42.3	42.3	49.8	49.8	49.8	12.0	12.0	12.0	22.4	22.4	
Effective Green, g (s)	47.3	43.3	43.3	54.8	50.8	50.8	17.0	13.0	13.0	27.4	23.4	
Actuated g/C Ratio	0.56	0.51	0.51	0.65	0.60	0.60	0.20	0.15	0.15	0.33	0.28	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	153	1802	814	482	2135	923	249	290	239	492	494	
v/s Ratio Prot		0.26		0.03	c0.40			0.07		c0.06	0.08	
v/s Ratio Perm	0.09		0.01	0.11		0.15	0.05		0.01	0.07		
v/c Ratio	0.17	0.51	0.03	0.21	0.66	0.24	0.23	0.44	0.04	0.40	0.29	
Uniform Delay, d1	8.9	13.5	10.1	5.8	11.0	7.8	28.1	32.3	30.3	21.6	23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.2	0.0	0.2	0.8	0.1	0.5	1.1	0.1	0.5	0.3	
Delay (s)	9.5	13.8	10.1	6.0	11.8	7.9	28.6	33.3	30.3	22.1	24.2	
Level of Service	A	B	B	A	B	A	C	C	C	C	C	
Approach Delay (s)		13.5			10.7			31.5			23.0	
Approach LOS		B			B			C			C	

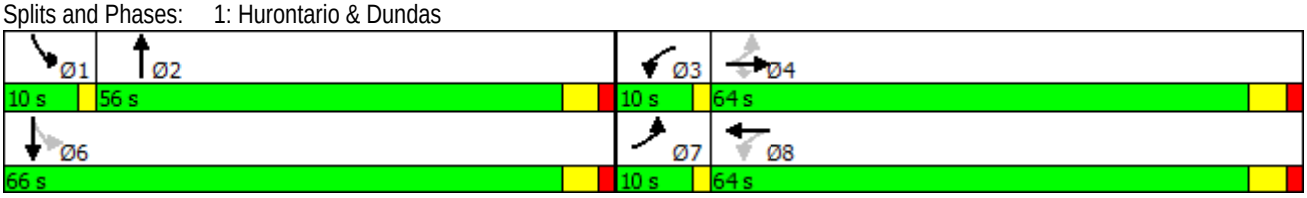
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

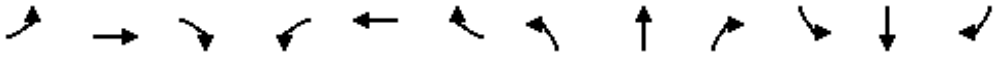
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	1167	178	135	501	876	138	825
Future Volume (vph)	135	1167	178	135	501	876	138	825
Lane Group Flow (vph)	135	1167	178	135	620	931	138	923
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	64.0	64.0	10.0	64.0	56.0	10.0	66.0
Total Split (%)	7.1%	45.7%	45.7%	7.1%	45.7%	40.0%	7.1%	47.1%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.31	0.83	0.43	0.55	0.50	0.71	0.46	0.62
Control Delay	17.8	42.4	23.1	27.3	30.4	39.7	23.4	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	42.4	23.1	27.3	30.4	39.7	23.4	30.5
Queue Length 50th (m)	17.6	145.1	23.1	17.6	61.6	114.6	19.9	100.1
Queue Length 95th (m)	28.5	172.7	43.6	34.3	78.5	142.4	33.1	125.5
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	430	1557	452	247	1379	1305	304	1492
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.75	0.39	0.55	0.45	0.71	0.45	0.62

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 134.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Hurontario & Dundas

