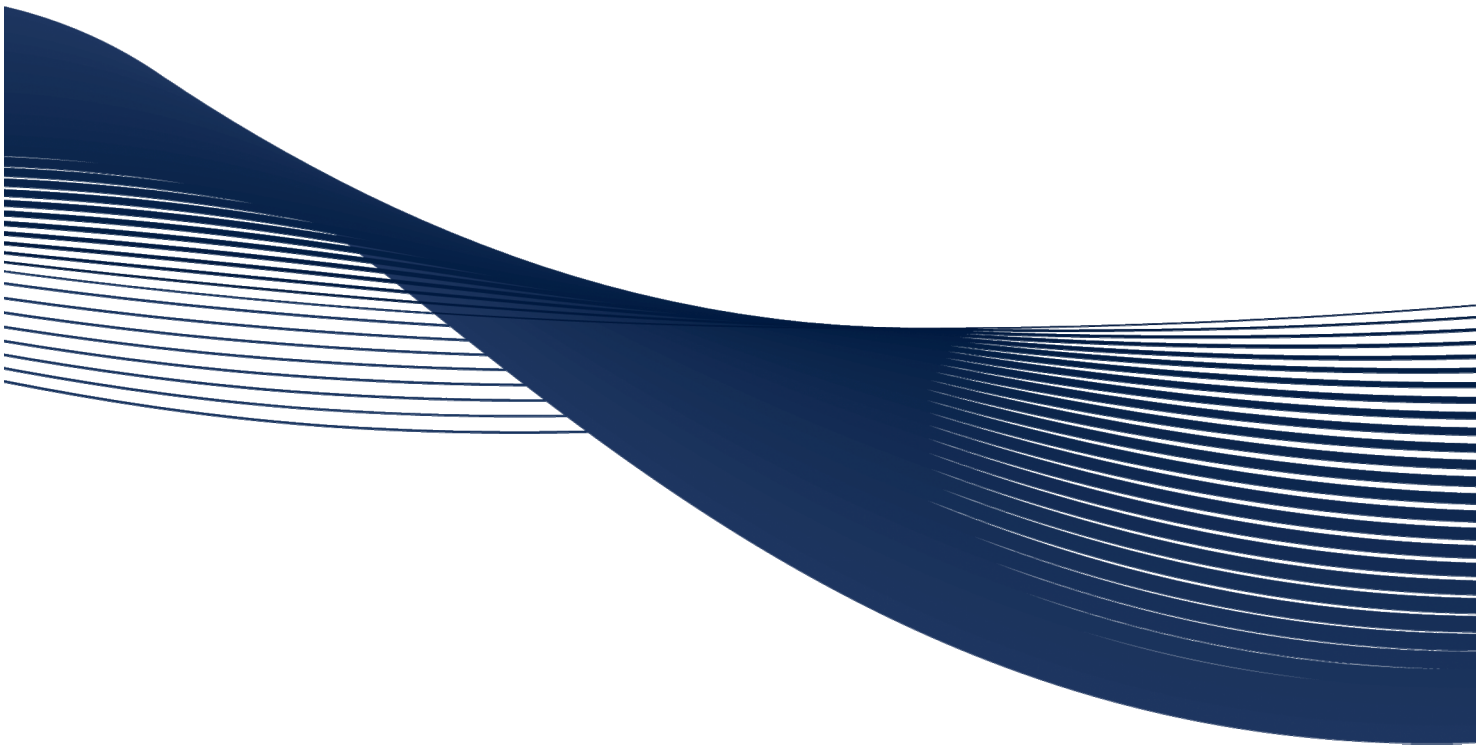
MARIANNEVILLE DEVELOPMENTS LTD.

TRANSPORTATION STUDY - UPDATE

Estates of Glenway, Town of Newmarket

Project No.: T11-441



NOVEMBER 2013

COLE ENGINEERING GROUP LTD.

HEAD OFFICE
70 Valleywood Drive
Markham, ON CANADA L3R 4T5
T. 905.940.6161 | 416.987.6161
F. 905.940.2064 | www.ColeEngineering.ca

GTA WEST OFFICE
150 Courtneypark Drive West, Unit C100
Mississauga, ON CANADA L5W 1Y6
T. 905.364.6161
F. 905.364.6162

COLE ENGINEERING

Experience Enhancing Excellence

November 22, 2013
Our Ref: T11-441

Marianneville Development Limited
26 Lesmill Road, Unit 3
Toronto, ON M3B 2T5

Attention: Ms. Joanne Barnett
Vice President, Planning Operations

Dear Ms. Barnett:

Re: Transportation Study Update
Proposed Residential Redevelopment (Estates of Glenway)
Town of Newmarket

Cole Engineering Group Ltd. (Cole Engineering) is pleased to submit this Transportation Study Update in support of the rezoning and Official Plan Amendment application for the redevelopment of the existing Glenway Golf and Country Club in the Town of Newmarket. The Client proposes revisions to the original rezoning application which include changes to the distribution of the proposed dwelling units. The Report Update summarizes the results of analyzing the traffic impact resulting from these revisions.

On behalf of our Client, Marianneville Development Limited, we acknowledge receipt of the York Region, Transportation Planning and Community Planning comments and the Peer Review comments by R.J. Burnside & Associates Limited, with respect to our "Traffic Impact and Parking Study" dated March 5, 2012. Responses to these comments have been addressed throughout the report and a copy of the Region's and the Peer Review comments are provided in **Appendix A**.

This analysis is presented to identify any potential traffic impacts / issues resulting from the development proposal and identifies possible mitigative measures in support of the redevelopment and Draft Plan of Subdivision. Furthermore, this report comments and makes recommendations as it relates to Transportation Demand Management and Mobility.

Yours truly,

COLE ENGINEERING GROUP LTD

Joseph E. Gowrie, P. Eng.
Project Engineer

Grace Nzainga
Transportation Analyst

GN:dps
S:\2011 Projects\D-TR(T11)\Traffic\T11-441 Marianneville Glenway G.C. TA-NMRKT

PREPARED BY:

COLE ENGINEERING GROUP LTD.

Grace Nzainga
Transportation Analyst

CHECKED BY:

COLE ENGINEERING GROUP LTD.

Joseph E. Gowrie, P.Eng.
Project Engineer

LICENSED PROFESSIONAL ENGINEER
J. E. GOWRIE
100134878
11/22/13
PROVINCE OF ONTARIO

Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
Transportation Study	March 5, 2012	For Submission
Transportation Study Update	November 22, 2013	For Submission

Statement of Conditions

This Report / Study (the "Work") has been prepared at the request of, and for the exclusive use of, the Owner / Client, and its affiliates (the "Intended User"). No one other than the Intended User has the right to use and rely on the Work without first obtaining the written authorization of Cole Engineering Group Ltd. and its Owner. Cole Engineering expressly excludes liability to any party except the intended User for any use of, and/or reliance upon, the work.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1.0 Introduction

Cole Engineering Group Ltd. (Cole Engineering) was retained by Marianneville Developments Limited (the "Owner") to prepare a Transportation Study Update in support of the Rezoning and Official Plan Amendment applications for the redevelopment of the existing Glenway Golf and Country Club ("subject site") in the Town of Newmarket (the "Town"). The purpose of this Transportation Study update is to project future traffic conditions and provide recommendations associated with the latest conceptual plan for the Estates of Glenway redevelopment.

The overall development site area is approximately 36.3 hectares (136 acres). The lands have been maintained as a golf, tennis and Country club with related ancillary uses which include a clubhouse that provides fitness, squash courts, a restaurant and assembly halls for conferences and weddings for the past 30 years. As illustrated in Schedule A of the Town of Newmarket Land Use Plan, the subject lands falls within various designations such as the *Oak Ridges Moraine Area*, *Parks and Open Space Area* and *Stable Residential Area*. **Figure 1-1** illustrates the site location.

Given its proximity to the Yonge-Davis Urban Grown Centre, the subject lands are located in an area that is experiencing rapid growth with at least seven (7) active background developments in the vicinity of the site. The latest draft plan of subdivision prepared by Zelinka Priamo Ltd., has been reviewed, and is provided in **Figure 1-2**. The redevelopment plan for the subject lands is a mixed-use development comprised of single dwelling, condominium / townhouse units, a nine (9) hole golf course and commercial uses that is appropriate as part of the transition occurring within the neighbourhood. Detailed development information and the anticipated phasing for each land use components are summarized in **Table 1.1.**

Table 1.1 – Proposed Site Statistics

Phase	Location	Land Use	Selected ITE Land Use	Size
Phase 1 (2016)	Lots 1-111, 115-154	Residential	Single-Family Detached Housing ITE LUC: 210	151 units
	Lots 112-115	Institutional / Residential		3 Units
	Blocks157-159	Residential, Condos		55 Units
	Block 161	Institutional / Mixed-Use	Residential Condominium / Townhouse ITE LUC: 230	12 units
	Blocks 155-156	Institutional, Medium Density		217 Units
	Block 162	Commercial	Shopping Centre ITE LUC: 820	0.648 ha (20,000 ft^2)
	West of the Hydro Corridor	Golf Course	Golf Course ITE LUC: 430	9 holes
Phase 2 (2021)	Block 160	Institutional / Residential, High Density	Apartment ITE LUC: 220	292 Units

The proposed Phase 1 development consists of approximately 20,000 ft² Gross Floor Area (GFA) of commercial / retail space, the nine (9) hole golf course and 438 dwelling units with full build-out expected in 2016 while the Phase 2 development consists of 292 high density dwelling units with full build-out expected in 2021. It should be noted that based on information received from the Client, three (3) blocks (Blocks 155-156, Block 160 and Block 161) and the three (3) abutting lots (Lots 112-115) are being held as a possible elementary school site for the York Region District School Board. However, as the site is not ideal for their needs, the Board will be actively looking for an alternative site north of Davis Drive West. Ultimately, the sites will be zoned to permit either the school or the intended residential units. For the purpose of this study these blocks and lots were analysed a residential units for a conservative analysis[1].

Access to the subject lands will be maintained off Sykes Road, Eagle Street West, Millard Avenue West and Crossland Gate. A new connection off Davis Drive West (Street 'B') will also be provided to serve the development. Street 'B' will be located approximately 240 meters west of the GO Transit Terminal / Upper Canada Mall access on Davis Drive West. The suitability and functionality of the proposed Street 'B' will be presented in later chapters.

2.0 Study Approach

Based on the revised draft plan of subdivision and the York Region (the "Region") and R.J. Burnside & Associates Limited comments, the following provides a summary of the study approach for the updated study:

- Update and balance the traffic counts at the Bathurst Street / Davis Drive West and Bathurst Street / Sykes Road intersections to the highest volumes upstream and downstream.
- Update the study area corridor growth rate based on the EMME/2 model outputs provided by York Region (the "Region")
- In addition to the corridor growth rate, seven (7) active background developments in the vicinity of the site have also been included in the analysis. These include: the Bailey Subdivision, the George Street Retirement Partnership (Phase 1 and 2), the Toth Subdivision, the proposed residential development located east of Bathurst Street between the north town limits and Woodspring Avenue, the proposed residential developments located at the north end of Art West Avenue and the developments at Yonge Street / Millard Avenue West and Yonge Street / Davis Drive West. Based on discussions with Town Planning staff, an application for the York Region office expansion is yet to be made and the scale of the development is unknown. As such, this development has not been included in our analysis.
- Undertake a sensitivity analysis of improvements at Bathurst Street / Davis Drive West intersection. It should be noted that the Region is part way through a `Schedule B` Environmental Assessment for the Bathurst Street / Davis Drive West intersection improvements; however, broader improvements to reduce the traffic volumes at the intersection are also being contemplated. As a result, planned intersection improvements have been deferred to 2016. The scope of this work still needs to be determined through an appropriate planning study that will be done over the next 12 months. As such, this report includes a sensitivity analysis of improvement options and recommendations for the intersection in the interim.

[1] Based on ITE Land Use Rates

- Include the Yonge Street / Davis Drive intersection planned transit improvements.
- Determine the required horizon years based on the Regional Transportation Impact guidelines[2]. As the proposed development is a multiphase development (Phase 1 - 2016; Phase 2 - 2021), analysis was undertaken for each phase and five (5) years after the last phase (2026). As the development is a medium-scale development expected to generate less than 1000 peak total trips, an analysis up to five (5) years after the last phase is considered adequate. Additionally, due to the uncertainty of the planned improvements at the Bathurst Street / Davis Drive West intersection, including a ten (10)-year horizon after the last phase (2036) would be unreasonable. However, this Transportation Study may be updated as the development progresses and more accurate information becomes available.
- Derive trip generation using information contained in the *Trip Generation Manual, 9th Edition*, published by the Institute of Transportation Engineers (ITE).
- Trip Distribution percentages for the proposed residential and commercial developments have been separated and are based on information extracted from the 2006 Transportation Tomorrow Survey (TTS) as well and the existing traffic patterns, respectively.
- The identified non-auto modal split of approximately ten percent (10%) was based on information extracted from the 2006 Transportation Tomorrow Survey (TTS). For a conservative analysis, a trip reduction based on the identified non-auto modal split was not included in the calculation of commercial trips.
- Analysis of the future total traffic conditions includes the existing internal road network.
- A summary of the queuing analysis under future total conditions (2016 and 2021) is included to assess whether the estimated lengths for critical movements can be accommodated within the available storage length and intersection spacing at the signalized intersection.
- A Traffic Management Plan (TMP) and Transportation Demand Management Plan (TDM) have been completed which includes the following information in detail: Roadway ROW widths, Active Transportation Plan, Sidewalk Locations, etc.

For the purposes of this update, the existing road network, transit routes and assessment is included in later chapters of the report as well as in **Appendix B.** However, the existing lane configurations are presented in **Figure 2-1.**

2.1. Applied Parameters and Assumptions

Analysis of the intersection operations was conducted using the Synchro 7.0 Software. The signalized intersection analysis is representative of the following assumptions:

- Peak hour factors to assess existing conditions was based on the Synchro default peak hour factor of 0.92;
- Peak hour factors of 1.0 applied to all movements to assess future conditions;
- Signal timing plans will be optimized to accommodate additional volumes as well as road improvements, however, existing minimum splits will be maintained; and,
- Synchro results for the signalized intersections will be provided in Highway Capacity Manual (HCM) format.

[2] Transportation Impact Study (TIS) Guidelines for Development Applications, August 2007.

The unsignalized intersections operational analysis in this report was also completed using the Synchro 7.0 software, which employs the 2000 Highway Capacity Methodology for the intersection analysis. All parameters for the unsignalized intersection analysis were based on Synchro default values. Synchro results for the unsignalized intersections will be provided in Highway Capacity Manual (HCM) format.

3.0 Existing Traffic Conditions

Twelve (12) existing intersections were analyzed as part of this study. Turning movement counts were completed during the typical roadway a.m. (7:00 – 9:00) and p.m. (4:00–6:00) peak time periods for all of the study area intersections. The existing signal timing plans for the study area signalized intersections were obtained from the Region of York.

Table 3.1 summarizes the key information for the study area intersections relating to base line traffic data:

Table 3.1 – Study Area Intersections Summary

Intersection	Traffic Control	Turning Movement Counts		Signal Timing Plan	
		Date	Source Obtained	Date	Source Obtained
Davis Drive / Yonge Street	Signalized	February 23, 2011	Accu-Traffic Inc.	July 19, 2011	York Region
Davis Drive West / Eagle Street West / Mall Access	Signalized	November 2, 2011	Dynamic Traffic Solutions	October 7, 2011	York Region
Davis Drive West / GO Terminal Access / Mall Access	Two-way Stop	November 9, 2011	Dynamic Traffic Solutions	----	----
Davis Drive West / Ford Wilson Boulevard / Crossland Gate	Signalized	November 1, 2011	Dynamic Traffic Solutions	July 29, 2008	York Region
Davis Drive West / Bathurst Street	Signalized	June 5, 2012	York Region	June 9, 2004	York Region
Bathurst Street / Sykes Road	Signalized	January 21, 2010	York Region	Not Specified	York Region
Eagle Street West / Yonge Street	Signalized	November 1, 2011	Dynamic Traffic Solutions	July 19, 2011	
Millard Avenue West / Yonge Street	Signalized	November 1, 2011	Dynamic Traffic Solutions	September 6, 2011	York Region
Millard Avenue West / Eagle Street West	Two-way Stop	November 3, 2011	Dynamic Traffic Solutions	----	----
Crossland Gate / Eagle Street West	All-way Stop	November 2, 2011	Dynamic Traffic Solutions	----	----
Alex Doner Drive / Crossland Gate (north)	All-way Stop	November 1, 2011	Dynamic Traffic Solutions	----	----
Alex Doner Drive / Crossland Gate (south)	All-way Stop	November 3, 2011	Dynamic Traffic Solutions	----	----

As the traffic counts along Davis Drive West and Bathurst Street have been conducted in different years, the traffic volumes entering and exiting the intersections have been 'balanced' for consistency. The existing balanced traffic volumes are illustrated in **Figure 3-1** while the turning movement counts and signal timing plans for the study area intersections are provided in **Appendix C**.

3.1. Level of Service Analysis

All study area intersections were analyzed under existing traffic conditions using Synchro 7.0 software and detailed calculations are provided in **Appendix D**. The critical movements are summarized in **Table 3.2** for signalized intersections. The critical movements of a signalized intersection are those movements with a v/c ratio greater than 0.85.

Table 3.2 – Signalized Intersections Capacity Analysis – Existing Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	E	0.99	F	1.41
	WB through-right	-	-	E	0.87
	EB left	-	-	F	1.14
	NB left	-	-	F	2.06
	SB right	F	1.41	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	B	0.38	C	0.77
	EB left	-	-	F	1.25
Davis Drive West / Upper Canada Mall	Overall	C	0.38	C	0.52
Davis Drive West/ Yonge Street	Overall	D	0.64	E	0.97
	WB left	E	0.90	F	1.02
	EB left	-	-	F	1.19
	NB through	-	-	E	0.87
	SB left	-	-	E	0.85
Millard Avenue West / Yonge Street	Overall	C	0.57	C	1.02
	SB left	-	-	F	1.22
Sykes Road / Bathurst Street	Overall	A	0.40	A	0.70
Eagle Street West / Yonge Street	Overall	D	0.77	D	0.84
	WB left	-	-	F	0.95
	NB through	-	-	D	0.88
	SB through	E	0.87	-	-

The analysis results in indicate that all intersections within the study area operate with residual capacity and acceptable level of service (LOS) under existing conditions, with the exception of the following intersections: Davis Drive / Yonge Street, Davis Drive West / Bathurst Street and Millard Avenue West / Yonge Street during the weekday p.m. peak hour:

- At the Davis Drive / Yonge Street intersection several movements are experiencing capacity constraints at the intersection especially during the weekday p.m. peak hour. In particular, the eastbound left and westbound left turn movements exceed the roadway capacity whereas the northbound through and southbound left turn movements are approaching capacity.
- At the Davis Drive West / Bathurst Street intersection the southbound right-turn movement exceeds the roadway capacity during the weekday a.m. peak hour. During the p.m. peak hour, the northbound left and eastbound left exceed the lane capacity as each carries approximately 700 and 400 vehicles peak hour per lane, respectively. The shared westbound through-right was also identified as a critical movement during the weekday p.m. peak hour, however it was noted to operated with residual capacity.
- At the Millard Avenue West / Yonge Street intersection the southbound left movement is experiencing capacity constraints particularly during the weekday p.m. peak hour and is operating with a v/c ratio of 1.22.

In theory, a v/c ratio of over 1.0 should not occur given that only vehicles that traverse through the intersection were accounted for in the turning movement count. Calibration through adjustments to saturation flow, left turns on inter-green, and lane utilization factors are typically required to assess the v/c ratio. Nevertheless, the transportation assessment for North Yonge Street Corridor Public Transit and Associated Road Improvements Transit EA[3] also identifies similar intersection constraints in the existing conditions.

A review of the signal timing plans and associated traffic volumes identified that potential optimization may be required for these signalized intersections during the peak periods to improve the traffic operations and reduce the LOS at critical movements. The LOS and v/c ratios for the unsignalized study area intersections are presented in **Table 3.3**.

Table 3.3 – Unsignalized Intersections Capacity Analysis – Existing Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.13)	A (0.07)
	NB left-through	A (0.11)	A (0.17)
	SB through-right	A (0.09)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.23)	B (0.19)
	WB left-through-right	A (0.03)	B (0.02)
	NB left-through-right	B (0.34)	C (0.79)
	SB left-through-right	B (0.43)	C (0.63)
Davis Drive West / Street 'B'	NB left-right	A (<0.01)	A (<0.01)
Alex Doner Drive / Ford Wilson Boulevard	EB left-through	A (0.03)	B (0.07)
	WB through-right	A (0.04)	A (0.06)
	SB left	A (0.02)	A (0.03)
Alex Doner Drive / Sykes Road	EB left-right	A (0.04)	A (0.10)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.25)	B (0.20)
	WB right	A (0.10)	C (0.65)
	SB left-through-right	A (0.09)	C (0.63)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	B (0.38)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.32)
	NB right	B (0.01)	B (0.02)
	SB right	A (0.05)	B (0.27)

The results of the analysis indicate that all unsignalized intersections operate with residual capacity and excellent LOS 'C' or better during the weekday morning and afternoon peak periods.

[3] North Yonge Street Corridor Public Transit and Associated Road Improvements Transit Class EA, Transportation Assessment prepared by IBI Group, August 2008.

4.0 Future Background Traffic Conditions

Future background traffic for the study area is based on year 2016, 2021, and year 2026 traffic projections. Future background traffic consists of traffic due to other developments within the study area plus traffic growth outside the study area.

4.1. Background 'Through' Traffic Growth

Background traffic growth from beyond the study area (i.e. travelling 'through' the study area) was calculated based on a review of the York Region EMME/2 modelling results for their 2011, 2021 and 2031 forecast years. A summary of the calculate growth rate averages is provided in **Table 4.1** while the detailed calculations are provided in **Appendix E.**

Table 4.1 – Growth Rate Calculation (based on 2011-2031 EMME/2 Model Output)

Direction	Region's Model Forecast			
	2011-2021		2021-2031	
	AM	PM	AM	PM
Northbound	1.0%	2.0%	1.0%	2.0%
Southbound	2.0%	1.0%	2.0%	1.0%
Westbound	0.5%	0.5%	0.5%	1.0%
Eastbound	0.5%	0.5%	1.0%	0.5%

4.2. Background Developments

As mentioned earlier, there are at least seven (7) active and/or potential development applications within the study area that need to be examined. Several background developments are expected or assumed to be fully in place by 2016 and others are assumed to be fully in place by 2021. Hence, the background development traffic projections are analysed in two (2) phases for 2016 and 2021.