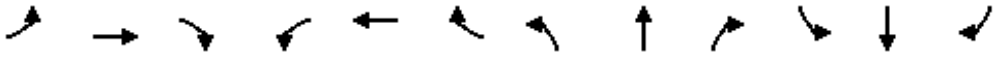




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	1167	178	135	501	119	0	876	55	138	825	98
Future Volume (vph)	135	1167	178	135	501	119	0	876	55	138	825	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.62	1.00	0.96			0.99		1.00	0.96	
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97			0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1740	3539	967	1787	3108			3418		1770	3267	
Flt Permitted	0.34	1.00	1.00	0.09	1.00			1.00		0.17	1.00	
Satd. Flow (perm)	623	3539	967	171	3108			3418		319	3267	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	135	1167	178	135	501	119	0	876	55	138	825	98
RTOR Reduction (vph)	0	0	33	0	16	0	0	3	0	0	7	0
Lane Group Flow (vph)	135	1167	145	135	604	0	0	928	0	138	916	0
Confl. Peds. (#/hr)	75		276	276		75	291		97	97		291
Heavy Vehicles (%)	2%	2%	3%	1%	7%	15%	7%	3%	5%	2%	4%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	60.2	52.3	52.3	60.2	52.3			50.3		60.2	60.2	
Effective Green, g (s)	67.2	53.3	53.3	67.2	53.3			51.3		65.2	61.2	
Actuated g/C Ratio	0.50	0.40	0.40	0.50	0.40			0.38		0.49	0.46	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	418	1403	383	240	1232			1304		294	1487	
v/s Ratio Prot	0.03	c0.33		c0.05	0.19			c0.27		0.05	c0.28	
v/s Ratio Perm	0.13		0.15	0.23						0.18		
v/c Ratio	0.32	0.83	0.38	0.56	0.49			0.71		0.47	0.62	
Uniform Delay, d1	18.7	36.5	28.8	24.3	30.4			35.3		21.9	27.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.5	4.4	0.6	3.0	0.3			3.3		1.2	1.9	
Delay (s)	19.1	40.9	29.4	27.3	30.7			38.6		23.1	29.6	
Level of Service	B	D	C	C	C			D		C	C	
Approach Delay (s)		37.5			30.1			38.6			28.8	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	134.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

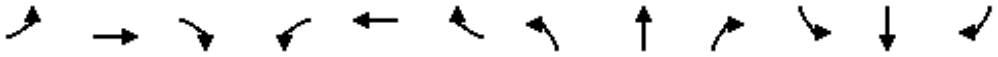
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1422	4	1	716	11	0	1	6	5	0	26
Future Volume (Veh/h)	5	1422	4	1	716	11	0	1	6	5	0	26
Sign Control		Free			Free			Stop			Stop	
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)	5	1563	4	1	787	12	0	1	7	5	0	29
Pedestrians								13			4	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			0	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.94			0.70			0.73	0.73	0.70	0.73	0.73	0.94
vC, conflicting volume	803			1580			2012	2393	796	1591	2389	404
vC1, stage 1 conf vol							1588	1588		799	799	
vC2, stage 2 conf vol							424	805		792	1590	
vCu, unblocked vol	666			959			1273	1798	0	692	1792	241
tC, single (s)	4.1			4.1			7.5	6.5	7.2	7.9	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.9	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.5	3.7	4.0	3.3
p0 queue free %	99			100			100	100	99	99	100	96
cM capacity (veh/h)	875			499			181	202	714	335	201	718

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	1042	525	394	406	0	8	5	29
Volume Left	5	0	0	1	0	0	0	5	0
Volume Right	0	0	4	0	12	0	7	0	29
cSH	875	1700	1700	499	1700	1700	816	335	718
Volume to Capacity	0.01	0.61	0.31	0.00	0.24	0.00	0.01	0.01	0.04
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.0
Control Delay (s)	9.1	0.0	0.0	0.1	0.0	0.0	11.7	15.9	10.2
Lane LOS	A			A		A	B	C	B
Approach Delay (s)	0.0			0.0		11.7		11.1	
Approach LOS						B		B	

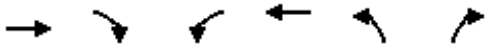
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	56.1%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1412	11	6	672	6	42	0	30	4	0	5
Future Volume (Veh/h)	3	1412	11	6	672	6	42	0	30	4	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1535	12	7	730	7	46	0	33	4	0	5
Pedestrians		1			1			5			7	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.92			0.70			0.74	0.74	0.70	0.74	0.74	0.92
vC, conflicting volume	744			1552			1937	2310	780	1562	2312	376
vC1, stage 1 conf vol							1552	1552		754	754	
vC2, stage 2 conf vol							385	758		808	1558	
vCu, unblocked vol	545			923			1064	1569	0	556	1573	145
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			77	100	96	99	100	99
cM capacity (veh/h)	945			520			198	219	757	414	213	806

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	3	1023	524	7	487	250	79	9
Volume Left	3	0	0	7	0	0	46	4
Volume Right	0	0	12	0	0	7	33	5
cSH	945	1700	1700	520	1700	1700	286	568
Volume to Capacity	0.00	0.60	0.31	0.01	0.29	0.15	0.28	0.02
Queue Length 95th (m)	0.1	0.0	0.0	0.3	0.0	0.0	8.3	0.4
Control Delay (s)	8.8	0.0	0.0	12.0	0.0	0.0	22.3	11.4
Lane LOS	A			B			C	B
Approach Delay (s)	0.0			0.1			22.3	11.4
Approach LOS							C	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	52.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1439	8	10	712	8	22
Future Volume (Veh/h)	1439	8	10	712	8	22
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)	1564	9	11	774	9	24
Pedestrians	12				31	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				3	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.70		0.74	0.70
vC, conflicting volume			1604		2020	818
vC1, stage 1 conf vol					1600	
vC2, stage 2 conf vol					421	
vCu, unblocked vol			1001		1124	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	97
cM capacity (veh/h)			468		211	738

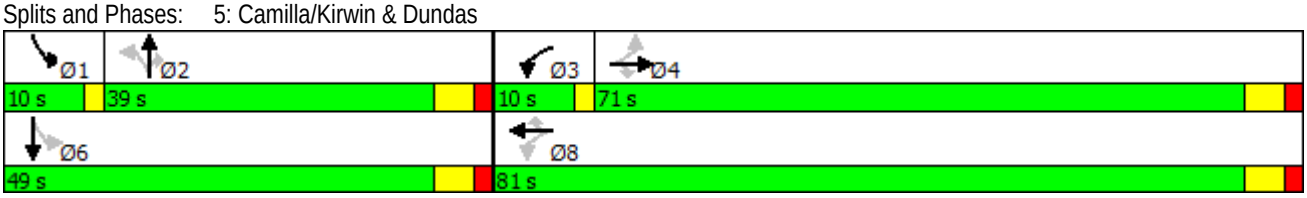
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1043	530	11	387	387	33
Volume Left	0	0	11	0	0	9
Volume Right	0	9	0	0	0	24
cSH	1700	1700	468	1700	1700	438
Volume to Capacity	0.61	0.31	0.02	0.23	0.23	0.08
Queue Length 95th (m)	0.0	0.0	0.5	0.0	0.0	1.8
Control Delay (s)	0.0	0.0	12.9	0.0	0.0	13.9
Lane LOS			B			B
Approach Delay (s)	0.0		0.2			13.9
Approach LOS						B

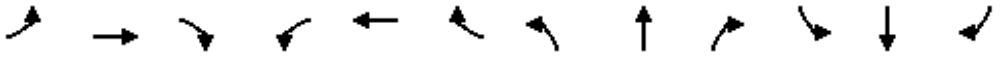
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	13	1275	53	36	681	84	19	42	43	225	53
Future Volume (vph)	13	1275	53	36	681	84	19	42	43	225	53
Lane Group Flow (vph)	14	1417	59	40	757	93	21	47	48	250	78
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	71.0	71.0	71.0	10.0	81.0	81.0	39.0	39.0	39.0	10.0	49.0
Total Split (%)	54.6%	54.6%	54.6%	7.7%	62.3%	62.3%	30.0%	30.0%	30.0%	7.7%	37.7%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.03	0.70	0.06	0.09	0.35	0.09	0.10	0.21	0.20	0.47	0.20
Control Delay	6.8	14.1	2.4	3.2	6.8	1.4	36.8	40.7	11.2	28.1	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	14.1	2.4	3.2	6.8	1.4	36.8	40.7	11.2	28.1	27.3
Queue Length 50th (m)	0.8	81.9	0.0	1.3	24.8	0.0	2.9	6.8	0.0	30.2	8.2
Queue Length 95th (m)	3.1	112.7	4.6	3.6	36.0	4.2	11.1	20.2	8.5	67.4	24.1
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	546	2868	1293	474	3019	1377	659	924	776	537	1094
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.49	0.05	0.08	0.25	0.07	0.03	0.05	0.06	0.47	0.07

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 77.2
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1275	53	36	681	84	19	42	43	225	53	17
Future Volume (vph)	13	1275	53	36	681	84	19	42	43	225	53	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1669	3471	1553	1805	3374	1532	1610	1863	1511	1780	1768	
Flt Permitted	0.36	1.00	1.00	0.12	1.00	1.00	0.71	1.00	1.00	0.73	1.00	
Satd. Flow (perm)	640	3471	1553	234	3374	1532	1197	1863	1511	1361	1768	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	1417	59	40	757	93	21	47	48	250	59	19
RTOR Reduction (vph)	0	0	25	0	0	34	0	0	44	0	10	0
Lane Group Flow (vph)	14	1417	34	40	757	59	21	47	4	250	68	0
Confl. Peds. (#/hr)	5					5	15		8	8		15
Heavy Vehicles (%)	8%	4%	4%	0%	7%	3%	11%	2%	5%	1%	2%	6%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	43.9	43.9	43.9	49.0	49.0	49.0	6.1	6.1	6.1	17.7	17.7	
Effective Green, g (s)	48.9	44.9	44.9	54.0	50.0	50.0	11.1	7.1	7.1	22.7	18.7	
Actuated g/C Ratio	0.62	0.57	0.57	0.69	0.64	0.64	0.14	0.09	0.09	0.29	0.24	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	397	1980	886	322	2143	973	168	168	136	470	420	
v/s Ratio Prot		c0.41		0.01	c0.22			0.03		c0.10	0.04	
v/s Ratio Perm	0.02		0.02	0.07		0.04	0.02		0.00	0.05		
v/c Ratio	0.04	0.72	0.04	0.12	0.35	0.06	0.12	0.28	0.03	0.53	0.16	
Uniform Delay, d1	5.8	12.3	7.4	5.8	6.7	5.4	29.6	33.4	32.7	23.2	23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.3	0.0	0.2	0.1	0.0	0.3	0.9	0.1	1.2	0.2	
Delay (s)	5.8	13.5	7.4	5.9	6.8	5.5	29.9	34.3	32.8	24.3	24.0	
Level of Service	A	B	A	A	A	A	C	C	C	C	C	
Approach Delay (s)		13.2			6.7			32.9			24.3	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