4.2.1. 2016 Background Developments

Proposed 2016 background developments consist of developments as per information obtained through past reports undertaken by Cole Engineering within the study area, information obtained from Town / Regional planners, and other sources of public information. **Table 4.2** presents detailed information regarding Phase 1 background developments.

Table 4.2 – Phase 1 (2016) Background Development Summary

Site	Development Statistics	Address / Location	Access Via	Access Type	Source of Data
Yonge Street / Millard Avenue West	400 residential units with ancillary retail	Northeast quadrant of the Yonge Street / Millard Avenue West intersection	Millard Avenue West	Full Move	Cole Engineering
Yonge Street / Davis Drive	400 residential units	Northeast quadrant of the Yonge Street / Davis Drive intersection	George Street, Davis Drive and Yonge Street	Limited and Full Move	MMM Group
Bailey Subdivision	200 single family units	Southeast corner of the Davis Drive/ Bathurst Street intersection	Davis Drive and Bathurst Street	Full Move RIRO	Dillon Consulting
George Street Retirement Partnership (Phase 1)	214 suites retirement/ special needs residence 184 apartment units	17645 Yonge Street	George Street and Yonge Street	Full Move	Cole Engineering
East of Bathurst between the north town limits and Woodspring Avenue	234 single family units	East of Bathurst between the north town limits and Woodspring Avenue	Woodspring Avenue and Ford Wilson Boulevard	Full Move	Dillon Consulting (Part of the background developments)
North end of Art West Avenue	75 single family units	North end of Art West Avenue	Art West Avenue	Full Move	Dillon Consulting (Part of the background developments)

4.2.2. 2021 Background Developments

The assumed 2021 background developments are summarized in **Table 4.3.**

Table 4.3 – Phase 2 (2021) Background Development Summary

Site	Development Statistics	Address / Location	Access Via	Access Type	Source of Data
Toth Subdivision	111 Single Family units / 46 Semi-detached units and 571 townhouse units	North side of Davis Drive between the Upper Canada Mall Entrance and Ford Wilson Boulevard	Davis Drive, William Booth Avenue and Future Street 'B'	Full Move	URS
George Street Retirement Partnership (Phase 2)	178 suites retirement residence / Medical Centre 155 apartment units	17645 Yonge Street	George Street and Yonge Street	Full Move	Cole Engineering

Based on the Town of Newmarket Official Plan, access to the Toth subdivision will be accommodated via a north-south road which will divide the property and connect to Davis Drive West opposite the subject lands at the proposed Davis Drive West / Street 'B' intersection. The background development site locations are presented in **Figure 4-1**. The access locations were identified based on best engineering judgment augmented by the proposed land uses and potential impacts to the adjacent roadway and only qualified in terms of background development traffic assignment.

4.3. Planned Study Area Roadway Improvements

The subject site is located in an area where a number of roadway improvements are planned within the study horizon periods. The planned roadway improvements include:

- **The Yonge Street Rapid Transit (VIVA Next):** At the Yonge Street / Davis Drive intersection, construction of the bus rapidway is underway and is expected to be in place by 2016. On this basis, the signal timing plan at future conditions has been modified to accommodate this improvement.
- **Bathurst Street / Davis Drive West intersection**: To address the congestion problem at the Bathurst Street / Davis Drive West intersection the Region has identified improvements to the Bathurst Street / Davis Drive West intersection as outlined in the *York Region 2013-10 Year Roads Construction Program*. At the time of submission of this report, the planned intersection improvements have been deferred to 2016 as the scope of this work still needs to be determined through an appropriate planning study that will be done over the next 12 months. However this report includes a sensitivity analysis of intersection improvement options and recommendations for the future total 2026 conditions in the interim. These options include the provision of a northbound double left-turn lane, optimization of signal timing plans and the diversion of eastbound and northbound left-turn trips.

4.4. Trip Generation – Background Development

For the analysis of the background development, trip generation data was determined using information contained in *Trip Generation Manual, 9th Edition*, published by the Institute of Transportation Engineers (ITE) or obtained though the Traffic Impact Studies completed in support of the applications.

4.5. Trip Generation Analysis

Site traffic volumes for the background developments were determined as follows:

- Yonge Street and Millard Avenue West mixed-use development: as per Cole Engineering Traffic Study dated July 2011;
- Yonge Street and Davis Drive residential development: as per previous MMM Group Traffic Study dated October 2008;
- George Street Retirement Partnership: as per Cole Engineering Traffic Study dated October 2012;
- Bailey Subdivision: as per Dillon Consulting Limited Traffic Study dated March 2012;
- East of Bathurst Street between the north town limits and Woodspring Avenue; as part of the background development for the Bailey Subdivision Traffic Study prepared by Dillon Consulting Limited dated March 2012;
- North end of Art West Avenue as part of the background development for the Bailey Subdivision Traffic Study prepared by Dillon Consulting Limited dated March 2012;
- Toth Farm subdivisions: as per URS Canada Inc. Traffic Study dated August 2013

The background development traffic volumes and trip assignment results are illustrated in **Figure 4-2** and **Figure 4-3** for Phase 1 (2016) and Phase 2 (2021) background developments traffic volumes.

4.6. Future (2016) Background Traffic Analysis

Future (2016) background traffic consists of traffic due to the Phase 1 of the background developments within the study area plus the five (5) years of traffic growth from outside of the study area. For horizon year 2016, the following improvement(s) have been implemented in our analysis:

- Yonge Street / Davis Drive Intersection:
  - The signal timing plan has been optimized to reflect the dedicated bus rapidway. The eastbound and westbound left-turn movements will operate under a fully-protected phase where U-turns will be permitted.
- Yonge Street / Millard Avenue West Intersection:
  - A southbound left-turn phase has been introduced and the signal timing plans have been optimized to this advance phase as well as additional traffic. However, minimum splits have been maintained in accordance to the acquired signal timing plans.
- Bathurst Street / Davis Drive West:
  - While signal timing optimization has been included, it is noted that it would not result in significant improvements at this intersection. A sensitivity analysis at future total (2026) traffic conditions has been prepared to determine appropriate mitigative measures for the capacity constraints experienced at this intersection.

4.6.1. Level of Service Analysis

Future (2016) background traffic operational analyses are summarized in **Table 4.4** and **Table 4.5** for signalized and unsignalized intersections. Future 2016 background traffic volumes are shown in **Figure 4-4** and detailed calculations are provided in **Appendix F**.

Table 4.4 – Signalized Intersections Capacity Analysis – Future (2016) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	E	0.87	F	1.16
	WB through-right	-	-	E	0.96
	NB left	-	-	F	1.68
	SB right	F	1.18	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	B	0.37	A	0.51
Davis Drive West / Upper Canada Mall	Overall	C	0.39	C	0.53
	NB left	-	-	E	0.86
Davis Drive / Yonge Street	Overall	D	0.70	E	0.88
	WB left	E	0.87	F	0.95
	EB left	-	-	F	0.92
	NB through	-	-	F	1.00
	SB left	-	-	E	0.94
Millard Avenue West / Yonge Street	Overall	C	0.64	C	0.79
Sykes Road / Bathurst Street	Overall	A	0.39	A	0.65
Eagle Street West / Yonge Street	Overall	D	0.76	D	0.83
	WB left	-	-	E	0.86
	NB through	-	-	D	0.93
	SB through	E	0.93	E	0.95

The future (2016) background traffic analysis indicates that most intersections are functioning with an overall acceptable LOS during both peak hours. However, few signalized intersections are expected to continue to experience capacity constraints with some individual movements operating with v/c ratios greater than 1.0. This is due to the increase in background development related traffic assignments. The following is noted:

- At the Davis Drive / Yonge Street intersection, several movements will continue to experience capacity constraints at the intersection during the weekday p.m. peak hour despite optimization of signal timing plans. In particular, the eastbound left, westbound left, northbound through and southbound left movements. During the weekday a.m. peak hour only the westbound left-turn movement will operate with a v/c ratio greater than 0.85.
- At the Davis Drive West / Bathurst Street intersection, the intersection will continue to experience capacity constraints particularly during the p.m. peak hour. Regardless of the signal timing improvements the southbound right, eastbound left and northbound left-turn movements will exceed capacity.

Table 4.5 – Unsignalized Intersections Capacity Analysis – Future (2016) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.11)	A (0.07)
	NB left-through	A (0.10)	A (0.15)
	SB through-right	A (0.08)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.21)	A (0.17)
	WB left-through-right	A (0.03)	A (0.02)
	NB left-through-right	A (0.31)	C (0.71)
	SB left-through-right	B (0.39)	B (0.57)
Davis Drive West / Street 'B'	NB left-right	A (<0.01)	A (<0.01)
Alex Doner Drive / Ford Wilson Boulevard	EB Left-through	A (0.03)	A (0.06)
	WB through-right	A (0.04)	A (0.05)
	SB left	A (0.02)	A (0.03)
Alex Doner Drive / Sykes Road	EB left-right	A (0.04)	A (0.09)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.21)	B (0.18)
	WB right	A (0.12)	C (0.59)
	SB left-through-right	A (0.09)	C (0.59)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	B (0.32)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.26)
	NB right	B (0.01)	B (0.02)
	SB right	A (0.05)	B (0.24)

The unsignalized intersections are anticipated to continue to operate with residual capacity and during both peak periods of analysis. However, the northbound left turn lane will operate with a LOS 'F' and experience significant delays despite the minimum trips. It is assumed that motorists will re-route at adjacent intersections with shorter delays.

4.6.2. Future (2021) Background Traffic Analysis

Future (2021) background traffic consists of traffic due to background developments within the study area plus the ten (10)-year traffic growth outside of the study area. Future (2021) background traffic operational analyses are summarized in **Table 4.6** and **Table 4.7** for signalized and unsignalized intersections. The improvements noted in the future 2016 background conditions were carried forward. Future (2021) background traffic volumes are shown in **Figure 4-5** and detailed calculations are provided in **Appendix G**.

Table 4.6 – Signalized Intersections Capacity Analysis – Future (2021) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	E	0.92	E	1.20
	WB through-right	-	-	F	1.06
	EB left	-	-	D	0.86
	EB through	-	-	D	0.86
	NB left	-	-	F	1.56
	SB right	F	1.20	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	C	0.39	B	0.62
Davis Drive West / Street 'B'	Overall	C	0.52	B	0.51
Davis Drive West / Upper Canada Mall	Overall	C	0.47	C	0.55
	NB left	-	-	E	0.86
Davis Drive West / Yonge Street	Overall	D	0.87	F	1.02
	WB left	F	0.96	F	1.03
	WB through	-	-	E	0.88
	EB left	-	-	F	0.95
	NB left	-	-	E	0.91
	NB through	-	-	F	1.23
	SB left	-	-	F	0.97
Millard Avenue West / Yonge Street	Overall	C	0.73	C	0.84
	NB through	-	-	B	0.95
	SB through	C	0.88	-	-
Sykes Road / Bathurst Street	Overall	A	0.40	A	0.70
Eagle Street West / Yonge Street	Overall	E	0.84	F	0.98
	WB left	-	-	E	0.86
	NB through	-	-	F	1.09
	SB through	F	1.11	F	1.18

The future (2021) background traffic analysis indicates that some of the study are intersections will continue to experience capacity constraints particularly in the weekday p.m. peak hour. This is also due to the increase in background development related traffic assignments as well as general traffic growth through the area. The following is noted:

- At the Davis Drive / Yonge Street intersection, several movements will continue to experience capacity constraints at the intersection during the weekday p.m. peak hour where at six (6) critical movements are noted. During the weekday a.m. peak hour the westbound left-turn movement will continue to operate with a v/c ratio greater than 0.85.
- At the Davis Drive / Bathurst Street intersection, the intersection will continue to experience capacity constraints particularly during the p.m. peak hour where the northbound left movement is expected to operate with a v/c ratio of 1.56.
- At the Eagle Street West / Yonge Street intersection, the intersection is expected to experience capacity constraints due to increased background traffic volumes. The northbound through and southbound through movements are both expected to exceed roadway capacity.

Table 4.7 – Unsignalized Intersections Capacity Analysis – Future (2021) Background Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.11)	A (0.07)
	NB left-through	A (0.10)	A (0.15)
	SB through-right	A (0.08)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.21)	A (0.17)
	WB left-through-right	A (0.03)	A (0.02)
	NB left-through-right	A (0.31)	C (0.71)
	SB left-through-right	B (0.39)	B (0.57)
Alex Doner Drive / Ford Wilson Boulevard	EB left-through	A (0.03)	A (0.06)
	WB through-right	A (0.04)	A (0.05)
	SB left	A (0.02)	A (0.03)
Alex Doner Drive / Sykes Road	EB left-right	A (0.04)	A (0.09)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.21)	B (0.18)
	WB right	A (0.12)	C (0.59)
	SB left-through-right	A (0.09)	C (0.59)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	B (0.37)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.42)
	NB right	B (0.01)	B (0.02)
	SB right	A (0.05)	B (0.24)

The unsignalized intersections are anticipated to continue to operate with residual capacity during both peak periods of analysis. The northbound left-turn movement at the Davis Drive West / GO Terminal Access intersection will continue to experience significant delays during the weekday p.m. peak hour.

5.0 Site Trip Generation and Distribution

This study focuses on the weekday a.m. and p.m. peak hour trips as the subject lands will be developed for mostly residential uses. The future a.m. and p.m. peak hour trips were derived using information contained in *Trip Generation Manual, 9th Edition*, published by the ITE.

5.1. Trip Generation Analysis

For assessment purposes it was assumed that the redevelopment will take place in two (2) Phases. Phase 1 will see the construction of approximately 438 single family homes, the commercial plaza, and the nine (9) hole golf course. The expected completion year of the Phase 1 is 2016. Phase 2 includes the construction of two (2) apartment buildings adjacent to Davis Drive West which adds an additional 292 high density units to the subject lands by end of 2021. The anticipated trip generation of the proposed redevelopments are summarized in **Table 5.1.** It should be noted that the trip generation rates for the Single-Family Detached and Residential Condominium / Townhouse units represents a blended rate for all the 209 and 229 units, respectively. However, for the purpose of the analysis these units were analyzed individually based on the location of the single-detached dwelling units. The detailed trip generation calculations are shown in **Appendix H**.

A ten percent (10%) transit reduction was applied to the high density residential units (Phase 2 lands) only based on the *2006 Transportation Tomorrow Survey (TTS)* data for the surrounding area. A pass-by rate of 50% was applied to the commercial afternoon trips based on the *Trip Generation Handbook 2nd Edition* also published by the ITE.

Table 5.1 – Site Trip Generation

Phase	Use Category	Parameter	A.M. Peak Hour			P.M. Peak Hour		
			In	Out	Total	In	Out	Total
Phase 1 (2016)	Commercial 20,000 ft² (Land Use 820)	Gross Trips	37	23	60	106	110	216
		Gross Rate (trips / 1000 ft²)	1.83	1.17	3.00	5.29	5.51	10.80
		Pass-by Reduction (50%)	-	-	-	54	54	108
		New Trips	37	23	60	52	56	108
	Single-Family Detached Units – 206 Units (LUC 210)	Gross Trips	50	155	205	152	88	240
		Gross Rate (trips / unit)	0.24	0.74	0.98	0.73	0.42	1.15
	Residential Condominium / Townhouse – 229 units (LUC 230)	Gross Trips	20	99	119	98	47	145
		Gross Rate (trips / unit)	0.07	0.34	0.41	0.43	0.21	0.63
	Golf Course – 9 holes (Land Use 430)	Gross Trips	6	3	9	6	7	13
		Gross Rate (trips/holes)	0.69	0.32	1.01	0.71	0.77	1.48
Total Phase 1 new Trips			**113**	**280**	**393**	**308**	**198**	**506**
Phase 2 (2021)	Apartment – 292 units (Land Use 220)	Gross Trips	30	119	149	118	63	181
		Gross Rate (trips / unit)	0.10	0.41	0.51	0.40	0.22	0.62
		Non-auto Reduction (10%)	3	12	15	12	6	18
Total Phase 2 new Trips		**New Trips**	**27**	**107**	**134**	**106**	**57**	**163**
Total New Site Trips			**140**	**387**	**527**	**414**	**255**	**669**

Based on our trip generation analysis, the Phase 1 redevelopment plan may result in 393 total new trips during the a.m. peak hour (113 trips in / 280 trips out) and 506 total new trips during the p.m. peak hour (308 trips in / 198 trips out).

The Phase 2 redevelopment plan will increase the total new vehicular trips to approximately 134 total new trips during the a.m. peak hour (27 trips in / 107 trips out) and 163 total new trips during the p.m. peak hour (106 trips in / 57 trips out) by year 2021.

5.2. Modal Split

To account for trips that are not made with private automobile, a non-auto modal split was developed using information contained in the *2006 Transportation Tomorrow Survey (TTS)* for the subject GTA zones of household 2605 and 2606, and two (2) other adjacent TTS Zones (2612 and 2613). The 2006 TTS data is provided in **Table 5.2**

Table 5.2 – 2006 TTS A.M. Work Trips Data

Mode	2006 TTS Zone Number				Total Trips
	2605	2611	2612	2613	
Walk + Cycle	170	184	0	169	523
Transit + GO + School Bus	283	202	19	226	730
Passengers	396	386	0	151	933
Drivers	1,545	1,323	169	1,073	4,110
Total Trips	2,394	2,113	188	1,638	6,333
Non-Auto Mode Split Percentage	12%	10%	10%	14%	11%

A ten percent (10%) modal split was utilized in the trip generation calculations based on the averaged transit rate of the subject site's surrounding developed residential areas applied only to high density uses. The modal split can be substantiated based on the presence of increased higher order transit operating within the study area in the 2016-2021 time frames.

5.3. Trip Distribution and Assignment

These new trips were assigned to the road network based on the proposed access points, existing traffic patterns of the major intersections, and the TTS 2006 trip distribution data for the subject zone. The trip assignment and distribution rates are shown in **Table 5.3**

Table 5.3 – Trip Distribution Rates A.M. and P.M Peak Hour

To/From	Residential Use	Retail Use
	Inbound (Outbound)	Inbound (Outbound)
North	20% (20%)	20% (20%)
South	40% (40%)	30% (30%)
East	20% (20%)	25% (25%)
West	20% (20%)	25% (25%)
Total	**100% (100%)**	**100% (100%)**

Trips were then assigned to the major arterials and roadways based on the above trip distribution rates. The Phase 1 and Phase 2 site trip distribution and assignment results (site traffic volumes) are illustrated in **Figure 5-1** and **Figure 5-2** accordingly.

6.0 Future Total Traffic Analysis

The redevelopment of the site will result in the development of approximately 730 residential units, approximately 1,858 m² (20,000 ft²) of Commercial GFA, and a nine (9) hole golf course recreational centre.

In order to estimate the future 2016 and 2021 total traffic volumes, the traffic generated by the above mentioned redevelopment plans (Phase 1 site traffic and Phase 2 site traffic) were added to the future background 2016 and 2021 traffic volumes accordingly. Future (2026) total traffic consists of an additional five (5) years of traffic growth beyond the 2021 traffic horizon.

6.1. Level of Service Analysis

Synchro 7.0 software was used to analyze the study intersections in the 2016, 2021, and 2026 horizon years.

6.1.1. Future (2016) Total Traffic Analysis

Future (2016) total traffic volumes are provided in **Figure 6-1** and capacity analysis calculations are provided in **Appendix I**. The critical movements are summarized in **Table 6.1** for signalized intersections.

Table 6.1 – Signalized Intersections Capacity Analysis – Future 2016 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	D	0.88	F	1.18
	WB through-right	-	-	F	1.01
	EB left	E	0.92	-	-
	NB left	-	-	F	1.65
	SB right	E	0.95	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	B	0.37	B	0.54
Davis Drive West / Upper Canada Mall	Overall	C	0.43	C	0.55
	NB left	-	-	F	0.95
Davis Drive / Yonge Street	Overall	D	0.76	E	0.89
	WB left	E	0.87	F	0.95
	EB left	-	-	F	0.95
	NB through	-	-	F	0.99
	SB left	-	-	F	0.96
Millard Avenue West / Yonge Street	Overall	C	0.65	C	0.79
Sykes Road / Bathurst Street	Overall	A	0.40	A	0.67
Eagle Street West / Yonge Street	Overall	D	0.75	D	0.84
	WB left	F	0.91	E	0.86
	NB through	-	-	D	0.93

The future 2016 total traffic analysis results indicate similar conditions to the future background conditions. Based on a review of the above analysis during the weekday a.m. and p.m. peak hours, the following capacity constraints / critical movements were noted:

- At the Davis Drive / Yonge Street intersection, this intersection will continue to experience capacity constraints similar to background and existing conditions. During the a.m. peak hour, the westbound left turn operates at capacity with a v/c ratio of 0.87. During the PM peak hour, the northbound through, southbound left turn, eastbound left turn, and westbound left turn movements will operate close to capacity.
- At the Davis Drive West / Bathurst Street intersection, the eastbound left and southbound right movements will approach capacity during the AM peak hour. During the PM peak hour, the northbound left and shared westbound through-right.
- At the Eagle Street West / Yonge Street intersection, the westbound left movements will approach capacity during the AM peak hour. During the PM peak hour the northbound through movement will also operate close to capacity.

It should be noted that the proposed development will maintain the existing accesses off the intersections of Sykes Road / Bathurst Street, Eagle Street West / Yonge Street, Millard Avenue West / Yonge Street and Davis Drive West / Crossland Gate / Ford Wilson Boulevard. Based on the analysis, at future total 2016 conditions, these intersections are expected to operate with residual. However as noted earlier the Eagle Street West / Yonge Street intersection will experience some capacity constraints at the westbound left and northbound through movements.

Besides form the aforementioned intersections, all other signalized study area intersections are expected to operate with residual capacity and acceptable LOS.

Table 6.2 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment's site accesses**.**

Table 6.2 – Unsignalized Intersections Capacity Analysis – Future 2016 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.12)	A (0.07)
	NB left-through	A (0.11)	A (0.17)
	SB through-right	A (0.08)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.22)	B (0.18)
	WB left-through-right	A (0.03)	A (0.02)
	NB left-through-right	B (0.33)	C (0.77)
	SB left-through-right	B (0.43)	B (0.60)
Davis Drive West / Street 'B'	WB left	B (0.03)	B (0.11)
	NB left	F (0.56)	F (0.75)
	NB right	B (0.12)	B (0.08)
Alex Doner Drive / Ford Wilson Boulevard	EB left-through	B (0.04)	B (0.07)
	WB through-right	A (0.11)	A (0.10)
	SB left	A (0.03)	A (0.07)

Table 6.2 – Unsignalized Intersections Capacity Analysis – Future 2016 Total Traffic Conditions (Continued)

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Sykes Road	EB left-right	A (0.03)	A (0.10)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.22)	B (0.19)
	WB Right	B (0.14)	C (0.61)
	SB left-through-right	A (0.09)	C (0.63)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	B (0.35)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.34)
	NB right	B (0.01)	B (0.02)
	SB right	A (0.05)	B (0.25)

In the 2016 future total traffic analysis, all movements at study area unsignalized intersections are operating with residual capacity during a.m. peak periods. In particular, the shared roadways with the adjacent Bailey subdivision are expected to operate with residual capacity and minimum delays.