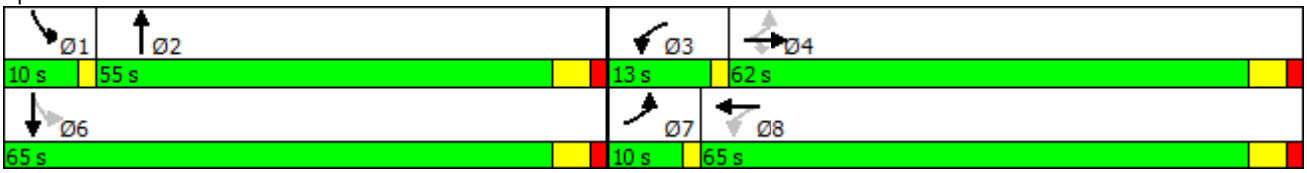
c Critical Lane Group

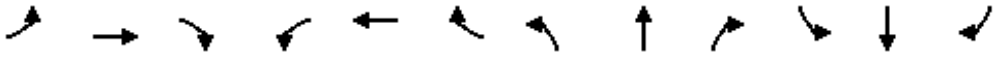
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	199	927	215	144	1019	979	177	1054
Future Volume (vph)	199	927	215	144	1019	979	177	1054
Lane Group Flow (vph)	199	927	215	144	1220	1110	177	1175
Turn Type	pm+pt	NA	Perm	pm+pt	NA	NA	pm+pt	NA
Protected Phases	7	4		3	8	2	1	6
Permitted Phases	4		4	8			6	
Detector Phase	7	4	4	3	8	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	10.0	22.0	22.0	10.0	22.0
Total Split (s)	10.0	62.0	62.0	13.0	65.0	55.0	10.0	65.0
Total Split (%)	7.1%	44.3%	44.3%	9.3%	46.4%	39.3%	7.1%	46.4%
Yellow Time (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0
All-Red Time (s)	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	-3.0	5.0	5.0	-3.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Max	None	Max
v/c Ratio	0.83	0.66	0.56	0.42	0.90	0.92	0.76	0.81
Control Delay	55.5	36.3	27.4	19.0	46.5	53.8	47.9	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	36.3	27.4	19.0	46.5	53.8	47.9	38.8
Queue Length 50th (m)	32.9	107.7	30.3	18.5	157.4	154.6	29.1	148.3
Queue Length 95th (m)	#74.2	130.5	57.4	29.7	188.8	#198.0	#64.3	177.9
Internal Link Dist (m)		409.5			216.3	425.5		455.3
Turn Bay Length (m)	30.0		40.0	30.0			70.0	
Base Capacity (vph)	239	1464	396	356	1442	1212	234	1459
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.63	0.54	0.40	0.85	0.92	0.76	0.81

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 136.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Hurontario & Dundas

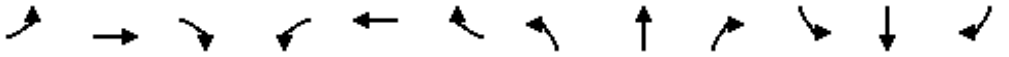




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	927	215	144	1019	201	0	979	131	177	1054	121
Future Volume (vph)	199	927	215	144	1019	201	0	979	131	177	1054	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	-3.0	5.0	5.0	-3.0	5.0			5.0		-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.54	1.00	0.94			0.95		1.00	0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3505	860	1787	3256			3291		1770	3307	
Flt Permitted	0.08	1.00	1.00	0.18	1.00			1.00		0.09	1.00	
Satd. Flow (perm)	158	3505	860	345	3256			3291		164	3307	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	927	215	144	1019	201	0	979	131	177	1054	121
RTOR Reduction (vph)	0	0	42	0	12	0	0	8	0	0	6	0
Lane Group Flow (vph)	199	927	173	144	1208	0	0	1102	0	177	1169	0
Confl. Peds. (#/hr)	210		417	417		210	472		307	307		472
Heavy Vehicles (%)	2%	3%	2%	1%	2%	1%	2%	3%	0%	2%	2%	3%
Turn Type	pm+pt	NA	Perm	pm+pt	NA			NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	61.6	53.6	53.6	65.6	55.6			49.1		59.1	59.1	
Effective Green, g (s)	70.6	54.6	54.6	70.6	56.6			50.1		64.1	60.1	
Actuated g/C Ratio	0.52	0.40	0.40	0.52	0.41			0.37		0.47	0.44	
Clearance Time (s)	2.0	6.0	6.0	2.0	6.0			6.0		2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	234	1399	343	336	1348			1206		229	1453	
v/s Ratio Prot	c0.08	0.26		0.05	c0.37			c0.33		0.07	c0.35	
v/s Ratio Perm	0.36		0.20	0.17						0.29		
v/c Ratio	0.85	0.66	0.50	0.43	0.90			0.91		0.77	0.80	
Uniform Delay, d1	33.2	33.5	30.9	19.9	37.3			41.2		30.2	33.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	24.4	1.2	1.2	0.9	8.1			12.1		14.9	4.8	
Delay (s)	57.6	34.7	32.0	20.7	45.4			53.3		45.1	38.0	
Level of Service	E	C	C	C	D			D		D	D	
Approach Delay (s)		37.7			42.8			53.3			39.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	136.7	Sum of lost time (s)	7.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

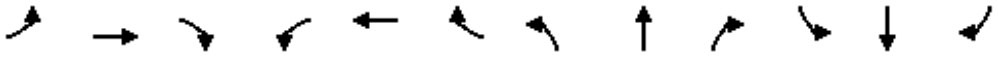
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1122	20	24	1448	61	10	6	52	11	2	42
Future Volume (Veh/h)	55	1122	20	24	1448	61	10	6	52	11	2	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	56	1133	20	24	1463	62	10	6	53	11	2	42
Pedestrians		3			20						74	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			2						6	
Right turn flare (veh)									1			
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		240			238							
pX, platoon unblocked	0.72			0.79			0.83	0.83	0.79	0.83	0.83	0.72
vC, conflicting volume	1599			1153			2080	2902	596	2318	2881	840
vC1, stage 1 conf vol							1255	1255		1616	1616	
vC2, stage 2 conf vol							826	1647		702	1265	
vCu, unblocked vol	1067			665			758	1749	0	1044	1723	19
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			97			96	95	94	93	99	94
cM capacity (veh/h)	449			717			237	120	849	149	159	719

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	56	755	398	756	794	10	59	11	44
Volume Left	56	0	0	24	0	10	0	11	0
Volume Right	0	0	20	0	62	0	53	0	42
cSH	449	1700	1700	717	1700	237	945	149	620
Volume to Capacity	0.12	0.44	0.23	0.03	0.47	0.04	0.06	0.07	0.07
Queue Length 95th (m)	3.2	0.0	0.0	0.8	0.0	1.0	1.5	1.8	1.7
Control Delay (s)	14.1	0.0	0.0	0.9	0.0	20.8	12.3	31.1	11.2
Lane LOS	B			A		C	B	D	B
Approach Delay (s)	0.7			0.4		13.5		15.2	
Approach LOS						B		C	

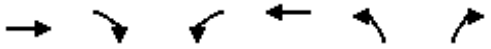
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	Err%	ICU Level of Service		H
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1071	43	29	1429	55	25	0	15	19	0	88
Future Volume (Veh/h)	54	1071	43	29	1429	55	25	0	15	19	0	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	56	1104	44	30	1473	57	26	0	15	20	0	91
Pedestrians		3			1						42	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						4	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)		321			157							
pX, platoon unblocked	0.71			0.80			0.81	0.81	0.80	0.81	0.81	0.71
vC, conflicting volume	1572			1148			2128	2870	575	2284	2864	810
vC1, stage 1 conf vol							1238	1238		1604	1604	
vC2, stage 2 conf vol							890	1632		680	1260	
vCu, unblocked vol	989			698			832	1750	0	1023	1742	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			96			89	100	98	87	100	88
cM capacity (veh/h)	484			730			236	130	877	156	163	745