While the new intersection of Davis Drive West / Street 'B' is operating with residual capacity, the northbound left movement is expected to experience significant delays. A traffic signal warrant was completed for this intersection and signal warrants were not found to be met. However, it is recommended that this intersection operates under signalized control. The detailed signal warrant calculations are attached in **Appendix J** for reference.

6.1.2. Future (2021) Total Traffic Analysis

Future (2021) total traffic volumes are provided in **Figure 6-2** and the capacity analysis calculations are provided in **Appendix K**. The critical movements are summarized in **Table 6.3** for signalized intersections.

Table 6.3 – Signalized Intersections Capacity Analysis – Future 2021 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	D	0.90	F	1.21
	WB through-right	E	0.91	F	1.10
	EB left	E	0.95	D	0.88
	EB through	D	0.87	D	0.88
	NB left	-	-	F	1.55
	SB left	-	-	F	0.91
	SB right	E	0.96	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	C	0.40	B	0.62
Davis Drive West / Street 'B'	Overall	B	0.55	B	0.62
Davis Drive West / Upper Canada Mall	Overall	C	0.53	C	0.62
	NB left	-	-	F	0.95
Davis Drive / Yonge Street	Overall	D	0.85	F	1.10
	WB left	F	0.96	F	1.03
	WB through	-	-	E	0.97
	EB left	-	-	F	1.06
	EB through	D	0.85	-	-
	NB left	-	-	F	1.09
	NB through	-	-	F	1.18
	SB left	-	-	F	0.97
	SB through	D	0.87	-	-
Millard Avenue West / Yonge Street	Overall	C	0.75	C	0.83
	NB through	-	-	B	0.93
	SB through	C	0.91	-	-
Sykes Road / Bathurst Street	Overall	A	0.42	A	0.71
Eagle Street West / Yonge Street	Overall	D	0.82	D	0.87
	WB left	F	0.91	F	0.92
	NB through	-	-	D	0.98
	SB through	E	0.98	-	-

The future 2021 total traffic analysis results indicate similar conditions to the future background conditions. The intersections of Davis Drive / Bathurst Street and Davis Drive and Yonge Street are expected to continue to experience capacity constraints. However, all other intersections will operate with acceptable LOS during both peak periods.

Since the intersection of Davis Drive West and Street 'B' is expected to operate at failing LOS in the 2016 total traffic condition as a three (3)-legged unsignalized intersection, a traffic signal warrant was in the 2021 horizon year reflecting a new north leg to this intersection which will accommodate the Toth subdivision. Based on the warrant calculations as attached in **Appendix J**, the future traffic volumes will not warrant signalization of Street 'B' and Davis Drive West intersection. However, it is noted that signalization of this intersection is recommended in the Toth Subdivision Report. We agree with this recommendation as it is our opinion that signalization of this intersection would improve operations and safety. Exclusive left-turn lanes at each approach are also recommended during future 2021 condition based on the left-turn lanes warrants. The left turn lanes warrants analysis is presented in **Section 7.1.1**.

It is noted that the traffic impact increase from future (2021) background conditions to future (2021) total conditions is nominal which verify the minimal effect of the subject development's impact to the road network.

Table 6.4 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment's site accesses below**.**

Table 6.4 – Unsignalized Intersections Capacity Analysis – Future 2021 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.12)	A (0.07)
	NB left-through	A (0.11)	A (0.17)
	SB through-right	A (0.08)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.22)	B (0.18)
	WB left-through-right	A (0.03)	A (0.02)
	NB left-through-right	B (0.33)	C (0.77)
	SB left-through-right	B (0.43)	B (0.60)
Alex Doner Drive / Ford Wilson Boulevard	EB left-through	B (0.04)	B (0.07)
	WB through-right	A (0.11)	A (0.10)
	SB left	A (0.03)	A (0.07)
Alex Doner Drive / Sykes Road	EB left-right	A (0.03)	A (0.10)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.22)	B (0.19)
	WB right	B (0.14)	C (0.61)
	SB left-through-right	A (0.09)	C (0.63)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	C (0.45)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.76)
	NB right	A (<0.01)	B (0.02)
	SB right	A (0.05)	B (0.23)

In the 2021 future total traffic analysis, all movements of study area unsignalized intersections are operating with residual capacity during a.m. peak periods. In particular, the shared roadways with the adjacent Bailey subdivision are expected to operate with residual capacity and minimum delays. However, it is noted that the northbound left turn movement at the Davis Drive West / GO Terminal Access intersection will continue to experience significant delays during the weekday p.m. peak hour. There is also opportunity and capacity for motorists to re-route at adjacent intersections.

6.1.3. Future (2026) Total Traffic Analysis

Future (2026) total traffic conditions consists of future 2021 total traffic plus additional traffic growth applied for five (5) years. Future (2026) total traffic volumes are provided in **Figure 6-3** and the capacity analysis results are provided in **Appendix L**. The critical movements are summarized in **Table 6.5** for signalized intersections.

Table 6.5 – Signalized Intersections Capacity Analysis – Future 2026 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour		PM Peak Hour	
		LOS	(v/c)	LOS	(v/c)
Davis Drive West / Bathurst Street	Overall	D	0.91	F	1.23
	-	-	-	E	0.85
	WB through	E	0.92	F	1.15
	EB left	E	0.95	E	0.98
	EB through	D	0.91	D	0.93
	-	-	-	F	1.48
	SB left	-	-	F	0.98
	SB right	E	0.96	-	-
Davis Drive West / Ford Wilson Boulevard	Overall	C	0.41	B	0.66
	EB left	-	-	D	0.87
Davis Drive West / Street 'B'	Overall	B	0.62	B	0.63
Davis Drive West / Upper Canada Mall	Overall	C	0.55	C	0.63
	NB left	-	-	F	0.95
Davis Drive / Yonge Street	Overall	D	0.89	F	1.16
	WB left	F	0.96	F	1.03
	WB through	-	-	F	1.02
	EB left	-	-	F	1.06
	EB through	E	0.88	E	0.87
	NB left	-	-	F	1.13
	NB through	-	-	F	1.28
	SB left	-	-	F	0.97
	SB through	E	0.95	-	-
Millard Avenue West / Yonge Street	Overall	C	0.78	C	0.86
	NB through	-	-	B	0.98
	SB through	C	0.96	-	-
Sykes Road / Bathurst Street	Overall	A	0.44	A	0.74
Eagle Street West / Yonge Street	Overall	D	0.85	D	0.95
	WB left	F	0.91	F	0.92
	NB through	-	-	E	1.05

The future 2026 total traffic analysis results indicate that some signalized intersections will continue to experience capacity constraints with some individual movements operating with v/c ratios greater than 1.0.

- At the Davis Drive / Yonge Street intersection, several movements will continue to experience capacity during the weekday a.m. and p.m. peak hour constraints despite the planned transit movements and optimization of signal timing plans. This is similar to the future total conclusions of the transportation assessment for North Yonge Street Corridor Public Transit and Associated Road Improvements Transit EA. It is recommended that the Region continue to monitor this intersection for possible future improvements.

- At the Millard Avenue West / Yonge Street intersection, the northbound through and southbound through movements will experience capacity constraints during weekday a.m. and p.m. peak hours, respectively. This conclusion is also similar to the future total conclusions of the transportation assessment for North Yonge Street Corridor Public Transit and Associated Road Improvements Transit EA. However, due to spatial limitations, geometric improvements required to improve the intersection may not be feasible. It is also recommended that the regions continue to monitor this intersection for possible future improvements.
- At the Davis Drive West / Bathurst Street intersection, the intersection will continue to experience capacity constraints particularly during the p.m. peak hour. As this intersection has been earmarked for improvements, a sensitivity analysis was undertaken to highlight possible intersection improvements[4]. The following summarizes the sensitivity analysis scenarios:
  - Geometric Improvements – In order to improve capacity at the Davis Drive / Bathurst Street intersection, a sensitivity analysis was prepared to simulate traffic conditions at this intersection with the provision of a double northbound left turn lane which is anticipated to carry approximately 700 vehicles per hour. Based on the York Region Design Guidelines, this exceeds the threshold for a single left-turn lane by 300 vehicles. The analysis shows that this geometric improvement would not result in acceptable intersection LOS as the v/c. The details analysis is included in **Appendix M.**
  - Traffic diversion and geometric improvements – Based on discussions with City Staff, in addition to geometric lane improvements at the intersection, the Region is contemplating broader improvements to reduce the traffic volumes at the intersection which will result in partial diversion of traffic away from the Davis Drive / Bathurst Street intersection. As a result, a sensitivity analysis was prepared to simulate traffic conditions at this intersection with a diversion of up to 20% of the northbound left and eastbound left volumes, both of which are experiencing significant capacity constraints. It is anticipated that these trips would be diverted to other existing or future collector roads within the area. The results of the analysis shows that a combination of traffic diversion and a double northbound left geometric improvement would result in significant capacity improvements as detailed in **Appendix M.**

The new signalized intersection of Davis Drive and Street 'B'/ Toth Subdivision Access operates with excellent overall LOS with all individual movements operating with residual capacity and minimum delays under future 2026 traffic conditions.

Table 6.6 summarized the capacity analysis results for the study area unsignalized intersections and the redevelopment's site accesses below**.**

[4] Sensitivity Analysis undertaken for weekday p.m. peak hour as this is representative of the highest peak volumes

Table 6.6 – Unsignalized Intersections Capacity Analysis – Future 2026 Total Traffic Conditions

Intersection	Key Movements	AM Peak Hour LOS (v/c)	PM Peak Hour LOS (v/c)
Alex Doner Drive / Crossland Gate	EB left-right	A (0.12)	A (0.07)
	NB left-through	A (0.11)	A (0.17)
	SB through-right	A (0.08)	A (0.05)
Crossland Gate / Eagle Street West	EB left-through-right	A (0.22)	B (0.18)
	WB left-through-right	A (0.03)	A (0.02)
	NB left-through-right	B (0.33)	C (0.77)
	SB left-through-right	B (0.43)	B (0.60)
Alex Doner Drive / Ford Wilson Boulevard	EB left-through	B (0.04)	B (0.07)
	WB through-right	A (0.11)	A (0.10)
	SB left	A (0.03)	A (0.07)
Alex Doner Drive / Sykes Road	EB left-right	A (0.03)	A (0.10)
	NB left-through	A (0.06)	A (0.03)
	SB through-right	A (0.05)	A (0.02)
Millard Avenue West / Eagle Street West	EB left-through-right	A (<0.01)	A (<0.01)
	WB left	C (0.22)	B (0.19)
	WB right	B (0.14)	C (0.61)
	SB left-through-right	A (0.09)	C (0.63)
Davis Drive West / GO Terminal Access	EB left	A (0.07)	C (0.47)
	WB left	B (0.01)	B (0.01)
	NB left	A (<0.01)	F (0.09)
	NB right	A (<0.01)	A (0.01)
	SB right	A (0.05)	B (0.23)

In the 2026 future total traffic analysis, all movements of study area unsignalized intersections are operating with residual capacity during a.m. peak periods. In particular, the shared roadways with the adjacent Bailey subdivision are expected to operate with residual capacity and minimum delays. The northbound left turn movement at the Davis Drive West / GO Terminal Access intersection will continue to experience significant delays during the weekday p.m. peak hour. However, there is capacity at adjacent intersections for motorists to re-route to avoid the delays.

A detailed analysis of the operations of the new signalized intersection of Davis Drive West and Street 'B' / Toth Subdivision Access is included in later chapters.

6.2. Storage and Queuing Assessment

A queue analysis was conducted for the studied intersections using Synchro 7.0 software. The queue analysis assesses whether the estimated lengths for critical movements can be accommodated within the available storage length and intersection spacing at the signalized intersection. Queue analysis was conducted for the future total horizon years of 2016, 2021, and 2026 and a summary of the queue length analysis is summarized in **Table 6.7, Table 6.8** and **Table 6.9,** respectively. Please note that the critical movements that exceed the existing intersection spacing and/or storage lengths are shown in bold.

Table 6.7 – Queue Length Summary Future Total 2016 Phase 1

Scenario	Intersection	Key Movement	Storage length (m)	Queue Length (meters)			
				AM Peak		PM Peak	
				50th	95th	50th	95th
FT 2016 Phase 1	Davis Drive West / Bathurst Street	EB left	70	43.0	**92.0**	-	-
		WB through	750	-	-	139.8	200.7
		SB right	200	113.0	193.5	-	-
		NB left	100	-	-	**200.7**	**294.2**
	Davis Drive West / Upper Canada Mall	NB left	-	-	-	57.6	83.4
	Davis Drive / Yonge Street	EB left	145	-	-	82.1	137.6
		WB left	60	58.4	**99.9**	**81.8**	**136.5**
		NB through	410	-	-	160.0	212.0
		SB left	85	-	-	65.2	**122.4**
	Eagle Street West / Yonge Street	WB left	70	42.6	64.2	41.3	60.4
		NB through	175	-	-	**211.3**	**251.5**

Table 6.8 – Queue Length Summary Future Total 2021 Phase 1 and 2

Scenario	Intersection	Key Movement	Storage length (m)	Queue Length (meters)			
				AM Peak		PM Peak	
				50th	95th	50th	95th
FT 2021 Phase 1 and 2	Davis Drive West / Bathurst Street	EB left	70	48.5	**102.8**	67.9	**152.4**
		EB through	180	113.9	149.5	144.9	**196.4**
		WB through	750	111.4	141.5	164.4	207.0
		SB left	200	-	-	18.3	40.6
		NB left	100	-	-	**230.9**	**289.7**
		SB right	200	116.3	197.1	-	-
	Davis Drive West / Upper Canada Mall	NB left	-			57.6	83.4
	Davis Drive / Yonge Street	EB left	145	-	-	100.3	**160.0**
		EB through	395	101.5	125.3	-	-
		WB left	60	**69.6**	**122.7**	**95.7**	**154.9**
		WB through	190	-	-	129.3	**171.6**
		NB left	90	-	-	91.3	112.5
		NB through	410	-	-	211.5	248.4
		SB left	85	-	-	64.1	120.5
		SB through	175	144.1	**177.1**	-	-
	Millard Avenue West / Yonge Street	NB through	600	-	-	51.4	57.2*
		SB through	410	92.1	242.8	-	-
	Eagle Street West / Yonge Street	WB left	70	42.6	64.2	41.7	65.4
		NB through	380	-	-	267.7	322.4
		SB through	600	154.2	243.7	-	-

**metered by upstream signal*

Table 6.9 – Queue Length Summary Future Total 2026 Phase 1 and 2

Scenario	Intersection	Key Movement	Storage length (m)	Queue Length (meters)			
				AM Peak		PM Peak	
				50th	95th	50th	95th
FT 2026 Phase 1 and 2	Davis Drive West / Bathurst Street	EB left	70	48.5	102.8	82.3	152.4
		EB through	180	120.8	160.8	161.1	**202.6**
		WB through	750	113.5	145.4	176.3	219.1
		NB left	100	-	-	**221.2**	**288.7**
		SB left	200	-	-	17.9	45.7
		SB right	200	117.4	198.4	-	-
	Davis Drive West / Upper Canada Mall	NB left	-	-	-	57.6	83.4
	Davis Drive West / Yonge Street	EB left	145	-	-	100.3	**160.0**
		EB through	395	108.4	133.8	-	-
		WB left	60	**69.6**	**122.7**	**95.7**	**154.9**
		WB through	190	-	-	144.4	185.5
		NB left	90	-	-	**95.9**	**106.9**
		NB through	410	-	-	242.3	262.6
		SB left	85	-	-	64.1	120.5
		SB through	175	**162.3**	**208.7**	-	-
	Millard Avenue West / Yonge Street	NB through	600	-	-	156.0	149.8*
		SB through	410	109.1	257.0	-	-
	Eagle Street West / Yonge Street	WB left	70	42.6	64.2	41.7	65.4
		NB through	380	-	-	306.7	348.1
		SB through	600	163.1	249.6	-	-

**metered by upstream signal*

Based on the analysis the following are noted:

- The 95th percentile through movements queue in the 2016, 2021 and 2026 future total horizon year can be accommodated within the existing intersection spacing except from the eastbound through movement at Davis Drive / Yonge Street and the southbound through movement at the Davis Drive / Yonge Street intersection. However, the aforementioned 50th percentile through movement queues can be accommodated. It should be noted that the trips generated by the proposed development do not have significant impacts to the operations of these movements.
- The existing storage lengths will be insufficient to accommodate the 50th percentile left-turn movements queue in the future total traffic conditions for the following movements:
  - Davis Drive West / Bathurst Street - northbound left-turn movement. It is recommended the geometric and traffic diversion improvements noted earlier be implemented to reduce the average queue lengths.
  - Davis Drive / Yonge Street - westbound left, southbound left and northbound left turning movements. It is recommended that the westbound left, southbound left and northbound left storage lengths be extended to 100 m, 120 m and 200 m or as far as can be accommodated, respectively. This is in line with the recommendations noted in the North Yonge Street Corridor Public Transit and Associated Road Improvements Transit EA.

7.0 Street 'B' Access and Design Assessment

Based on the latest draft plan of subdivision, Street 'B' will be introduced onto Davis Drive West approximately 380 meters west of the GO Terminal Access. Street 'B' will provide access for approximately 45 single family units, and a portion of the 217 townhouse units located in Blocks 156 and 160 as part of Phase 1 of the redevelopment (i.e., fully in place by 2016) and the additional traffic generated by approximately 292 high density residential units of Phase 2 (occupied in 2021). The following sections describe the analysis and findings regarding the functional design of the proposed new road for 2016, 2021, and 2026 horizon years.

7.1. Interim Davis Drive / Street 'B' Intersection Design

7.1.1. Lane Configurations

Based on the analysis for the unsignalized intersection of Davis Drive West and the Street 'B', the proposed full movement access road to Davis Drive West is expected to operate within capacity during the 2016 analysis period with exclusive outbound left and right turn lanes. The inbound left turn movement from Davis Drive West is anticipated to operate at LOS 'B' with an exclusive left-turn lane provided for use.

Using the *Left Turn Lane Warrants and Storage Lane Lengths for Four-Lane Undivided Highways* for unsignalized intersections from the *Geometric Design Standards for Ontario Highways,* published by MTO, a westbound left turn lane on Davis Drive West is warranted into the site. Based on the left-turn turning volumes (V_L) and the opposing volumes (V_O), a 30 meter storage length for the left-turn lane is required. **Table 7.1** summarizes the traffic volumes and minimum required storage lengths (S) for both peak periods. The left-turn warrant graph is provided in **Appendix N** for reference.

Table 7.1 – Davis Drive / Street 'B' Required Left-Turn Lane Storage Length- 2016 Future Conditions

Peak Hour	Left-Turn Traffic Volumes (V_L)	Opposing Traffic Volumes(V_O)	Required Storage Lengths (S)
A.M.	17	1,156 (veh/hr)	15 m
P.M.	53	1,339(veh/hr)	30 m

In addition, an eastbound right turn lane along Davis Drive West into the Street 'B' is recommended to be installed at the proposed intersection as per typical York Region design standards. The future 2016 Davis Drive West / Street 'B' functional design is illustrated in **Figure 7-1**. Due to space constraints (i.e. the eastbound left turn lane on Davis Drive West to the commercial development), it is recommended that a continuous left turn lane be provided between the eastbound and westbound left turn lanes. The adequacy of these storage lengths for the interim 2016 condition is reviewed in the following subsection.

7.1.2. Back of Queue Assessment

The 95th percentile back of queue based on the future 2016 total traffic volumes was calculated using Synchro 7.0 software. **Table 7.2** summarizes the 95th percentile back of queue lengths for both the westbound left turn and the northbound left turn lane groups at the Davis Drive West / Street 'B' intersection for the future 2016 total traffic conditions during both a.m. and p.m. peak periods.

Table 7.2 – 95th Percentile Back of Queue Analysis – Future 2016 Condition

Intersection	Turning Movement Direction	AM Peak Hour	PM Peak Hour
Davis Drive West / Street 'B'	WB left	0.7 m	2.7 m
	NB left	19.6 m	21.3 m

The spacing between Davis Drive West / Street 'B' and the Davis Drive West / GO Terminal Access intersections is approximately 380 meters apart. Given that the there is an anticipated maximum eastbound left turn queue at the GO Terminal Access of 12.0 meters during the p.m. peak hour while queue for the left turn Street 'B' is 21.3, Street 'B' will not negatively impact the storage needs for the GO Terminal Access. In addition, the estimated storage length of 30 meters is sufficient to accommodate all turning movements.

7.2. Ultimate Davis Drive West / Street 'B' Intersection Design

Due to the construction of the Toth Farm lands north of the subject intersection (which will tie into the Davis Drive West / Street 'B' intersection), and to improve traffic operations, it is our opinion that the intersection be signalized to accommodate the increased traffic volumes during the future 2021 and 2026 traffic horizons. To support connectivity between these two (2) neighbourhoods, it is recommended that through movement be accommodated. As such, the proposed right turn lane will be re-configured to a through-right turn movement.

Based on typical York Region design standards, a 30 meter storage length is proposed for the eastbound and westbound turning lanes as a requirement of the signalized intersections turning lanes. In addition, the sufficiency of the 30 meters minimum storage lengths for the northbound lane and 45 meters minimum storage length for the southbound left turn lane were examined considering the 95th percentile back of queue length in the future 2026 total traffic condition. The future 2026 total traffic condition was chosen since it is considered the worst-case scenario in this analysis.

The 95th percentile back of queue based on the future 2026 total traffic volumes was calculated using SYNCHRO v7.0 software. **Table 7.3** summarizes the 95th percentile back of queue lengths for both the eastbound left turn, westbound left turn, northbound left turn, and southbound left turn lanes at the intersection of Davis Drive West and Street 'B' for the future 2026 total traffic conditions during both a.m. and p.m. peak periods.

Table 7.3 – 95th Percentile Back of Queue Analysis – Future 2026 Condition

Intersection	Turning Movement Direction	AM Peak Hour	PM Peak Hour
Davis Drive West / Street 'B'	EB left	1.7 m	4.6 m
	WB left	7.2 m	43.7 m
	NB left	26.8 m	18.5 m
	SB left	43.8 m	26.7 m

As indicated in **Table 7.3**, 30 meter and 45 meter storage lengths provide sufficient storage for the northbound left and southbound left turning vehicles, respectively. The ultimate functional design of the Davis Drive West / Street 'B' intersection is presented in **Figure 7-2.**

7.3. Sight Lines Assessment

A sight line assessment was undertaken to determine the preferred location of the site access. The required minimum Stopping Sight Distance (SSD) and Decision Sight Distance (DSD) were determined based on the information provided in the *Geometric Design Standards for Ontario Highways*. For a design speed of 80 km/h (posted speed limit of 60 km/h) a minimum stopping sight distance of 135 meters and a minimum decision sight distance of 240 meters are required to provide safe operations of the intersection.

Based on the analysis, the minimum stopping sight distance is approximately 203 meter and a decision sight distance is approximately 288 m. As a result, the proposed location Street 'B' will provide uninterrupted, sight-line, in excess to meet the minimum stopping and decision sight distance criterion. The sight line analysis at the preferred Street 'B' location is presented in **Figure 7-3** for reference**.**

The study area lane configurations are illustrated in **Figure 7-4** and **Figure 7-5** for 2016 and 2021 future conditions.

8.0 Emergency Access

Based on the review of the draft plan, there is sufficient access to and permeability to ensure that emergency vehicles have multiple routes into the subdivision should some streets become blocked. In addition to the access provided via the internal streets, Street 'B' will have a secondary "Emergency Only" access via a service road from Crossland Gate to Street 'B', and is designed to accommodate fire trucks and other emergency vehicles.

9.0 Traffic Management Plan and Transportation Demand Management

9.1. Traffic Management Plan

A Traffic Management Plan (TMP) refers to the implementation of a broad range of measures, devices, and techniques to improve the safety and liveability of neighbourhoods. A TMP helps to preserve and enhance internal roads by minimizing the negative impacts of traffic, such as noise, pollution, and visual intrusion. It also seeks to improve safety for pedestrians, cyclists, motorists and all other road users by implementing a wide range of measures. These measures provide methods to retain the roadway as an intended local neighbourhood road. The main purpose of this TMP Plan is to:

- Reduce Vehicle Speeds;
- Discourage through traffic; and,
- Minimize conflicts between vehicles, cyclists, and pedestrians.

Based on the Town of Newmarket Official Plan, the subject subdivision is located within close proximity to the "Yonge-Davis Provincial Growth Centre" and "Yonge Street Regional Centre". These two (2) designations allow for developments to act as a major centre of activity for businesses, government, entertainment, and cultural activity within the Town. This will transform the area land uses into high-density uses along Yonge Street and Davis Drive.

This Traffic Management Plan is prepared to address the movement of pedestrians and cyclists within the study area. It will incorporate transit accessibility and support Transportation Demand Management plans that will assist in reducing site trips.

9.1.1. Pedestrian Facilities

The Pedestrian and Cycling Municipal Partnership Program, adopted by York Regional Council in June 2007, promotes local pedestrian and cycling infrastructure projects that match Regional priorities and goals outlined in the Pedestrian and Cycling Master Plan. The Pedestrian and Cycling Master Plan is a blueprint to develop walking and cycling infrastructure. Adopted in 2008, the plan promotes alternate forms of travel, such as combining walking and cycling with public transit to help The Regional Municipality of York reach sustainable transportation objectives.

The key to supporting mobility and encouraging pedestrian and transit travel is the nature of connections to transit stations. To support a sustainable transportation system, information to connections co-ordinated with the site development will assist in overcoming the constraints of accessibility to link individual developments to transit routes.

Sidewalks should be provided by the developer in accordance with municipal standards, where they form part of a walkway system. Personal safety and security are of utmost importance in the decision of pedestrians to walk. Walkway designs can impact the perception of safety and security by pedestrians. Based on the *Guide for the Planning, Design and Operation of Pedestrian Facilities* by AASHTO, below are a few examples of walkway design elements which directly impacts the perception and actual safety of pedestrians:

- Sidewalks that are too narrow and/or adjacent to vehicular traffic;
- Pedestrian crossings that contains confusing signal indicators;
- Pedestrian crossings that maintains excessive crossing distances; and,
- Pedestrian crossings that contain fast-turning vehicles.

Pedestrian route placement, urban design, streetscaping, and illumination are key elements for pedestrian corridors and should be considered explicitly.

A comprehensive network of sidewalks and connections is proposed for convenient pedestrian movement throughout the redevelopment area. Pedestrian sidewalks are generally proposed within the study area based on the following principles:

- Local roads are recommended to have an 18 metre right-of-way. Pedestrian sidewalks will be provided on at least one side of a local residential road; and,
- Illumination will be provided on the street side of the sidewalk location.

Figure 9-1 illustrates the existing and proposed pedestrian sidewalk network within the redevelopment area.

9.1.2. Traffic Calming Measures

Traffic calming measures are used to address vehicular speeds, volumes, and driver behaviour. The following section provides recommendations on measures that will minimize the negative impacts of traffic. Although traffic calming measures are usually applied to existing road networks within residential neighbourhoods to alleviate identified problems such as speeding and traffic infiltration, they can also be implemented in new developments. The measures would eliminate or minimize potential speeding or traffic infiltration problems, and therefore minimize the need for traffic calming measures.

The low speed limit of 40 km/hr on Crossland Gate and Alex Doner Drive reduce vehicle traffic speeds and volumes, and enhance safety conditions. Other traffic calming features can also improve overall street aesthetics for a more pleasant walking environment, increase visibility, and reduce crossing distance for pedestrian. Some of the traffic calming devices and their descriptions that can be applied for the subject development are listed in **Table 9.1.**

Table 9.1 – Traffic Calming Strategies

Type	Description
Speed tables, raised crosswalks	Ramped surface above roadway, 7-10 cm high, 3-6 m long
Speed humps	Curved 7-10 cm high, 3-4 m long hump
Bike lanes	Marking bike lanes narrows traffic lanes
Street closures	Closing off streets to through vehicle traffic at intersections or midblock
Street Trees	Planting trees along a street to create a sense of enclosure and improve the pedestrian environment
Speed Reductions	Traffic speed reduction programs. Increased enforcement of speeding violations
Roadway striping	Painting roadway markings that narrow traffic lanes and encourage lower traffic speeds

10.0 Transportation Demand Management Opportunities

Transportation 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. In short, TDM works to change how, when, where, and why people travel. TDM strategies have multiple benefits including the followings:

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

The above combined benefits will assist in creating a more active and livable community through improvements to the overall living standards for the local residents.

10.1. Public Transit Facilities

10.1.1. Existing Transit

York Region Transit (YRT) provides a network of local bus service through a large portion of the study area. **Figure 10-1** provides a map of the YRT local routes serving the study area while **Figure 10-2** shows the existing area transit stop locations. Key routes operating within the study area are as follows:

YRT Route 22 - operates from the Maple Community Centre to the Seneca King Campus. As part of this route, the buses travel on Yonge Street from south of King Road (Bond Crescent) to Bloomington Road.

YRT Route 44 - operates from the Newmarket Terminal to the Newmarket GO Station. As part of this route, the buses with full service travel on Yonge Street from Upper Canada Mall Driveway to Bristol Road. During weekday a.m. peak hour, the buses travel on Yonge Street from Davis Drive to Bristol Road.

YRT Route 52 - operates from the Newmarket Terminal to the intersection of Yonge Street and Queensville Sideroad. As part of this route, the buses with full service travel on Yonge Street from Upper Canada Mall Driveway to Green Lane. During the weekday a.m. peak hour, the buses travel on Yonge Street from Davis Drive to Green Lane.

YRT Route 98 - operates between the Upper Yonge Place to the intersection of Yonge Street and Green Lane. As part of this route, the buses travel on Yonge Street from Gamble Road to Green Lane.

YRT Route 520 - serves as a community transit route in the Town of Newmarket. The buses start and end at the Upper Canada Mall on every run. As part of this route, the buses travel on Yonge Street from Davis Drive to south of Green Lane.

YRT Route 521 - serves as a community transit route in the Town of Newmarket. The buses start and end at the Upper Canada Mall on every run. As part of this route, the buses travel on Yonge Street from Davis Drive to south of Green Lane.

YRT Route 55 - operates from Newmarket GO Bus Terminal to 404 Town Centre. As part of this route, the buses will full service travel on Davis Drive from Eagle Street West to Leslie Street.

YRT Route 56 - Operates along Eagle Street West from Newmarket GO Bus Terminal to 404 Town Centre.

In addition to these YRT services, York Region has been operating Rapid Transit services along Yonge Street since 2005. The Viva Blue route travels along Yonge Street from Finch Station in the City of Toronto northward to the Newmarket Terminal at Eagle Street West and Davis Drive West. The headway of the Viva Blue route within the study area is ten (10) minutes during the weekday a.m. and p.m. peak periods and 15 minutes in the off-peak periods.

In addition to YRT / VIVA bus services, GO Transit operates the Newmarket 'B', Newmarket 'B' Express, and Newmarket-York University bus routes along Yonge Street within the study area. The frequency of the Newmarket 'B' bus service has been reduced significantly with the introduction of the Viva service in the fall of 2005. There is one (1) GO Transit Terminal in proximity to Yonge Street and Davis Drive within the study area:

Newmarket GO Bus Terminal - located on Davis Drive, west of Eagle Street in the Town of Newmarket. This terminal serves the GO Transit bus services on the Bradford Line throughout the day. This is a shared terminal with the York Region Transit.

10.1.2. Future Transit Improvements

Based on the York Region Transportation Master Plan 2009 Update, Yonge Street is designated as a Rapid Transit Corridor. The Yonge Street Rapid Transit (VIVA next) will improve transit within the Region and specifically along Yonge Street from Mulock Drive to Davis Drive. This transit route will be linked to the Davis Drive rapidway and provide access to the South Lake Regional Health Center, Newmarket's Heritage area, and the Newmarket GO Station. The construction of the VIVA next rapidways along both Davis Drive and Yonge Street is expected to begin in 2014 and the project is expected to be completed by 2017.

10.2. Cycling

Existing cycling infrastructure within the study area is limited. The planned cycling infrastructure for the Town of Newmarket is articulated in the York Region's *Cycling and Pedestrian Master Plan*. Cycling connections to transit will require more detailed review designs. The opportunity exists to increase mobility through cycling initiatives, such as:

- Providing bicycle parking at the front of the developments;
- Installing and promoting bicycle racks on all transit vehicles;
- Providing short term and/or long term bicycle parking at transit stops;
- Promoting cycling to transit stops / stations with "wayfinding" systems; and,
- Providing rest area, drinking fountains, and washroom facilities at major cycling nodes.

Directional information as part of the "wayfinding" system, will guide pedestrians and cyclist along the proposed redevelopment to the transit destinations. Providing additional information regarding transit maps and schedules present residents and visitors with only the essential information needed to navigate the subject site.

Future on-street bike lanes are identified in the *Town of Newmarket Official Plan 2006 - 2026*. As illustrated in '*Schedule D*' of the *Official Plan*, bike lanes are proposed along Crossland Gate and Eagle Street West within the study area. Bike lanes on Regional roads are proposed along Bathurst Street, Davis Drive, and Yonge Street. A copy of the Town of Newmarket's '*Schedule D*' is provided in **Figure 10-3.**

10.3. TDM Strategies Implementation and Monitoring

TDM programs have nationally experienced a wide range of implementation success. This TDM Plan will be site specific to achieve the desired outcome at a reduced dependency on single occupant vehicles (SOV) from a holistic perspective.

It should be noted that prior to the new 2012 Development Charge (DC) rates taking effect in June 2012, York Region had required developers to fund and implement all programs or provide cash equivalents for York Region to carry out selected TDM programs, such as incentives (preloaded PRESTO cards), TDM information packages, and monitoring programs. However, with the implementation of the new Development Charge Bylaw and subsequent rates, developers will no longer be required to implement / monitor, or provide cash equivalents to carry out the TDM program components related to outreach and monitoring. As such, the developer is not required to provide the TDM information package, preloaded PRESTO card, and monitoring program since the associated costs of these components will be collected through the new Development Charge rates.

Nonetheless, all other TDM measures including hard infrastructure, such as pedestrian / cycling connections, bicycle parking, and appropriate signage, which form part of the subdivision, will still be implemented by the developer to the satisfaction of the Town of Newmarket in coordination with York Region.

A TMP and TDM Plan will be completed as a separate stand alone report which will include the following information in detail:

- Possible Transit routes and stop locations;
- Sidewalk locations;
- Traffic calming measures;
- Warning signs (for medians, traffic calming measures, etc.)
- Roadway ROW widths;
- Greenways;
- Active Transportation Plan.
- Road Classifications description such as ROW for collector roads, local roads etc; and,
- Internal Intersections description that includes corner treatments such as rounding daylight triangles, curb radii etc.

11.0 Findings and Conclusion

The proposed redevelopment results in construction of 730 new low / medium density residential units within the subject subdivision. This Transportation Study summarizes the traffic impact of the new development along with the additional traffic generated by the future background developments inside the study area and future traffic growth from outside the study area.

Our analysis results in the following conclusions:

- The existing traffic operational conditions of the Davis Drive / Yonge Street and Davis Drive West / Bathurst Street intersections require operational improvements.
- Intersection improvements seem essential in future background conditions.

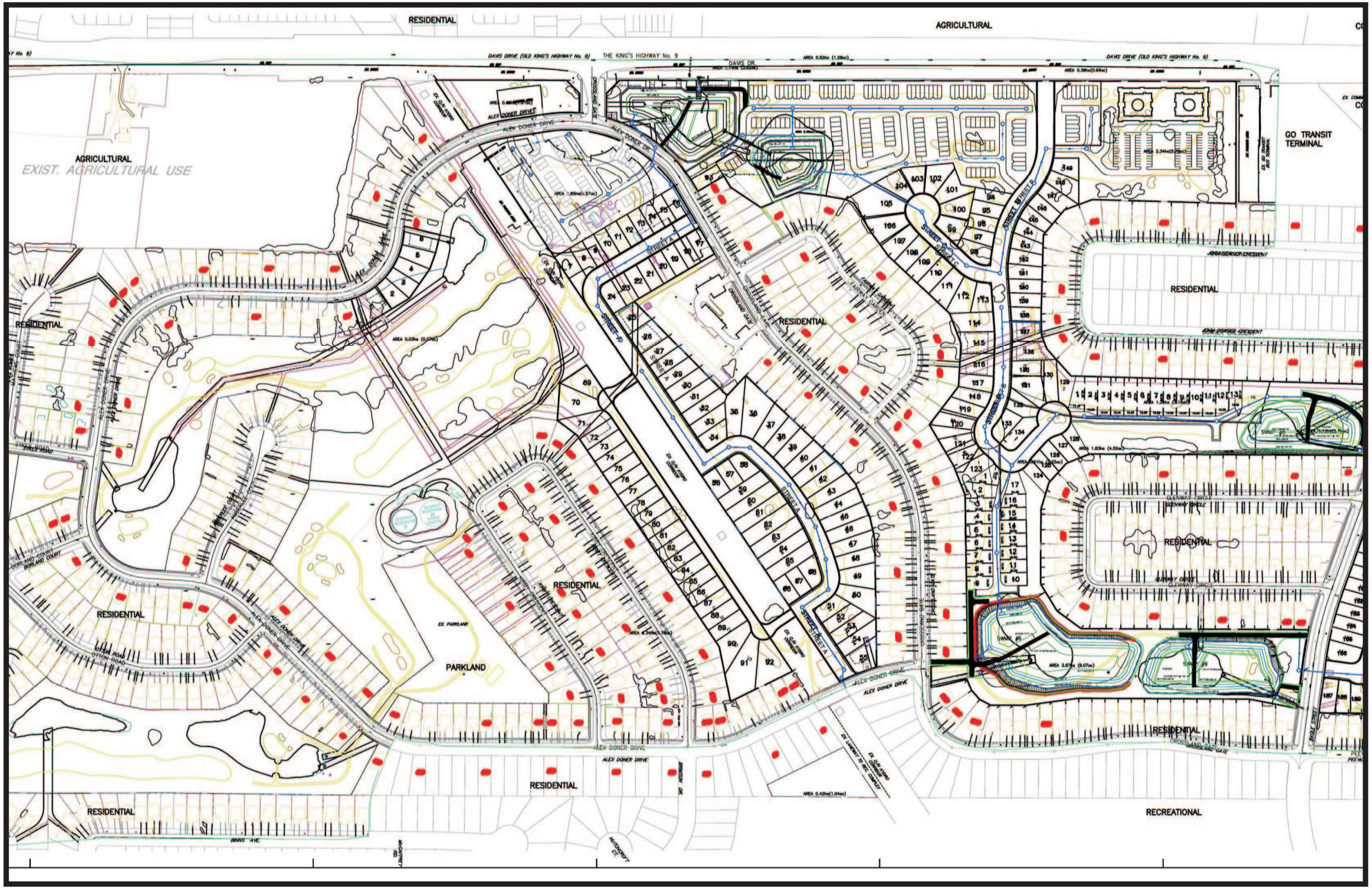
- This study revealed that the total traffic increase due to the proposed residential redevelopment would be minor during both peak periods
- The traffic generated by the proposed redevelopment is expected to have a modest impact on the traffic operations of the study area intersections.
- The proposed access points are all operating below capacity with excellent levels of service.
- The Davis Drive West / Street 'B' intersection is also expected to operate below capacity with acceptable levels of service.
- Functional design of the new intersection of Davis Drive West / Street 'B' meets all the warrants and design requirements (i.e., storage lengths, stopping sight distance, and decision sight distance).
- Future improvements in road and transit network are expected to improve the traffic operations within the study area.
- Implementing the recommended TDM strategies will encourage walking, cycling, and use of transit among residents, visitors, and employees.
- TDM measures are also recommended to reduce the single-occupant vehicle use which will result in a considerable reduction in trip volumes within the study area
- Since the magnitude of the traffic increase is minor and this traffic is distributed within large vicinity consisting of few intersections and access points, we believe that there won't be any significant adverse traffic impact on the traffic operations along the abutting road network or at the site accesses.

Legend

Site Location

Not to Scale

Figure 1-1
Site Location



Not to Scale

Figure 1-2
Proposed Draft Plan

Bathurst Street
Ford Wilson Blvd
Upper Canada Mall Egress
Upper Canada Mall Entrance
Yonge Street
Davis Drive
GO Bus Access
Millard Avenue
Alex Doner Drive
Residential Driveway
Sykes Road
Alex Doner Drive
Crossland Gate
Eagle Street
Bathurst Street
Yonge Street

Legend

- Traffic Signal Control
- Traffic Stop Control
- Lane Configuration
- Right lane Channelization