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	56	736	412	30	982	548	41	111
Volume Left	56	0	0	30	0	0	26	20
Volume Right	0	0	44	0	0	57	15	91
cSH	484	1700	1700	730	1700	1700	322	443
Volume to Capacity	0.12	0.43	0.24	0.04	0.58	0.32	0.13	0.25
Queue Length 95th (m)	3.0	0.0	0.0	1.0	0.0	0.0	3.3	7.4
Control Delay (s)	13.4	0.0	0.0	10.1	0.0	0.0	17.8	15.8
Lane LOS	B			B			C	C
Approach Delay (s)	0.6			0.2			17.8	15.8
Approach LOS							C	C

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	58.9%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1088	20	15	1487	10	19
Future Volume (Veh/h)	1088	20	15	1487	10	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	1122	21	15	1533	10	20
Pedestrians	7				75	
Lane Width (m)	3.6				3.6	
Walking Speed (m/s)	1.2				1.2	
Percent Blockage	1				6	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (m)	342			136		
pX, platoon unblocked			0.81		0.80	0.81
vC, conflicting volume			1218		2011	646
vC1, stage 1 conf vol					1208	
vC2, stage 2 conf vol					804	
vCu, unblocked vol			808		714	105
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	97
cM capacity (veh/h)			620		301	708

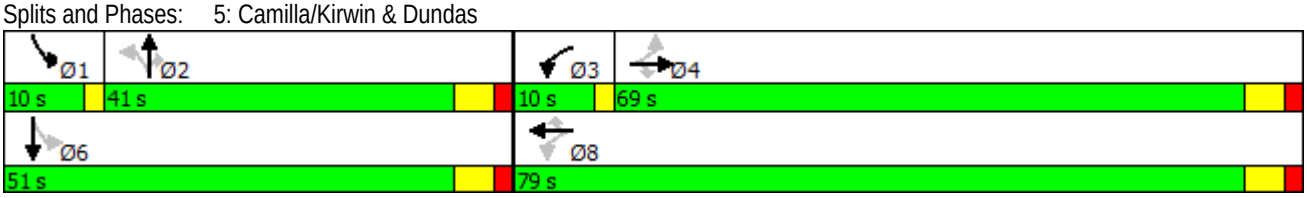
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	748	395	15	766	766	30
Volume Left	0	0	15	0	0	10
Volume Right	0	21	0	0	0	20
cSH	1700	1700	620	1700	1700	488
Volume to Capacity	0.44	0.23	0.02	0.45	0.45	0.06
Queue Length 95th (m)	0.0	0.0	0.6	0.0	0.0	1.5
Control Delay (s)	0.0	0.0	11.0	0.0	0.0	12.9
Lane LOS			B			B
Approach Delay (s)	0.0		0.1			12.9
Approach LOS						B

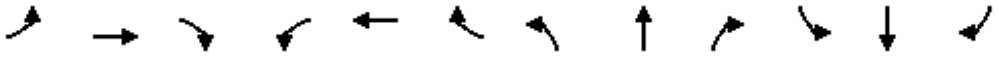
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	51.1%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	27	1010	46	95	1394	352	53	116	51	181	96
Future Volume (vph)	27	1010	46	95	1394	352	53	116	51	181	96
Lane Group Flow (vph)	30	1110	51	104	1532	387	58	127	56	199	159
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases		4		3	8			2		1	6
Permitted Phases	4		4	8		8	2		2	6	
Detector Phase	4	4	4	3	8	8	2	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0
Minimum Split (s)	66.0	66.0	66.0	10.0	66.0	66.0	38.0	38.0	38.0	10.0	38.0
Total Split (s)	69.0	69.0	69.0	10.0	79.0	79.0	41.0	41.0	41.0	10.0	51.0
Total Split (%)	53.1%	53.1%	53.1%	7.7%	60.8%	60.8%	31.5%	31.5%	31.5%	7.7%	39.2%
Yellow Time (s)	4.0	4.0	4.0	2.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0	-1.0	-5.0	-1.0
Total Lost Time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag	Lag	Lead	
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.22	0.61	0.06	0.23	0.69	0.36	0.25	0.46	0.20	0.38	0.33
Control Delay	14.6	16.3	2.5	5.2	13.0	2.1	38.3	44.6	12.0	27.0	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	16.3	2.5	5.2	13.0	2.1	38.3	44.6	12.0	27.0	28.4
Queue Length 50th (m)	2.4	65.9	0.0	4.5	82.6	1.8	8.7	20.6	0.0	25.4	19.3
Queue Length 95th (m)	8.5	94.3	4.3	10.2	118.0	11.9	22.7	43.7	10.4	52.6	42.9
Internal Link Dist (m)		112.2			315.0			304.0			256.8
Turn Bay Length (m)	20.0		40.0	35.0		80.0	70.0		10.0	40.0	
Base Capacity (vph)	183	2575	1178	475	2911	1296	563	777	668	520	946
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.43	0.04	0.22	0.53	0.30	0.10	0.16	0.08	0.38	0.17