Not to Scale

Figure 2-1
Existing Lane Configurations

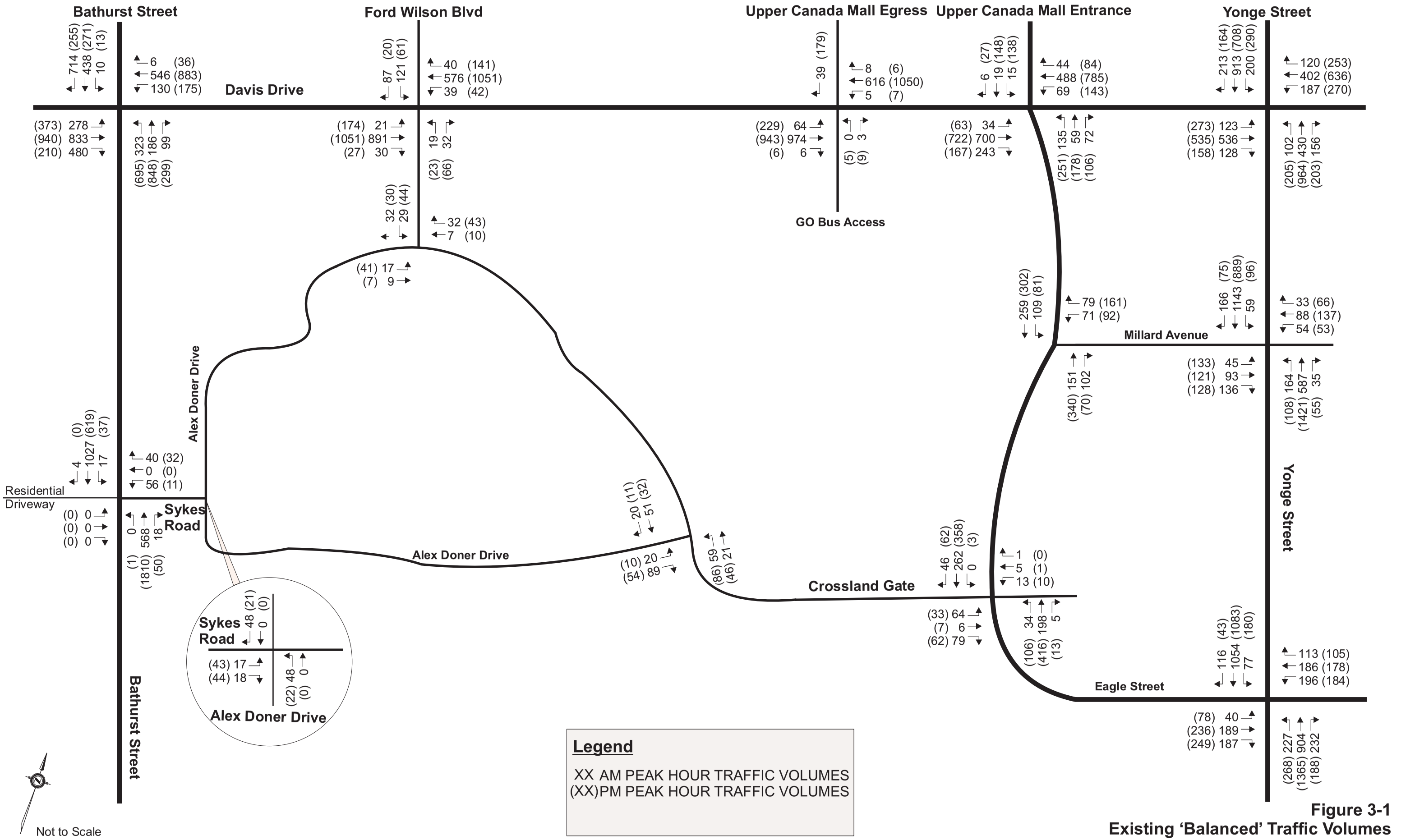


Figure 3-1
Existing 'Balanced' Traffic Volumes

Not to Scale

Figure 4-1
Background Developments Site Locations

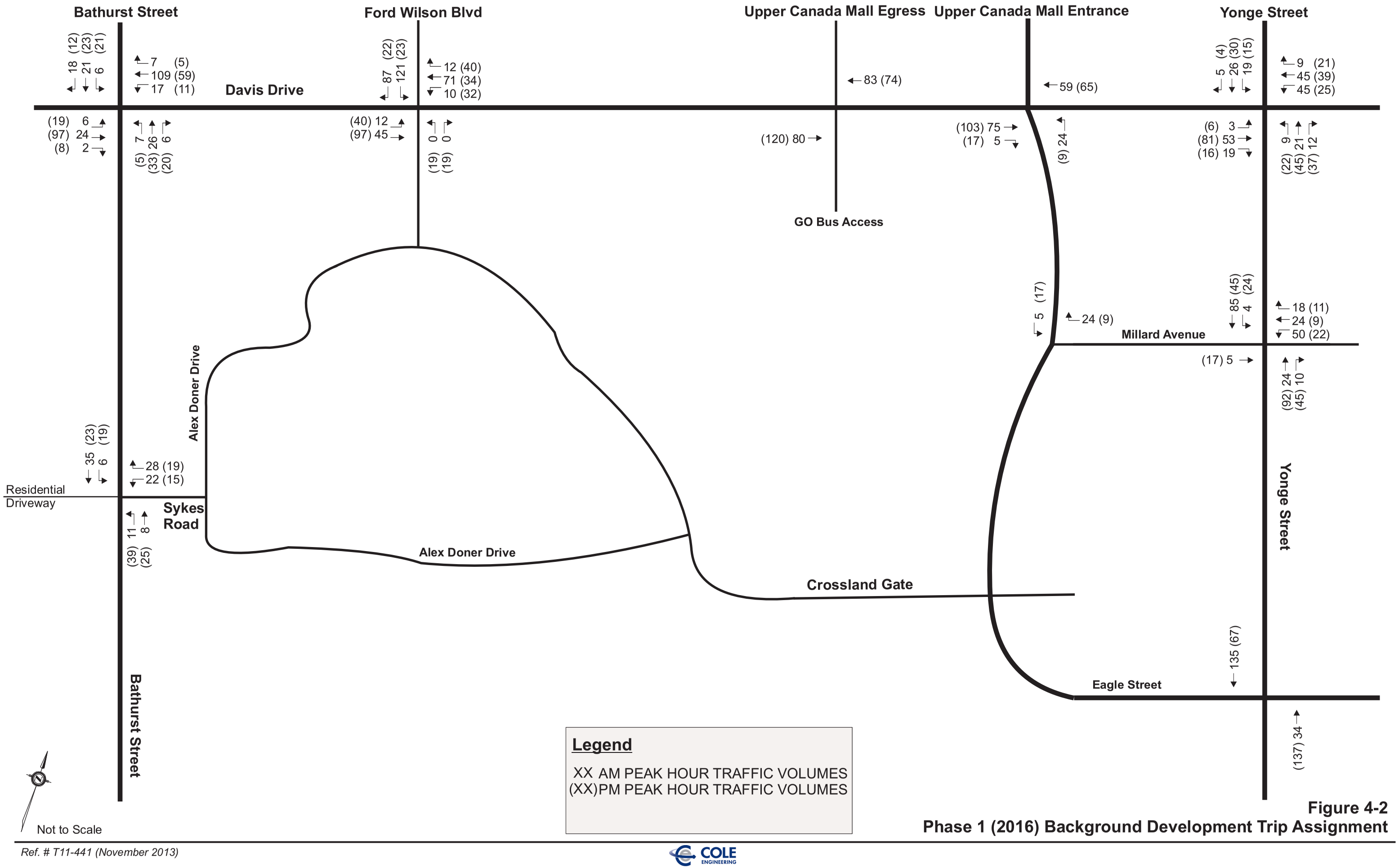


Figure 4-2
Phase 1 (2016) Background Development Trip Assignment

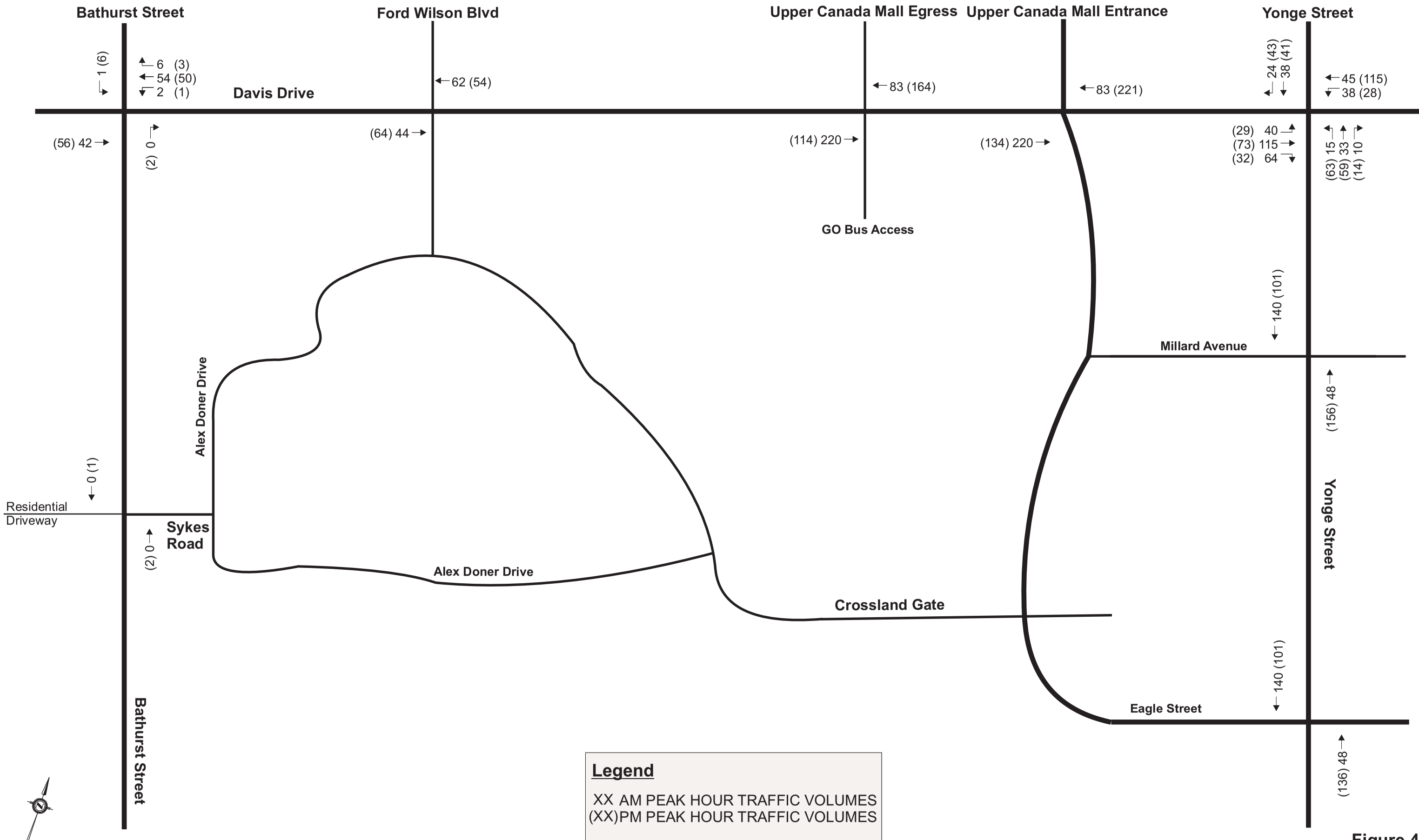


Figure 4-3
Phase 2 (2021) Background Development Trip Assignment

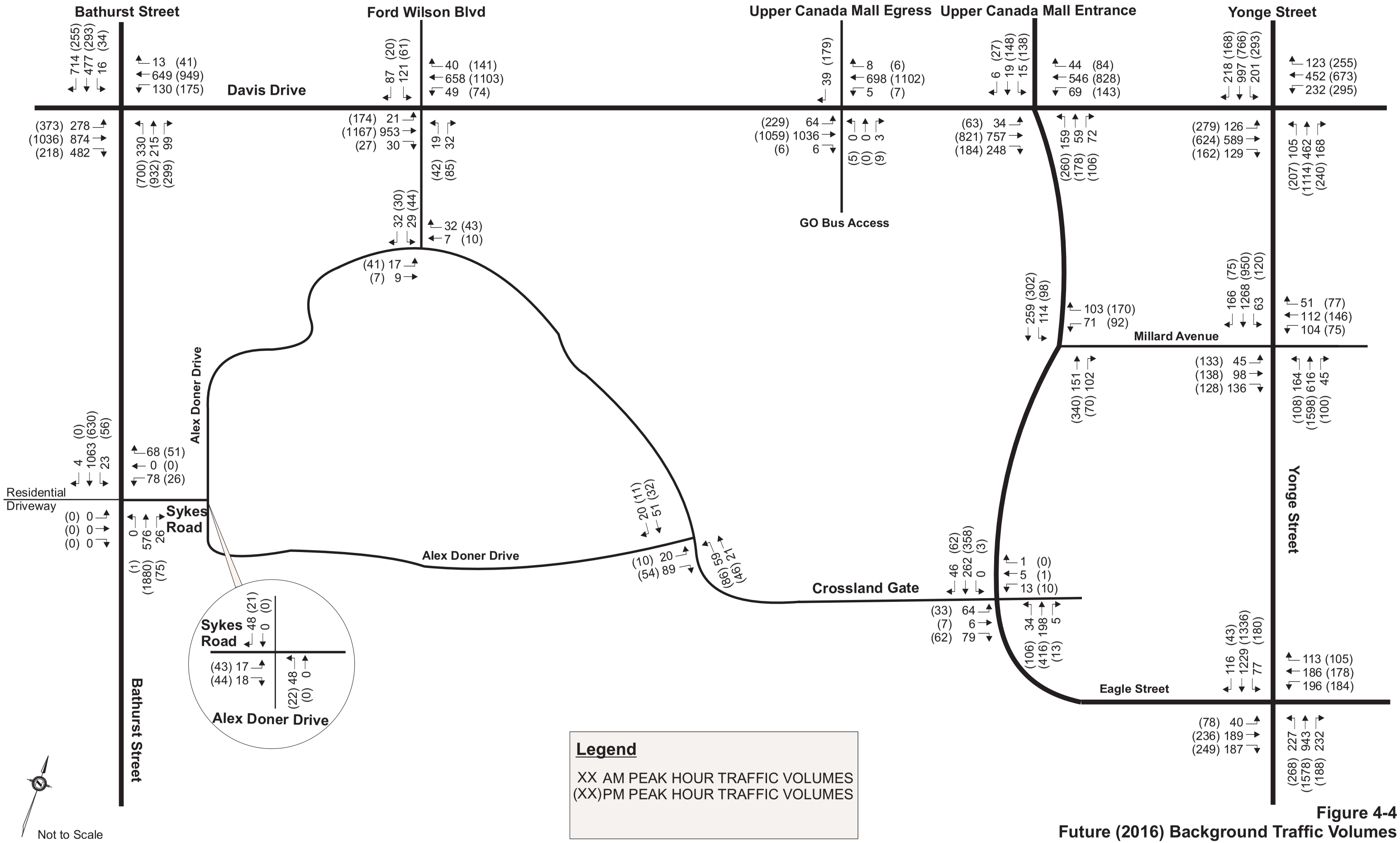


Figure 4-4
Future (2016) Background Traffic Volumes

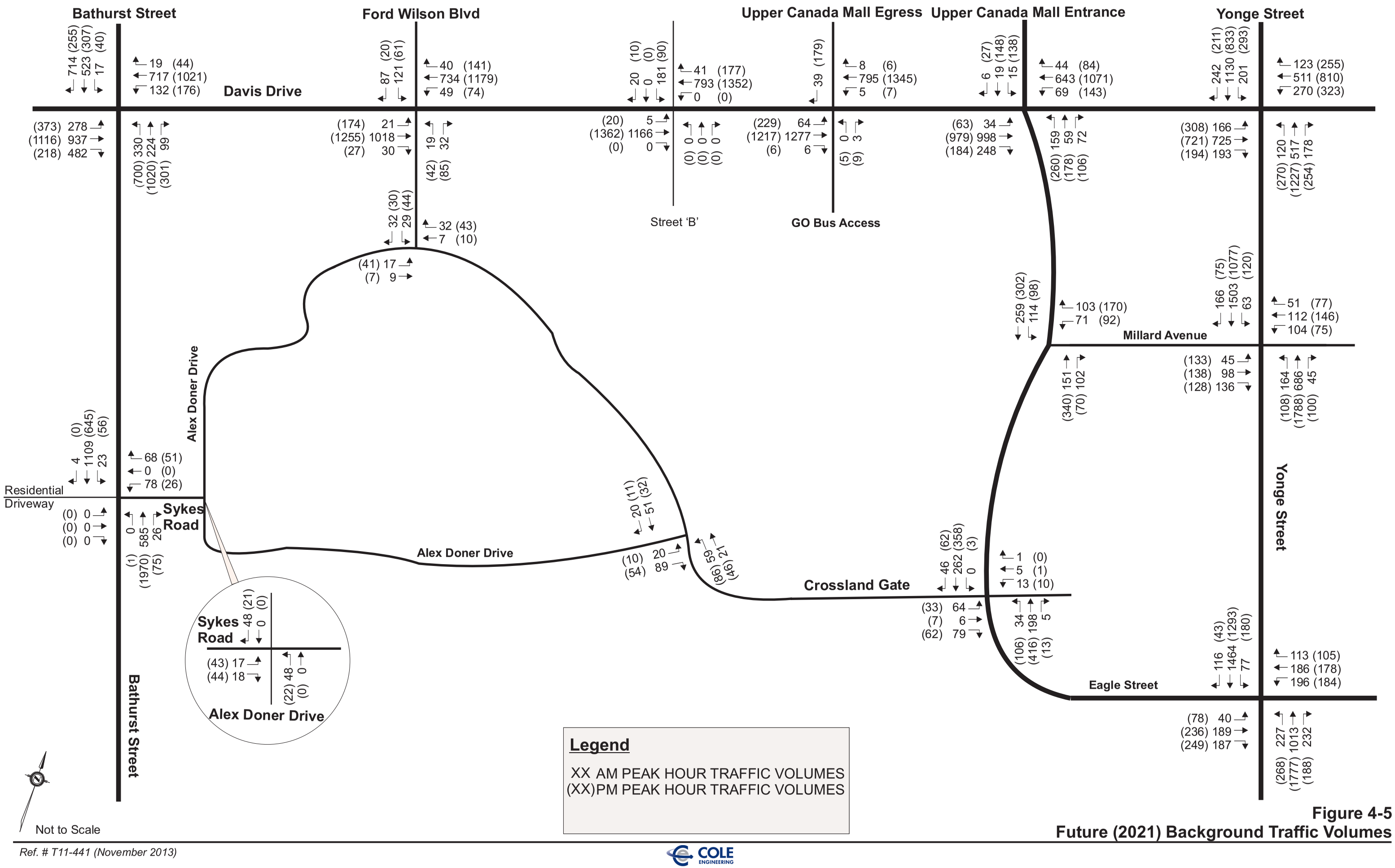
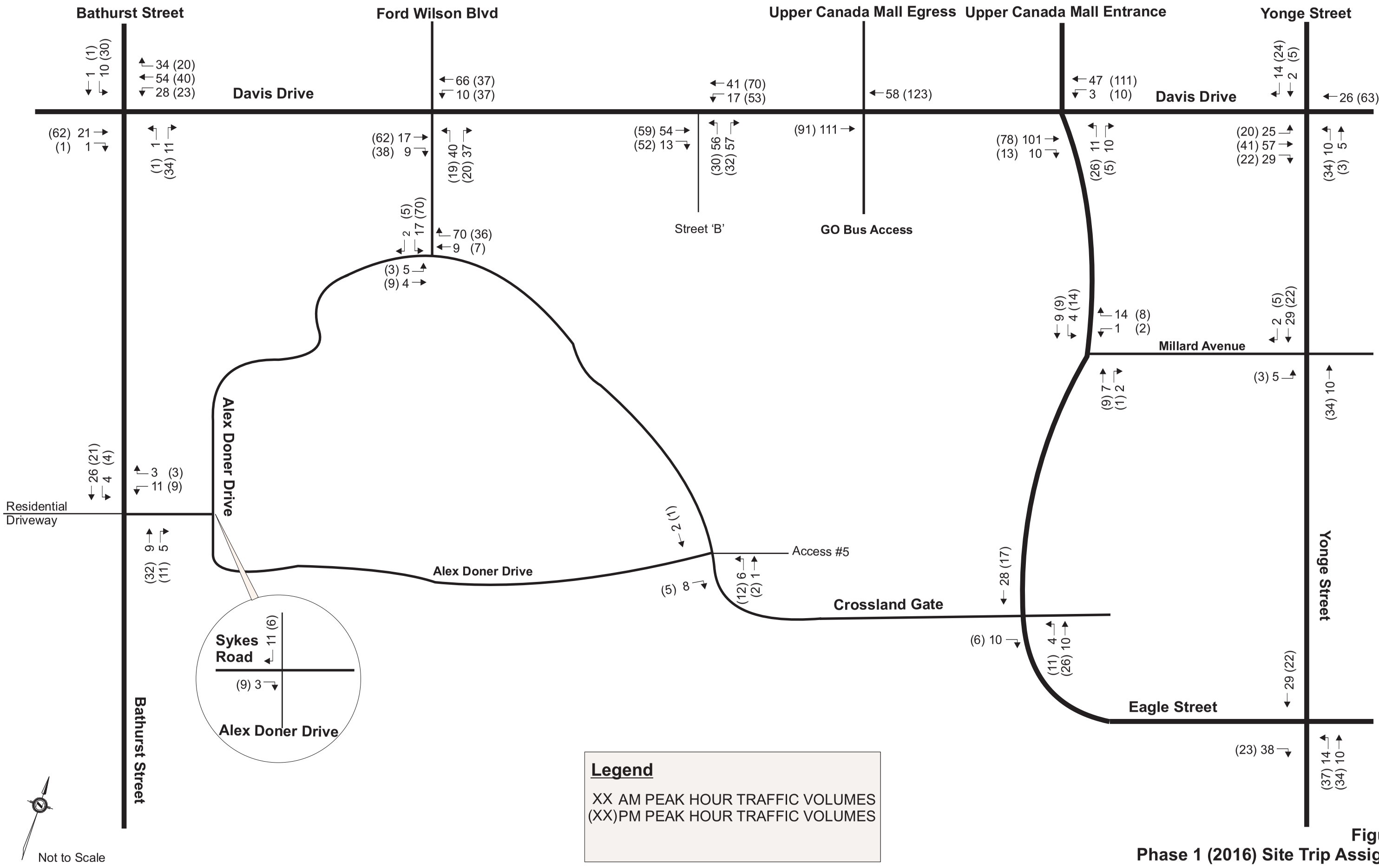


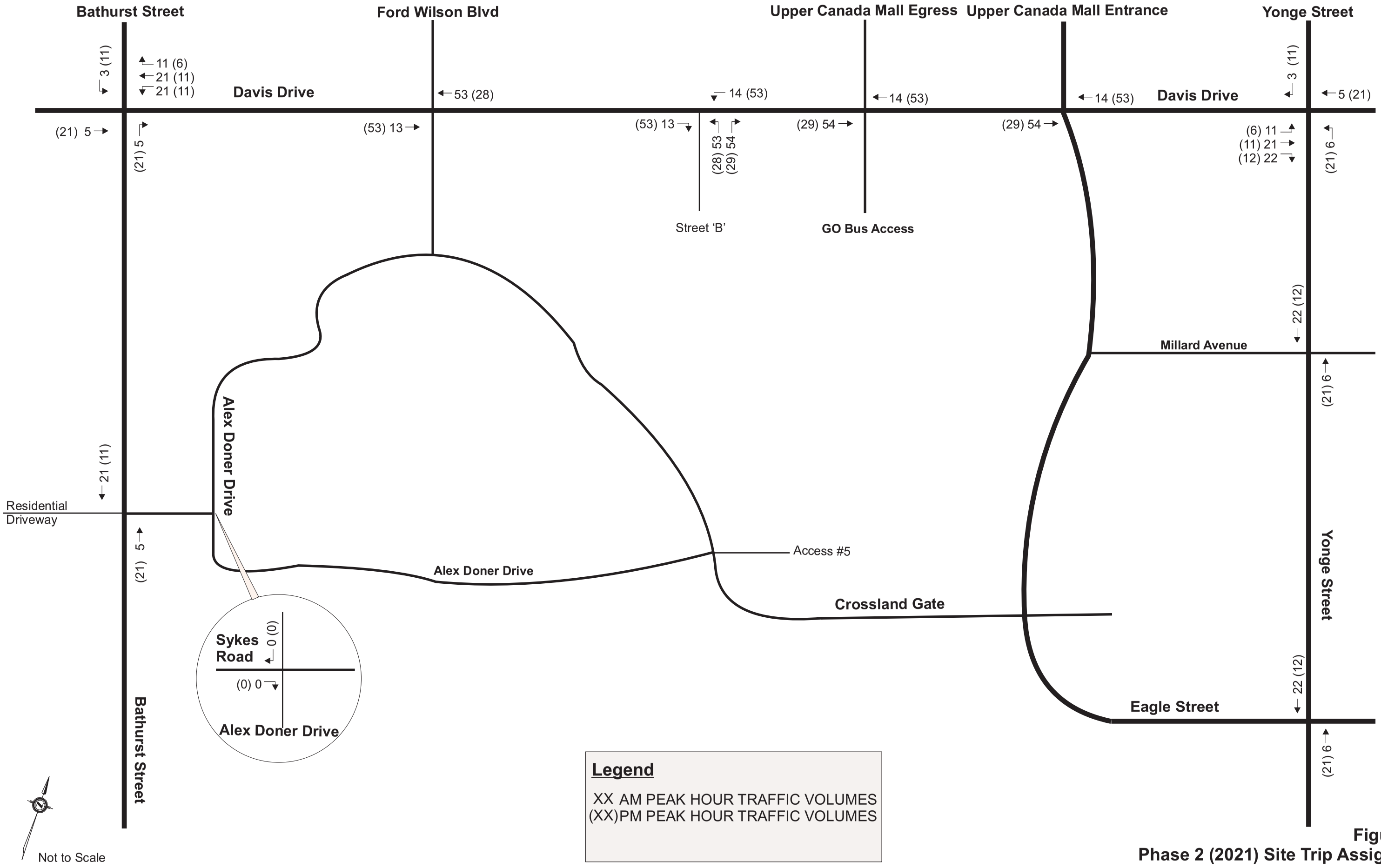
Figure 4-5
Future (2021) Background Traffic Volumes



Legend

XX AM PEAK HOUR TRAFFIC VOLUMES
(XX)PM PEAK HOUR TRAFFIC VOLUMES

Figure 5-1
Phase 1 (2016) Site Trip Assignment



Legend

XX AM PEAK HOUR TRAFFIC VOLUMES
(XX)PM PEAK HOUR TRAFFIC VOLUMES

Figure 5-2
Phase 2 (2021) Site Trip Assignment

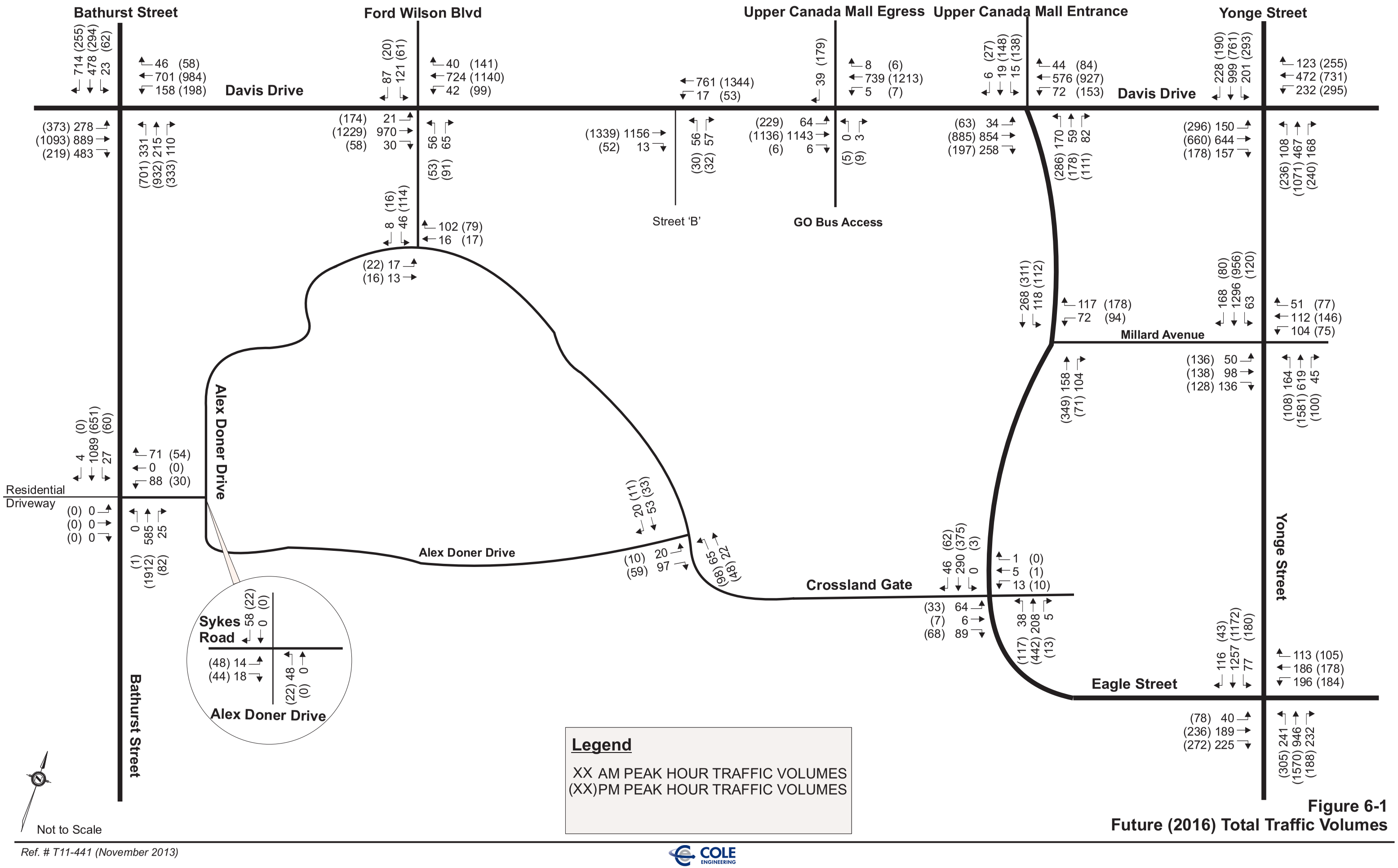


Figure 6-1
Future (2016) Total Traffic Volumes

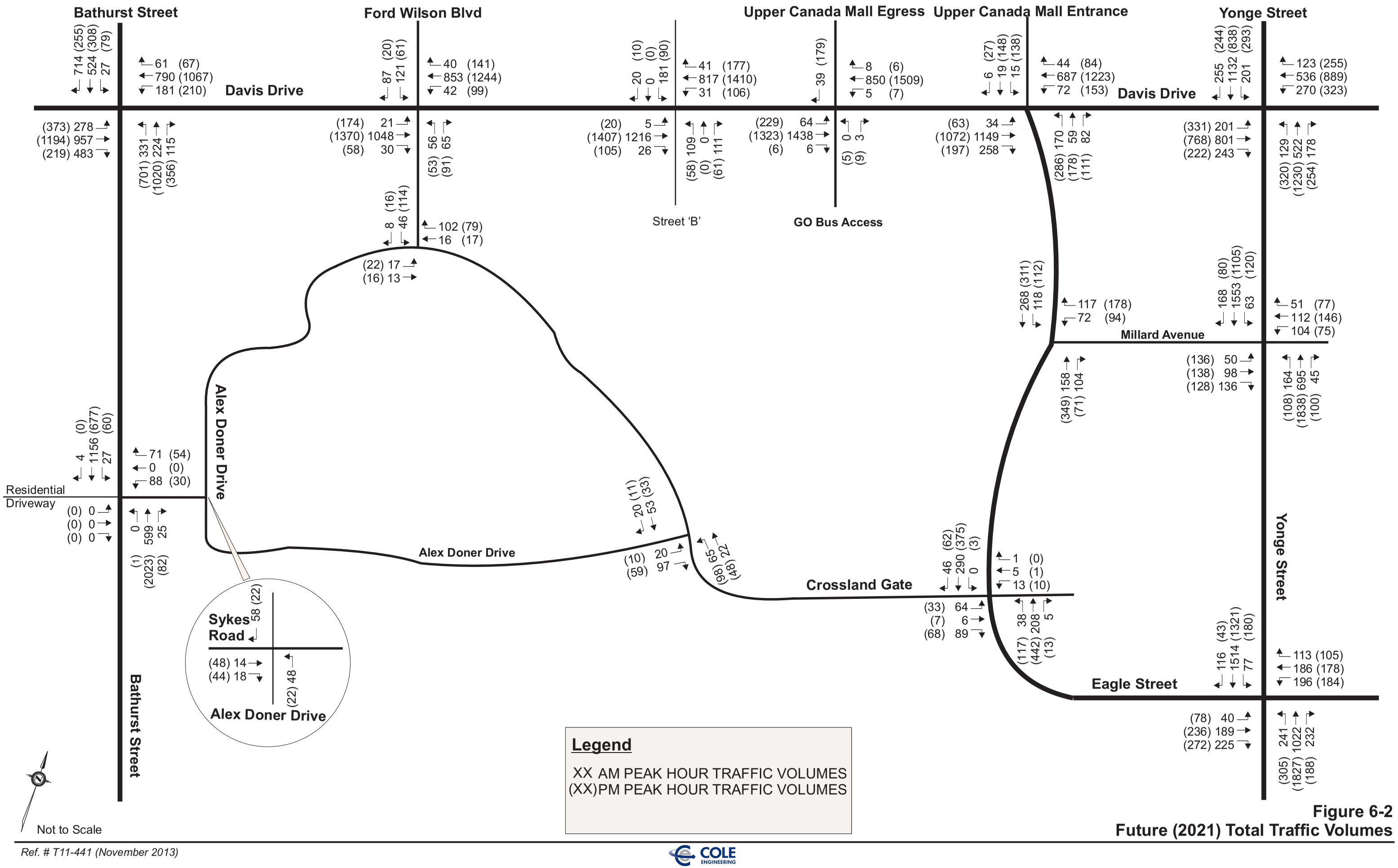


Figure 6-2
Future (2021) Total Traffic Volumes

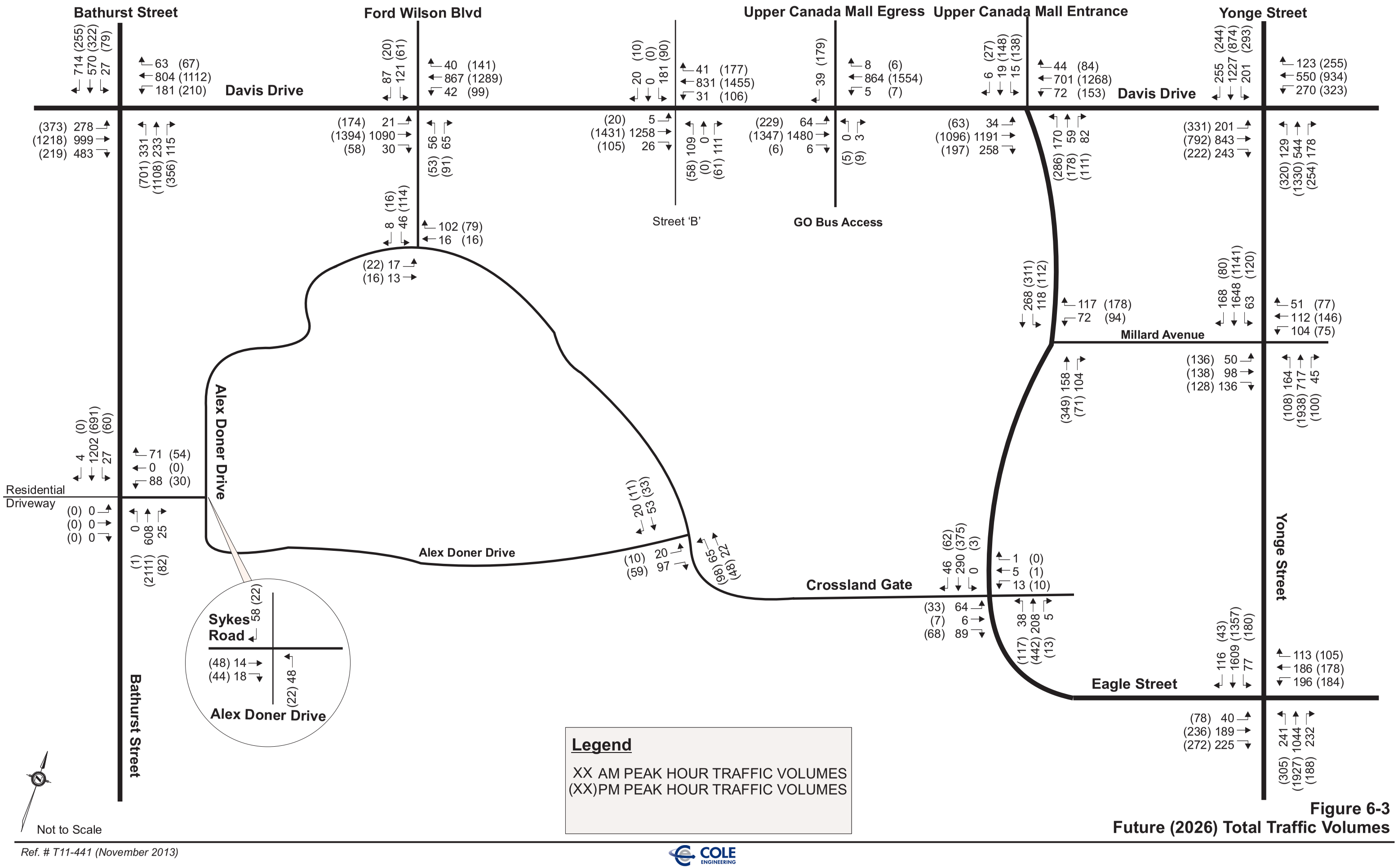
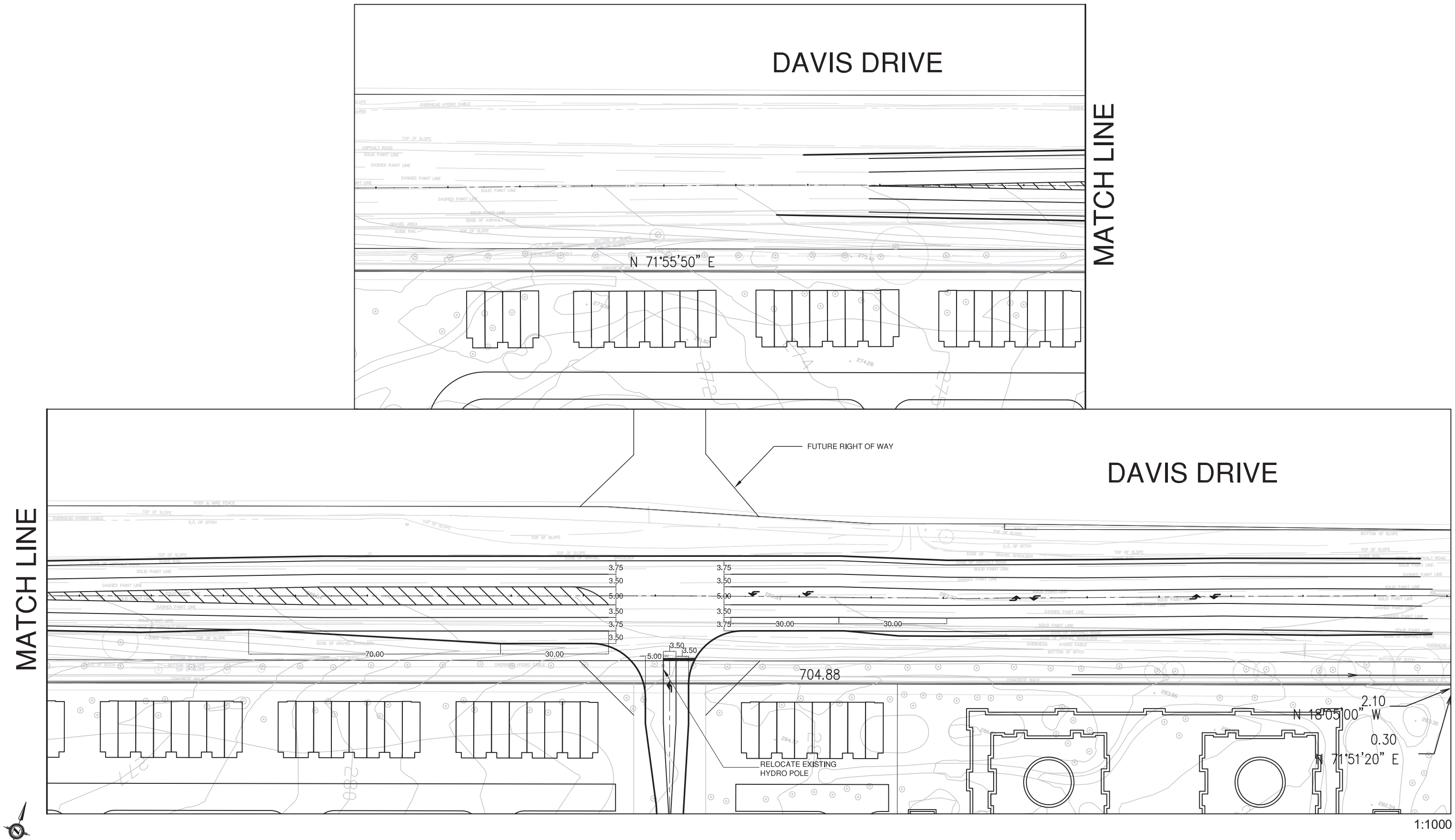
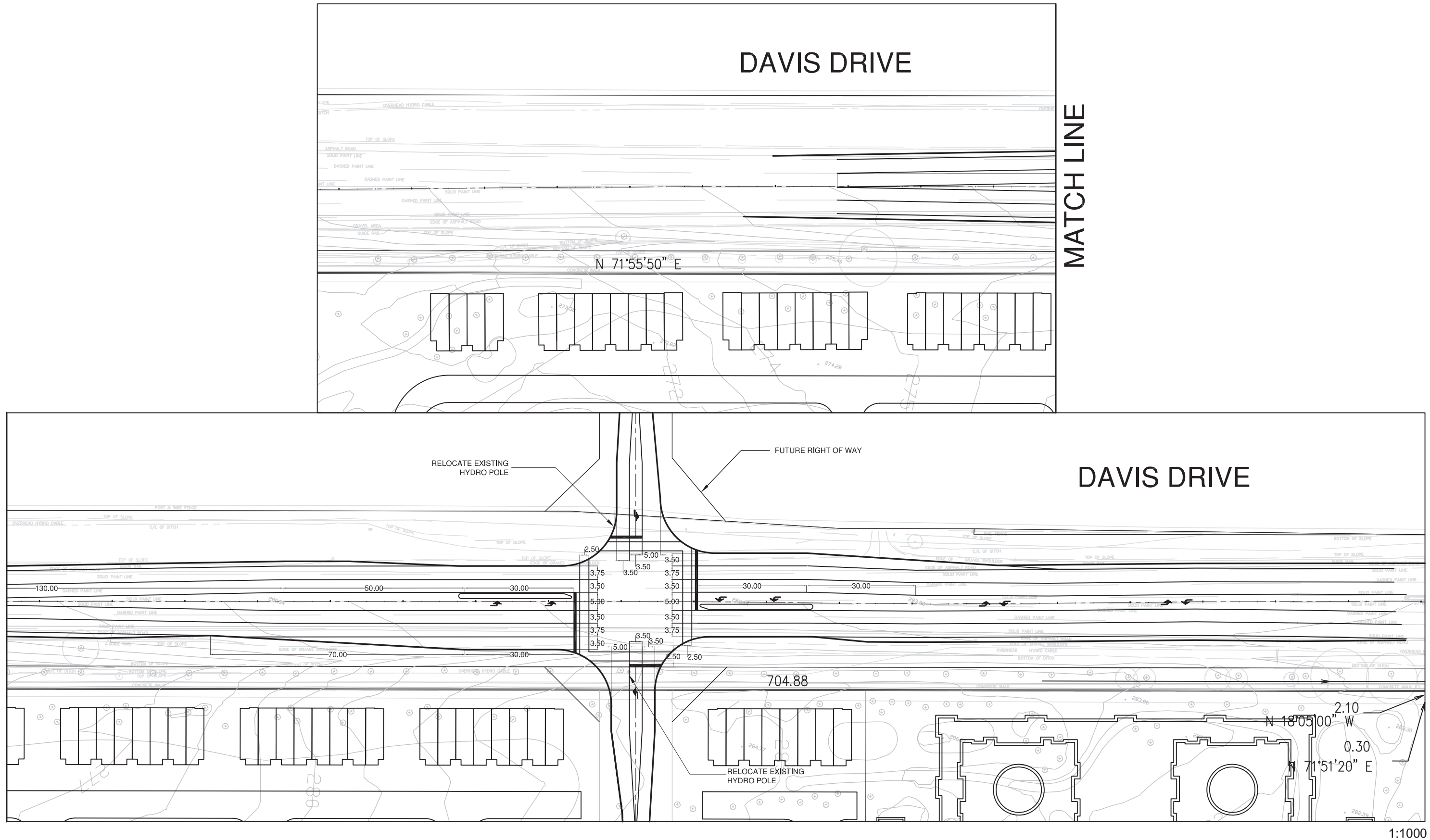