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 90.5
Natural Cycle: 125
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Camilla/Kirwin & Dundas





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1010	46	95	1394	352	53	116	51	181	96	49
Future Volume (vph)	27	1010	46	95	1394	352	53	116	51	181	96	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	1.0	5.0	5.0	-3.0	5.0	5.0	1.0	5.0	5.0	-3.0	5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.97	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1799	3505	1583	1805	3539	1520	1787	1881	1543	1774	1777	
Flt Permitted	0.13	1.00	1.00	0.19	1.00	1.00	0.66	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	237	3505	1583	362	3539	1520	1234	1881	1543	1261	1777	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	30	1110	51	104	1532	387	58	127	56	199	105	54
RTOR Reduction (vph)	0	0	24	0	0	133	0	0	48	0	16	0
Lane Group Flow (vph)	30	1110	27	104	1532	254	58	127	8	199	143	0
Confl. Peds. (#/hr)	40					40	15		16	16		15
Heavy Vehicles (%)	0%	3%	2%	0%	2%	1%	0%	1%	2%	1%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	46.4	46.4	46.4	55.5	55.5	55.5	12.2	12.2	12.2	22.5	22.5	
Effective Green, g (s)	51.4	47.4	47.4	60.5	56.5	56.5	17.2	13.2	13.2	27.5	23.5	
Actuated g/C Ratio	0.57	0.53	0.53	0.67	0.63	0.63	0.19	0.15	0.15	0.31	0.26	
Clearance Time (s)	6.0	6.0	6.0	2.0	6.0	6.0	6.0	6.0	6.0	2.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	135	1845	833	437	2221	954	235	275	226	461	463	
v/s Ratio Prot		0.32		0.03	c0.43			0.07		c0.06	0.08	
v/s Ratio Perm	0.13		0.02	0.13		0.17	0.05		0.01	0.07		
v/c Ratio	0.22	0.60	0.03	0.24	0.69	0.27	0.25	0.46	0.04	0.43	0.31	
Uniform Delay, d1	9.5	14.8	10.3	6.2	11.0	7.5	30.9	35.1	32.9	24.4	26.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.6	0.0	0.3	0.9	0.2	0.6	1.2	0.1	0.7	0.4	
Delay (s)	10.3	15.3	10.3	6.5	11.9	7.6	31.5	36.4	33.0	25.1	27.1	
Level of Service	B	B	B	A	B	A	C	D	C	C	C	
Approach Delay (s)		15.0			10.8			34.4			26.0	
Approach LOS		B			B			C			C	