Figure 6-3
Future (2026) Total Traffic Volumes



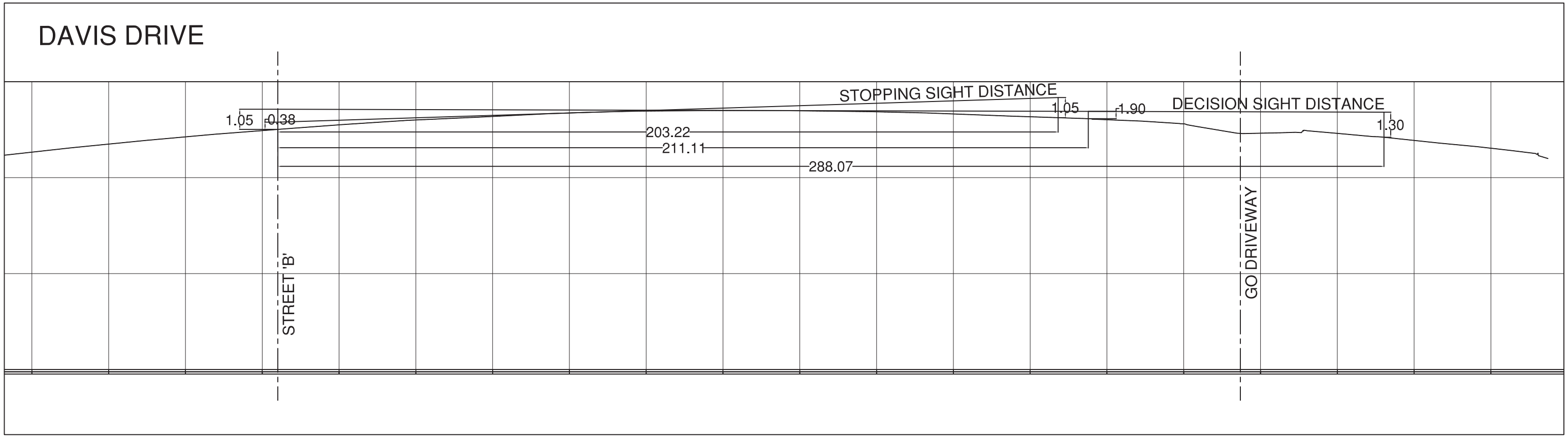
Not to Scale

Figure 7-1
Functional Design (2016) - Davis Drive West / Street 'B' Intersection



Not to Scale

Figure 7-2
Functional Design (2021) - Davis Drive West / Street 'B' Intersection



H1:1000 V1:200

Not to Scale

Figure 7-3
Sight Line Analysis - Davis Drive West / Street ‘B’ Intersection

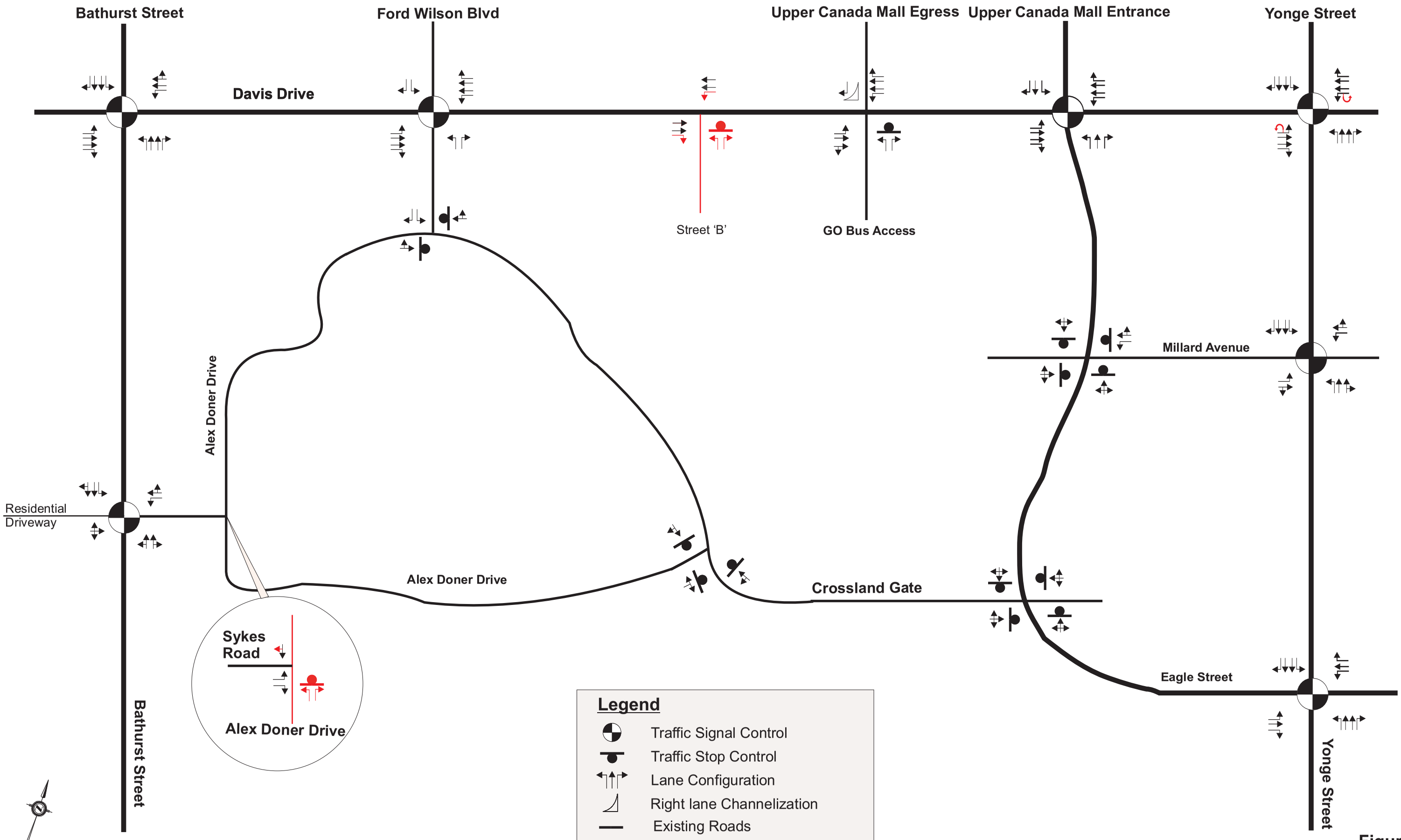


Figure 7-4
Future (2016) Study Area Lane Configurations

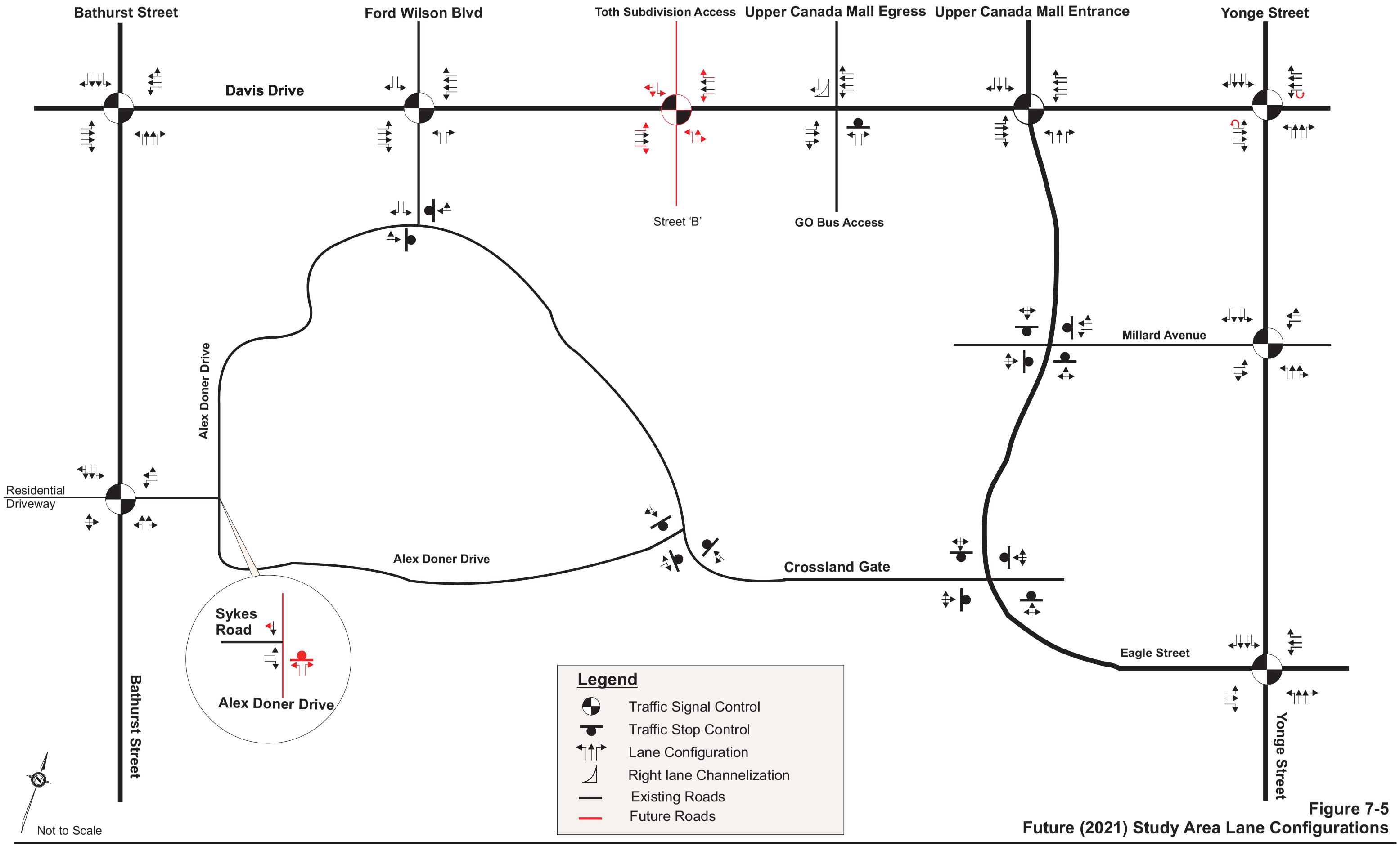
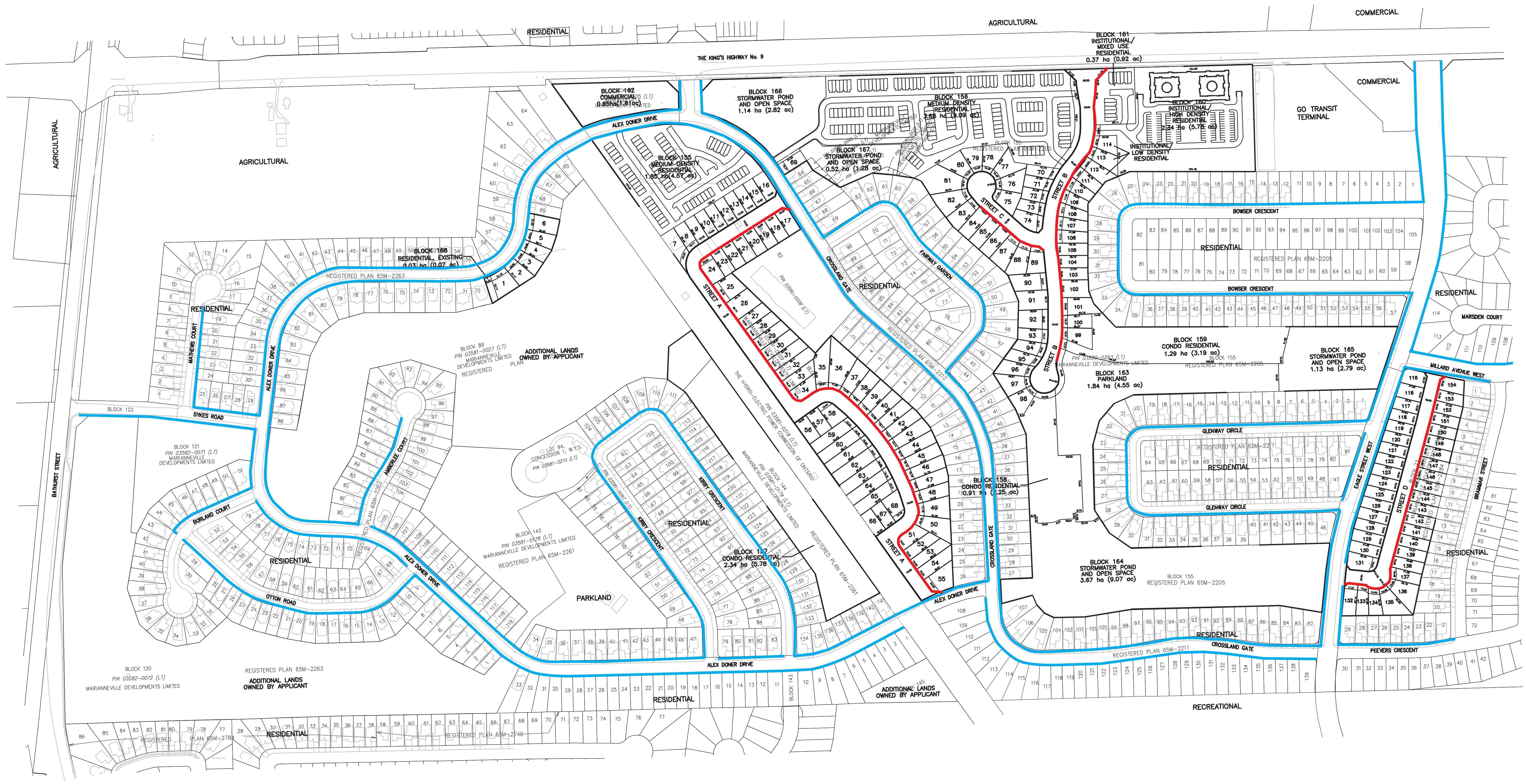


Figure 7-5
Future (2021) Study Area Lane Configurations



COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T:416.987.6161 / 905.940.6161 F:905.940.2064

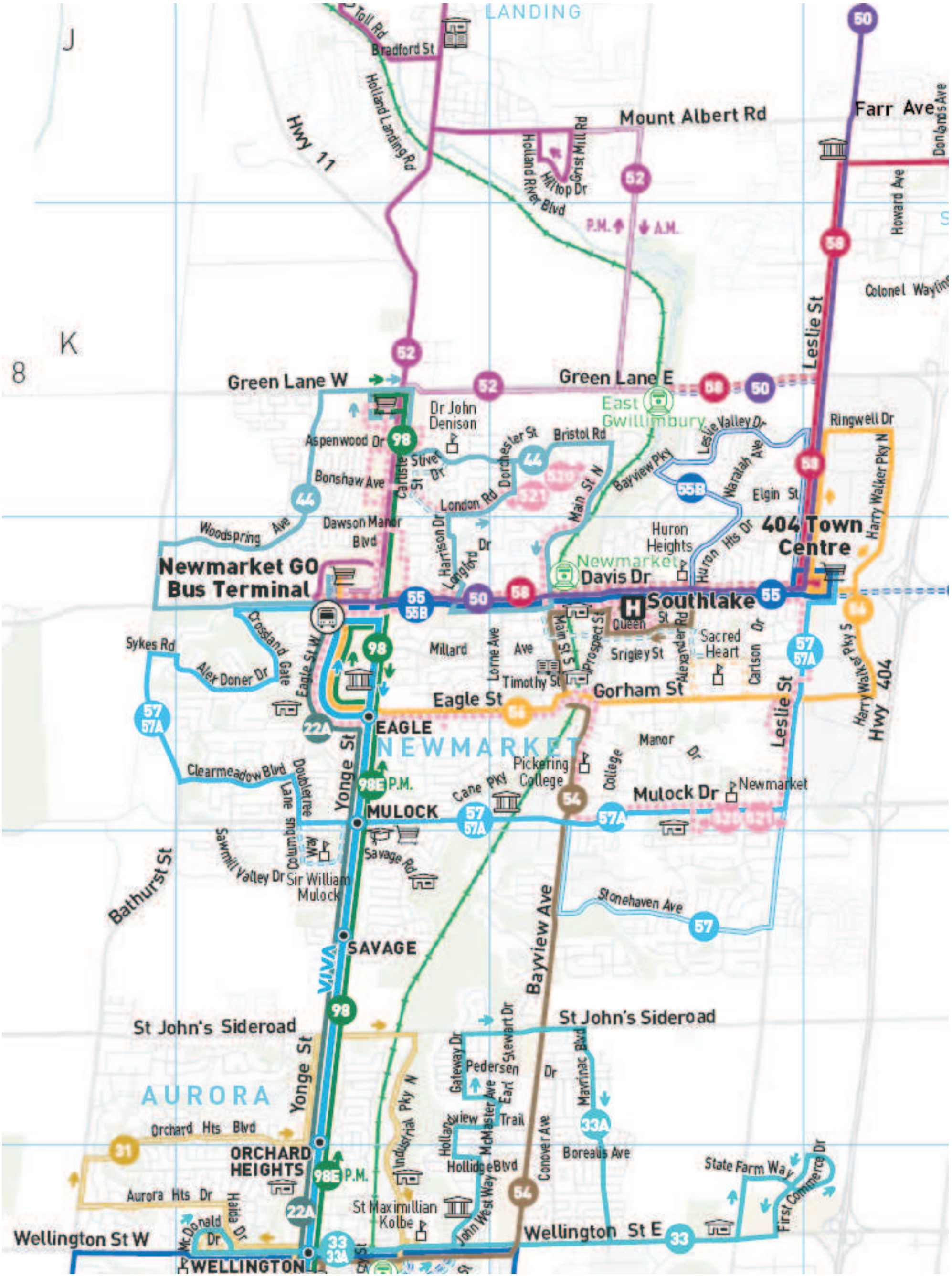
PEDESTRIAN SIDEWALK NETWORK

EXISTING SIDEWALKS

PROPOSED SIDEWALKS

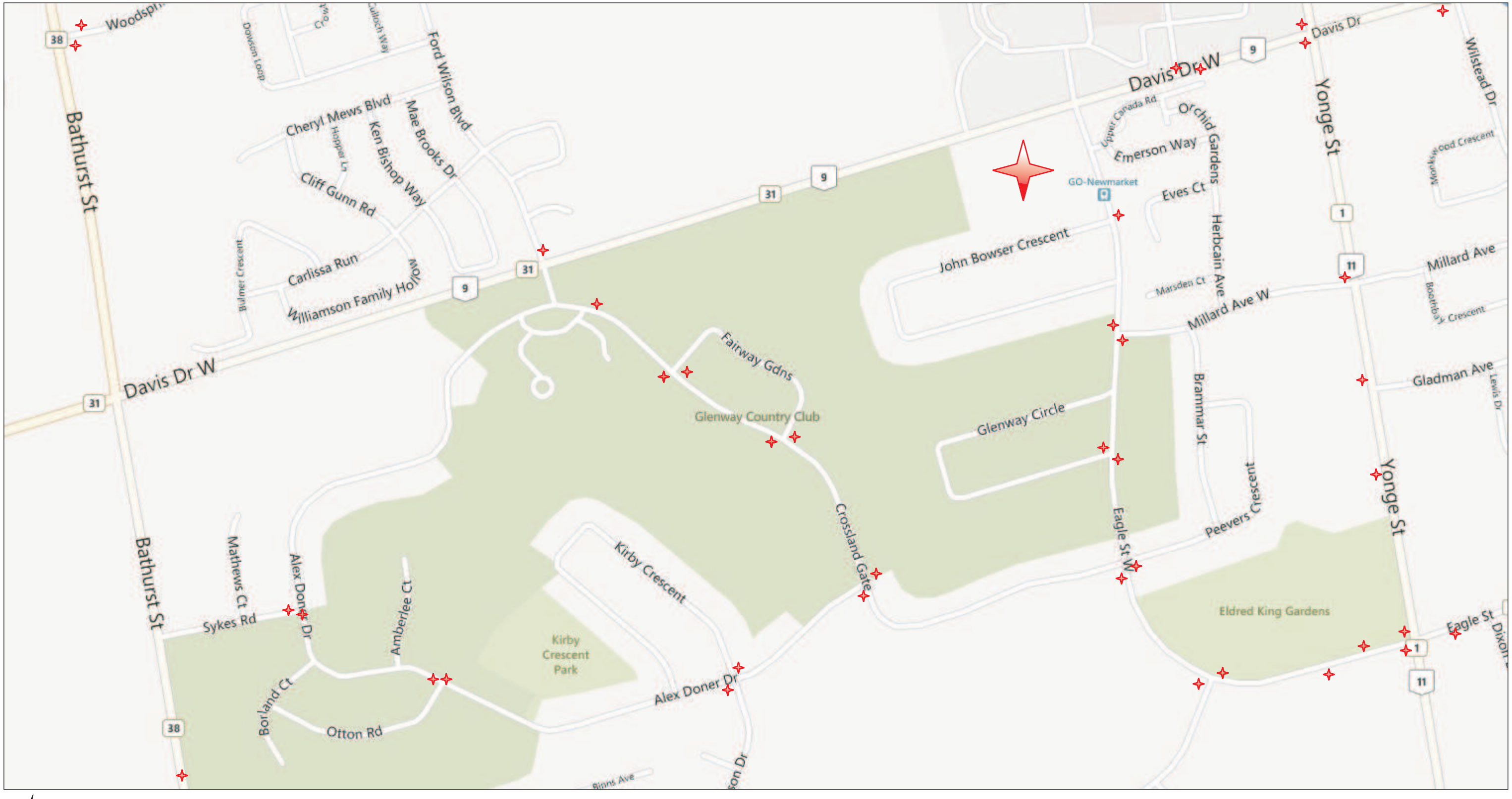
PROPOSED RESIDENTIAL REDEVELOPMENT
GLENWAY GOLF AND COUNTRY CLUB
TOWN OF NEWMARKET
YORK REGION

DATE:	NOVEMBER 2012	PROJECT No.:	T11-441
SCALE:		FIGURE No.:	9-1



Not to Scale

Figure 10-1
York Region Transit Routes

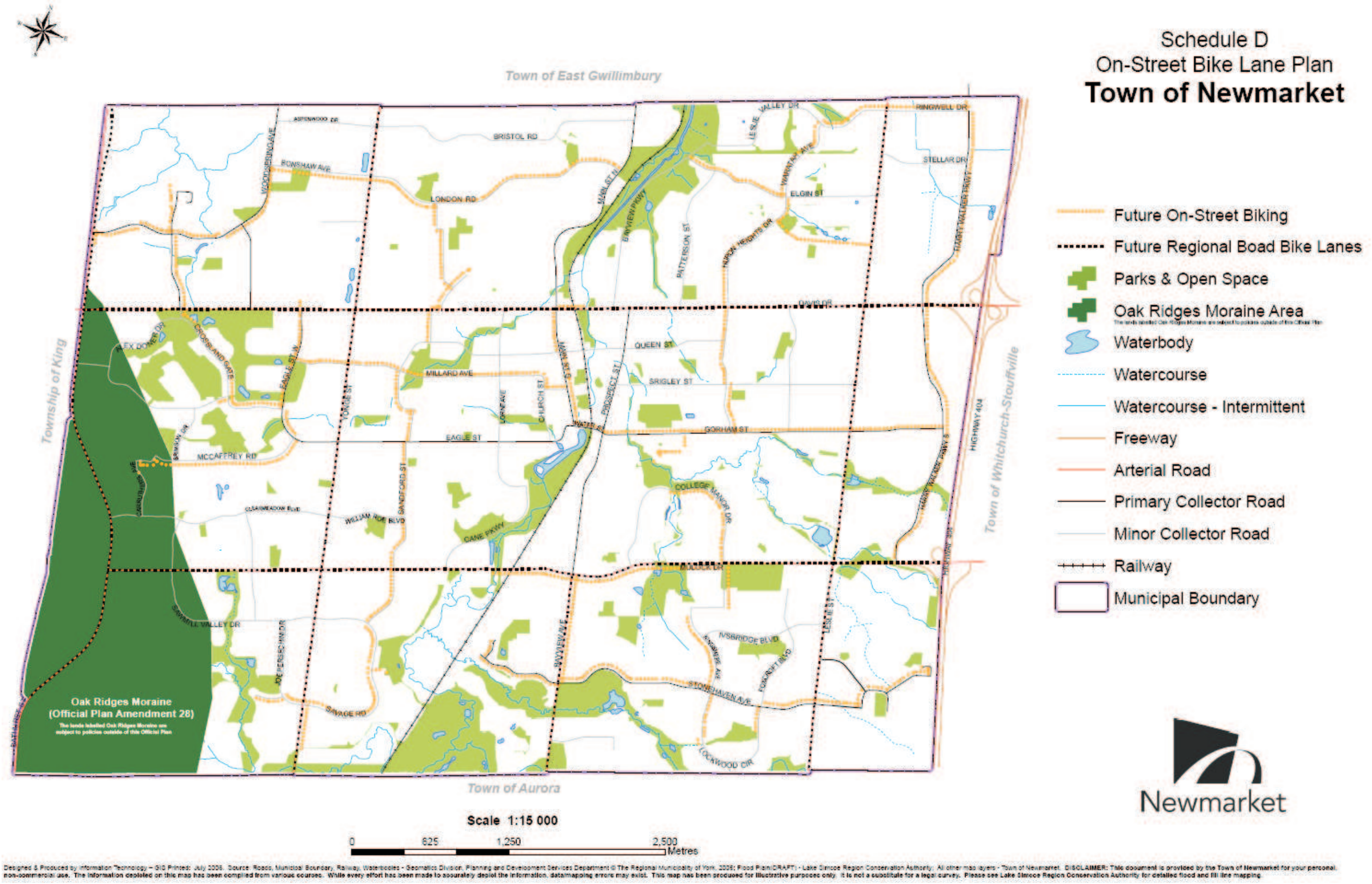


Legend

Stop Location

Not to Scale

Figure 10-2
Existing Study Area Transit Stops Locations



Designed & Produced by Information Technology – GIS Printed: July 2006. Source: Roads, Municipal Boundary, Railway, Waterbodies - Geomatics Division, Planning and Development Services Department © The Regional Municipality of York, 2006; Flood Plain(DRAFT) - Lake Simcoe Region Conservation Authority. All other map layers - Town of Newmarket. DISCLAIMER: This document is provided by the Town of Newmarket for your personal, non-commercial use. The information depicted on this map has been compiled from various sources. While every effort has been made to accurately depict the information, data/mapping errors may exist. This map has been produced for illustrative purposes only. It is not a substitute for a legal survey. Please see Lake Simcoe Region Conservation Authority for detailed flood and fill line mapping.