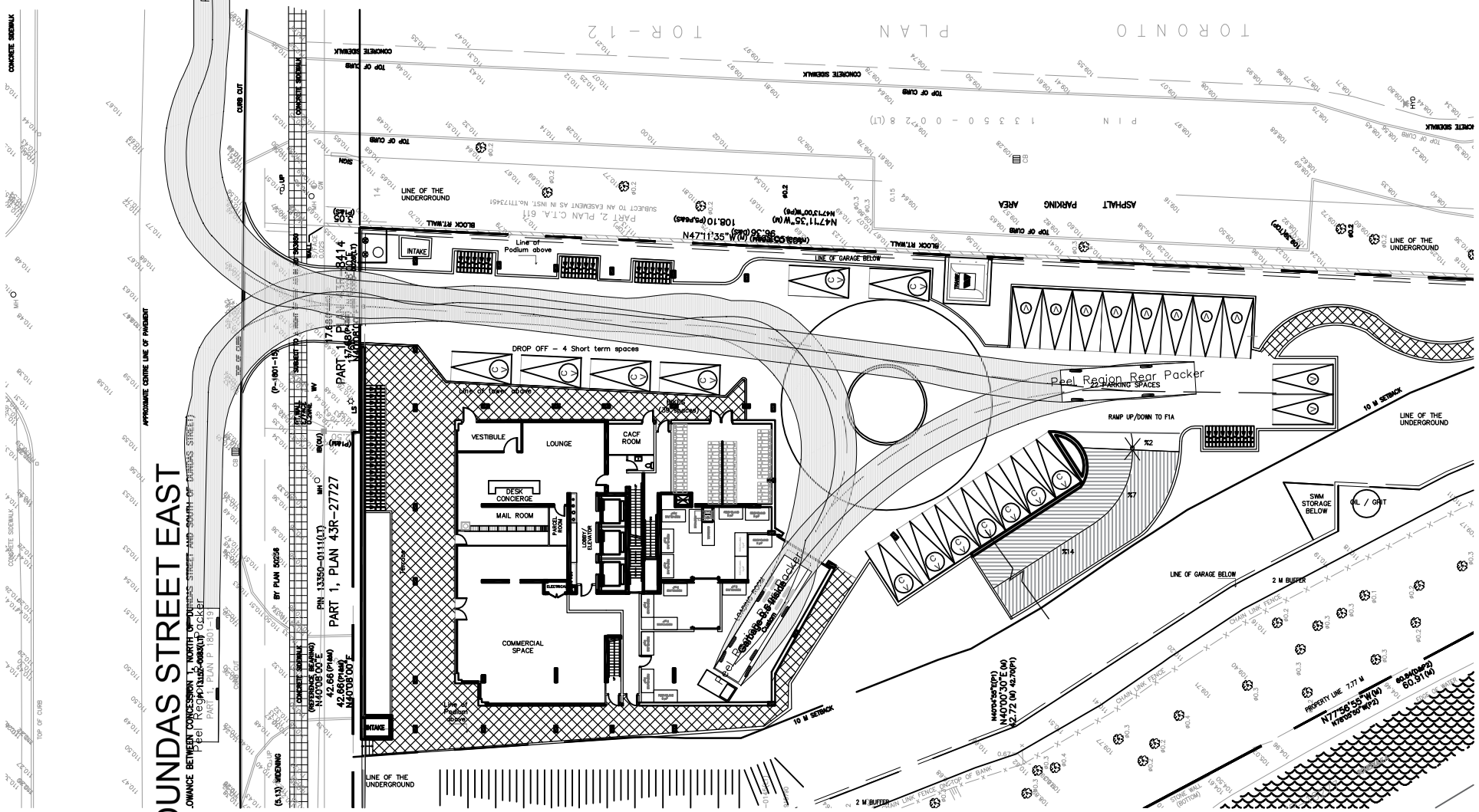
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Appendix D
Truck paths

PARKING PROVIDED			
	RESIDENTIAL	COMMERCIAL +VISTOR	TOTAL SPACES
SURFACE PARKING	0	23	23
P1	92		92
p2	92		92
P3	100		100
TOTAL SPACES	284	23	307

SET BACKS:	
(SOUTH - EAST)	VARIES (2.4 M FRONTAGE)
DUNDAS STREET (NORTH -WEST)	VARIES (4.6 M FRONTAGE)
DISTANCES ARE TO THE NET LOT AFTER ROAD WIDENING	
PROJECTIONS IN SETBACK ZONES INCLUDE:	
BALCONY RAILINGS, CORNICES, EAVES	



Higher Living Inc.
86-90 Dundas Street
Traffic Impact Study

Vehicle Swept Path Analysis Garbage Collection

Job Number 11116840
Revision
Date Feb 2018

Figure AT-1

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 6 February 2018 - 11:17 AM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\86-90 Dundas Street TIS Update\Nov 2017 Update\Analysis\86-90 Dundas Street AutoTurn Analysis_17Nov2017.dwg

Appendix E
TTS Data

USER : Michael Dowdall - GHD
DATE : Dec 4 2015 (14:20:28)
DATA : 2011 TTS V1.0 Trips
TABLE : start_time (Group 1 : 600-900)
ROW : gta06_orig
Group 1 : 3867
Group 2 : 3862
Group 3 : 3871
Group 4 : 3872
COLUMN : mode_prime

	Walk	GO rail only	Auto passe	Joint GO ra	Transit excl
Group 1	175	258	548	95	594
Group 2	70	0	69	22	124
Group 3	0	0	0	0	0
Group 4	21	0	92	0	84

	3867	3862	3871	3872	
Walk	175	70	0	21	266
GO rail only	258	0	0	0	258
Auto passenger	548	69	0	92	709
Joint GO rail and public transit	95	22	0	0	117
Transit excluding GO rail	594	124	0	84	802
Cycle	21	0	0	0	21
Schoolbus	104	21	0	21	146
Taxi passenger	22	0	0	0	22
Auto driver	2086	404	176	218	2884
Total	3903	710	176	436	5225

3867 Transit	689	17.7%
3867 Active	196	5.0%
3867 GO Only	258	6.6%
	1143	29.3%

Cycle	Schoolbus	Taxi passer	Auto driver
21	104	22	2086
0	21	0	404
0	0	0	176
0	21	0	218

5%			
5%			
14%	GO		
2%		258	4.9%
15%	transit		
0%		919	17.6%
3%	active		
0%		287	5.5%
55%	total		
100%		1464	28.0%