Not to Scale

Figure 10-3
Schedule D: On-Street Bike Lane Plan

APPENDIX A
Agency Comments

York Region

Transportation and Community Planning

Please Quote Files: D06-D9NP1210 & 19T-12N10
Refer To: Michael Mallette

January 7, 2013

Richard Nethery
Director of Planning
Town of Newmarket
395 Mulock Drive
Newmarket, Ontario, L3Y 4X7

Attention: Mr. Nethery:

Re: Preliminary Comments and Draft Plan Conditions
OPA File No. D9NP1210 & Plan of Subdivision 19T-12N10
Part of Lots 60, 61, 64, 65, 66, 67, Block 92, 65M-2212
and all of Block 91, 65M-2212, Block 155, 65M-2205, Block 144, 65M-2261, Block 89, 65M-2263, and Block 73, 65M-2284
Town of Newmarket
Marianneville Developments Limited

Thank you for the opportunity to review and provide comments on the above noted applications. Please note that the first section of this letter provides comments on the Official Plan amendment application, and the second section provides detailed comments on the plan of subdivision. York Region's pre-conditions and conditions of draft approval are also included, should Newmarket Council determine to proceed with the plan of subdivision.

Official Plan Amendment application comments

The subject site is located on the south side of Davis Drive, west of Eagle Street, in the Town of Newmarket and is approximately 36.3 hectares in size.

The purpose of the proposed Official Plan Amendment is to change the local land use designation from "Parks and Open Space" to "Stable Residential", "Emerging Residential", "Urban Centre", and "Commercial" to allow the development of 165 single detached lots, 219 medium density units, 54 condo units, 292 high density units, a commercial block, and parkland on the former golf course lands.

The York Region Official Plan (YROP) was modified and approved by the Minister on September 7, 2010, and was given partial approval by the Ontario Municipal Board on July 11, 2012. Although the entire Plan is not yet in full force and effect, the Regional Structure Plan (Map 1) is approved and reflects the earlier 1994 Plan, designating the subject lands "Urban Area". Urban Areas are the focus of growth within York Region, with a full range of residential, commercial, industrial, and institutional uses permitted.

The YROP requires "that the population and employment forecasts in Table 1 be used as the basis for planning of new development". Therefore, the Town should determine how the subject proposal aligns with the Town's forecasts and planning to the year 2031, as per Table 1 of the YROP, including the appropriate balance between this OPA application and the competing priorities with respect to the Growth Plan and YROP directives for Centres and Corridors, infill and intensification, the provision of water and wastewater services, complete communities, and the phasing and sequencing of growth within the Town.

The YROP requires the Town to ensure that, by the year 2015, residential development will occur within the built-up area as defined by the Province; the minimum residential intensification target for Newmarket (2006 – 2031) is 5,250 units. The subject lands are within the built boundary, as defined in the Growth Plan, and the policies of Section 5.3 – Intensification of the YROP would apply.

Water Resources

The Water Resources Branch of the Environmental Services Department has reviewed the proposed development and attached are detailed comments, including comments on the applicant's hydrogeological study. Below is a brief summary of the key comments.

The applications consist of lands that are located within the 5, 10 and 25-year Wellhead Protection Area (WHPA) for municipal wells No. 1 and No. 2. Specific York Region Official Plan policies apply to ensure that municipal well water quality is protected from contamination from incompatible land uses.

Water Quality

Although the proposed land use activities would not be considered Significant Drinking Water Threats in the proposed locations, the subject property is located within a Wellhead Protection Area and a portion of the property, although not part of the subject applications, is on the Oak Ridges Moraine. All development on the subject property should adhere to the Wellhead Protection Policies outlined in Section 7.3.39 and 7.3.45 of the York Region Official Plan. The objective of those policies is to ensure that municipal well water quality is protected from contamination from incompatible land uses.

York Regional Official Plan Policy 7.3.39 requires the development and approval of a risk management plan prior to the establishment of new land that involve the storage or manufacture of the following:

(a) petroleum-based fuels and or solvents;
(b) pesticides, herbicides, fungicides or fertilizers;
(c) construction equipment;
(d) inorganic chemicals;
(e) road salt and contaminants as identified by the Province;
(f) the generation and storage of hazardous waste or liquid industrial waste, and waste disposal sites and facilities;
(g) organic soil conditioning sites and the storage and application of agricultural and non-agricultural source organic materials; and,
(h) snow storage and disposal facilities

The Water Resources Branch has no significant concerns with respect to the impact of the development on the quality of groundwater supplied to municipal wells in the area. Should activities noted in York Region's Official Plan Policies 7.3.39 occur on the site, Water Resources will require that a Risk Assessment and Risk Management Plan be prepared for submission and review by York Region Water Resources staff, prior to final approval of the site plan. For more information on York Region's requirements for Risk Assessments and Risk Management Plans please refer to Guidance for Conducting Risk Assessments and Preparing Risk Management Plans for Source Water Protection (May 2011).

Potential Water Quantity Issues

Given the proximity of the site to Newmarket municipal wells No. 1 and No. 2, construction activities such as deep excavation that may require dewatering or groundwater depressurization have the potential to interfere with the quantity of groundwater available for municipal supply. While the risk of interference to the municipal water supply at this particular location is likely low, should dewatering be required during site development, we recommend that a dewatering plan be prepared by a qualified professional and submitted to the Region for approval.

As per Section 2.3 of the York Region Official Plan, under the subsection "Stormwater Management" it is York Region's objective to ensure the careful management of stormwater through the use of innovative methods. These methods refer to the use of Low Impact Development techniques to prevent the rapid infiltration of stormwater into the ground. While the subject lands are located within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA), the foremost used reference guide is the Low Impact Development (LID) Stormwater Management Guide developed by the Toronto and Region Conservation Authority (TRCA) in 2010. York Region recommends consulting both the TRCA's guide, as well as the LSRCA's Technical Guidelines for Stormwater Management Submissions (LSRCA, 2010).

As required under the Clean Water Act, Source Protection Plans (SPP) are being prepared for York Region. As the site is located within the South Georgian Bay Lake Simcoe (SGBLS) Source Protection Region, it will be required to adhere to the SGBLS Source Protection Plan once it has been approved by the Ministry of the Environment (MOE). Risk management measures for significant threats identified by the SPP, may be more stringent than those approved by the Region in the Owner's Risk Management Plan for this site. For more information please refer to www.ourwatershed.ca.

Detailed subdivision application comments

York Region has completed its initial review of the draft plan of subdivision prepared by Zelinka Priamo Ltd, Project No. MVL/NMK/10-01, dated March, 2012. The following sections highlight the draft plan of subdivision comments (attached). In addition, attached is a copy of the Region's conditions of draft approval.

Transportation

The Transportation Planning Branch has reviewed the Traffic Impact Study (TIS) report dated March, 2012 prepared by Cole Engineering in support of the proposed development and offers the following comments:

1. The study calculates the trip generation for the proposed single detached residential units in the study area based on the trip rates calculated from traffic in/out surveys at the existing residential neighbourhood. However, our review indicates that these trip rates are approximately 40% lower than those published in the ITE Trip Generation Manual and approximately 8% lower than those applied to the proposed apartment use in the same study area. The Region requires clarification to justify these trip rates and why the rates are appropriate for this area. Confirmation counts or more detailed information should be provided in order to verify the reasonableness of these trip rates.

2. An 11% of transit modal split is applied in the study to calculate the trips generated from both the background and proposed developments. The report indicates that the 10% of transit reduction was derived from the data in the 2006 TTS. It is not clear how this modal split can be applied to senior living, office commercial and retail commercial uses as the 2006 TTS does not include trip data for these specific land uses. This assumption must be clarified and background supporting information/source must be included in the report for further review.

3. It is advised that York Region's TIS Guidelines require developments generating 500 peak total auto trips or more to assess transportation impacts for horizon years of opening year and 5 years ($\geq$500 and < 1000 peak total trips) or 10 years (($\geq$1000 peak total trips) after the opening year. The TIS report, as submitted, has applied low trip rates for single detached residential units and discounted the travel demands based on several factors to achieve a net trip generation in the PM peak hour of 498 trips. Consideration should be taken to assess a longer term study horizon year given the resulted trip generation estimates.

4. It is not clear why the trip distribution percentages outlined in Tables 4.7 and 5.3 can be used for all the land uses proposed on the subject site and other development sites in this study area. Trip distribution shall be specific to each type of land uses.

5. A summary of the queuing analysis under the future total traffic conditions shall be included to assess whether estimated queue lengths for critical movements can be accommodated within available storage length and/or spacing at the signalized intersections.

6. Some TDM measures (e.g. prepaid Presto cards, welcome information package for residents, etc) are briefly mentioned in Section 9.0 (Transportation Demand Management Program) to reduce travel demands. However, In addition to the recommended TDM programs/measures outlined in the report, the following requirements must be added to the recommended TDM program/measures:

    a. A TDM checklist that identifies the programs/measures, associated costs, and applicant's responsibilities to implement and monitor the recommended TDM programs/measures;

    b. Drawings to illustrate the pedestrian and cycling connections to the boundary roadways and adjacent developments, facility layouts, the location of the bike racks, and the number of bicycle racks related to the high density residential components on the site;

    c. Appropriate TDM measures/programs for the retail component of the proposed development;

    d. Installation of adequate signage on site for pedestrians, including directions to nearest transit stops, terminals, and GO station(s).

Condition No. 7 of the attached conditions of draft plan approval requires the owner to address the above noted comments prior to final approval.

Water and Wastewater Servicing

1. The proposed water system design by Cole Engineering based on servicing from Newmarket West pressure district is not acceptable. The subject lands are to be serviced by Newmarket Central pressure district, unless it can be demonstrated that this option is not possible. Accordingly, the FSR should be revised and resubmitted for Region's review.

2. Prior to final approval, the local area municipality must grant servicing capacity allocation to the development, within the limit of the Region's capacity assignment and associated triggers.

3. In accordance with York Region's servicing protocol respecting subdivision plans receiving draft approval, prior to complete servicing allocation being available, staff are requesting that all residential lands be subject to various restrictions (i.e., Holding 'H' zone) to ensure that the water and wastewater servicing are available prior to occupancy.

Summary

Should the Town of Newmarket Council proceed with the adoption of the proposed Official Plan Amendment and the draft approval of the plan of subdivision, York Region requests that approval of the draft plan of subdivision be subject to the attached Schedule of Pre-Conditions and Schedule of Conditions.

York Region is the approval authority for the subject Official Plan Amendment, and therefore, please forward the Official Plan Amendment record to my attention. In addition, if the plan of subdivision is approved, please forward a copy of the draft approved plan and the conditions of draft approval. If you have any questions or require futher information please contact Michael Mallette, Senior Planner, at extension 1506 or via electronic mail at michael.mallette@york.ca .

Yours truly,

Heather Konefat, M.C.I.P., R.P.P.
Director of Community Planning

MM
Attachments (4): Schedule of Conditions
Red-Lined Draft Plan
Transportation Planning Comments
Water Resources Comments
Water & Wastewater Servicing Comments

Schedule of Pre-Conditions
19T-12N10
Part of Lots 60, 61, 64, 65, 66, 67, Block 92, 65M-2212
and all of Block 91, 65M-2212, Block 155, 65M-2205,
Block 144, 65M-2261
Block 89, 65M-2263, and Block 73, 65M-2284
Town of Newmarket
Marianneville Developments Limited

Re: Draft Plan of Subdivision prepared by Zelinka Priamo Ltd.
Project No. MVL/NMK/10-01, dated March, 2012

1. Prior to, or concurrent with draft plan approval, the owner shall enter into an agreement with the Town of Newmarket, which agreement shall be registered on title, committing the owner to:

   A. Not enter into any agreements of purchase and sale with end users (*) for the subject lands until such time as:

      a. i. The Council of the Town of Newmarket has allocated, within the limit of the Regional capacity assignment, adequate available water and wastewater servicing capacities to the subject development; and,
      ii. York Region has advised in writing that it is no earlier than twelve (12) months prior to the expected completion of all water and wastewater infrastructure required to support the Region's capacity assignment pertaining to the Town allocation used for the subject development;

   or

      b. the Town approves a transfer of servicing allocation to this development that is not dependent upon the construction of infrastructure;

   or

      c. the Regional Commissioner of Environmental Services and the Town of Newmarket confirm servicing capacity for this development by a suitable alternative method and the Town allocates the capacity to this development.

   AND

   B. Not enter into any agreements of purchase and sale with non end users for the subject lands unless the agreement of purchase and sale contains a condition that requires the purchaser and any subsequent purchasers to enter into a separate agreement with the Town. This agreement shall be registered on title, committing the owner to the same terms as set out in item A above.

2. Prior to draft plan approval, the owner shall enter into an indemnity agreement with York Region. The agreement shall be registered on title, agreeing to save harmless York Region from any claim or action as a result of York Region releasing conditions and pre-conditions of draft approval as part of the draft approval of Plan of Subdivision 19T-12N10 or any phase thereof by the Town, including, but not limited to claims or actions resulting from, water or sanitary sewer service not being available when anticipated. The agreement shall include a provision that requires all subsequent purchasers of the subject lands, who are not end users, to enter into a separate agreement with York Region as a condition of the agreement of purchase and sale, agreeing to indemnify York Region on the same terms and conditions as the owner.

(*) the term 'end users', for the purpose of the above noted pre-conditions, is defined as the eventual homeowner who is purchasing an individual lot containing a dwelling for the purpose of occupancy.

Schedule of Conditions
19T-12N10
Part of Lots 60, 61, 64, 65, 66, 67, Block 92, 65M-2212
and all of Block 91, 65M-2212, Block 155, 65M-2205,
Block 144, 65M-2261
Block 89, 65M-2263, and Block 73, 65M-2284
Town of Newmarket
Marianneville Developments Limited

Re: Draft Plan of Subdivision prepared by Zelinka Priamo Ltd.
Project No. MVL/NMK/10-01, dated March, 2012

1. The road allowances included within this draft plan of subdivision shall be named to the satisfaction of the Town of Newmarket and the Regional Transportation and Community Planning Department.

2. The Owner shall agree in the subdivision agreement that the Owner shall save harmless the Town of Newmarket and York Region from any claim or action as a result of water or sanitary sewer service not being available when anticipated.

3. The Functional Servicing Report (FSR) prepared by Cole Engineering (March 2012) shall be revised to the satisfaction of York Region.

4. For all lands, the Holding (H) provisions of Section 36 of the Ontario Planning Act shall be used in conjunction with all residential zone categories in order to ensure that final plan approval and development of these lands does not occur until such time as the Holding (H) symbol is removed in accordance with the provisions of the Ontario Planning Act. The Zoning Bylaw shall specify the terms under which Council may consider the removal of the Holding (H) symbol. Said terms shall include a minimum of the following:

   a) the Town of Newmarket approves a transfer of servicing allocation to this development that is not dependent upon the completion of infrastructure; or,
   b) York Region has advised in writing that the required infrastructure to support the capacity assignment associated with this development will be completed within a time period acceptable to the Region (usually 6 months) to permit the plan registration; or,
   c) the Regional Commissioner of Environmental Services confirms servicing allocation for this development by a suitable alternative method and the Town of Newmarket allocates the capacity to this development.

5. The Owner shall agree in the subdivision agreement that any direct connection to a York Region water or wastewater system requires Regional approval prior to construction. Engineering drawings showing details of the connection shall be submitted for approval.

6. The Owner shall agreee in the subdivision agreement to provide pedestrian and cycling connections to the boundary roads and adjacent land uses. York Region and the Town of Newmarket will not assume any financial responsibility for implementing the pedestrian and cycling connections.

7. The Owner shall agreee in the subdivision agreement to update the Traffic Impact Study (TIS), dated March 2012 and prepared by Cole Engineering, to the satisfaction of the Transportation Planning Branch of the York Region Transportation and Community Planning Department.

8. The Owner shall agreee in the subdivision agreement to implement and monitor a comprehensive Transportation Demand Management (TDM) program in support of the proposed development and to address the capacity constraints in this study area to the satisfaction of York Region and the Town of Newmarket. The TDM program must identify TDM measures, associated costs, as well as implementation and monitoring. York Region and the Town of Newmarket will not assume any financial responsibility for implementing the provision of the TDM Program.

9. Prior to final approval, the Owner shall have prepared, by a qualified professional transportation consultant, a functional transportation report/plan outlining the required Regional road improvements for this subdivision. The report/plan, submitted to the Transportation and Community Planning Department for review and approval, shall explain all transportation issues and shall recommend mitigative measures for these issues.

10. Prior to final approval, the Owner shall provide a written undertaking, to the satisfaction of the Transportation and Community Planning Department that the Owner agrees to implement the recommendations of the functional transportation report/plan as approved by the Transportation and Community Planning Department.

11. Prior to final approval, the Owner shall submit detailed engineering drawings, to the Transportation and Community Planning Department for review and approval, that incorporate the recommendations of the functional transportation report/plan as approved by the Transportation Services Department. Additionally, the engineering drawings shall include the subdivision storm drainage system, erosion and siltation control plans, site grading and servicing, plan and profile drawings for the proposed intersections, construction access and mud mat design, utility and underground servicing location plans, pavement markings, electrical drawings for intersection signalization and illumination design, traffic control/construction staging plans and landscape plans.

12. Prior to final approval, the Owner shall provide drawings for the proposed servicing of the site to be reviewed by the Engineering Department of the area municipality. Three (3) sets of engineering drawings (stamped and signed by a professional engineer), and MOE forms together with any supporting information shall be submitted to the Transportation and Community Planning Department, Attention: Mrs. Eva Pulnicki, P.Eng.

13. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department, that all existing driveway(s) along the Regional road frontage of this subdivision will be removed as part of the subdivision work, at no cost to York Region.

14. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department that elevations along the Davis Drive streetline shall be 0.1 metres above the centreline elevations of the York Region roadway, unless otherwise specified by the Transportation and Community Planning Department.

15. Prior to final approval, the Owner shall provide a copy of the subdivision agreement to the Transportation and Community Planning Department, outlining all requirements of the Transportation and Community Planning Department.

16. Prior to final approval, the Owner shall submit drawings depicting the following to the satisfaction of York Region staff:

    a) All existing woody vegetation within the York Region road right of way,
    b) Tree protection measures to be implemented on and off the York Region road right of way to protect right of way vegetation to be preserved,
    c) Any woody vegetation within the York Region road right of way that is proposed to be removed or relocated. However, it is to be noted that tree removal within York Region road right's of way shall be avoided to the extent possible/practical. Financial or other compensation may be sought based on the value of trees proposed for removal.
    d) A planting plan for all new and relocated vegetation to be planted within the York Region road right of way, based on the following general guideline:

    Tree planting shall be undertaken in accordance with York Region standards as articulated in Streetscaping Policy and using species from the York Region Street Tree Planting List. These documents may be obtained from the Forestry Section. If any landscaping or features other than tree planting (e.g. flower beds, shrubs) are proposed and included in the subdivision agreement , they will require the approval of the Town and be supported by a Maintenance Agreement between the Town and the Region for Town maintenance of these features; any such Maintenance Agreement should indicate that where the area municipality does not maintain the feature to York Region's satisfaction, the area municipality will be responsible for the cost of maintenance or removal undertaken by the Region.

17. Prior to final approval, the Owner shall engage the services of a consultant to prepare and submit for review and approval, a noise study to the satisfaction of the Transportation and Community Planning Department recommending noise attenuation features.

18. The Owner shall agree in the subdivision agreement, in wording satisfactory to the Transportation and Community Planning Department to implement the noise attenuation features as recommended by the noise study and to the satisfaction of the Transportation and Community Planning Department.

19. The Owner shall agree in the subdivision agreement, in wording satisfactory to the Transportation and Community Planning Department, that where berm, noise wall, window and/or oversized forced air mechanical systems are required, these features shall be certified by a professional engineer to have been installed as specified by the approved Noise Study and in conformance with the Ministry of Environment guidelines and the York Region Noise Policy.

20. The following warning clause shall be included in a registered portion of the subdivision agreement with respect to the lots or blocks affected:

    "Purchasers are advised that despite the inclusion of noise attenuation features within the development area and within the individual building units, noise levels will continue to increase, occasionally interfering with some activities of the building's occupants".

21. Where noise attenuation features will abut a York Region right-of-way, the Owner shall agree in the subdivision agreement, in wording satisfactory to York Region's Transportation and Community Planning Department, as follows:

    a) that no part of any noise attenuation feature shall be constructed on or within the York Region right-of-way;

    b) that noise fences adjacent to York Region roads may be constructed on the private side of the 0.3 metre reserve and may be a maximum 2.5 metres in height, subject to the area municipality's concurrence;

    c) that maintenance of the noise barriers and fences bordering on York Region right-of-ways shall not be the responsibility of York Region; and

    d) that any landscaping provided on York Region right-of-way by the Owner or the area municipality for aesthetic purposes must be approved by the Transportation and Community Planning Department and shall be maintained by the area municipality with the exception of the usual grass maintenance.

22. Prior to final approval, the Owner shall agree that the following lands will be conveyed to York Region for public highway purposes, free of all costs and encumbrances, to the satisfaction of York Region Solicitor:

    a) a 15.0 metre by 15.0 metre daylight triangle at the southwest and southeast corners of Davis Drive and Street 'B'.

23. Prior to final approval, the Owner shall agree that the following lands will be conveyed to York Region, free of all costs and encumbrances, to the satisfaction of York Region Solicitor:

    a) a 0.3 metre reserve where it abuts the daylight triangles in the southwest and southeast corners of Davis Drive and Street 'B'.

24. Prior to final approval, the Owner shall agree to prepare and submit to the Transportation and Community Planning Department for review and approval, a draft reference plan detailing the existing 0.3 metre reserve adjacent to the throat and daylight triangles at Davis Drive and Street 'B' that is required to be lifted to provide legal access to Street 'B'.

25. Prior to final approval, in order to determine the property dedications (if any) required to achieve the ultimate right-of-way width of Davis Drive abutting the subject site, the applicant shall submit a recent plan of survey for the property that illustrates the existing centre line of construction of Davis Drive.

26. Prior to final approval, the Owner shall provide a solicitor's certificate of title in a form satisfactory to York Region Solicitor, at no cost to York Region with respect to the conveyance of the above noted lands to York Region.

27. Prior to final approval, York Region requires the Owner to submit to it, in accordance with the requirements of the Environmental Protection Act and O. Reg. 153/04 Records of Site Condition Part XV.1 of the Act (as amended), a Phase 1 environmental site assessment prepared and signed by a qualified professional, of the Owner's lands and more specifically of the lands to be conveyed to York Region (the "Assessment"). Based on the findings and results of the Assessment, York Region may require further study, investigation, assessment and delineation to determine whether any remedial or other action is required. The Assessment and any subsequent environmental reports or other documentation prepared in respect of the environmental condition of the lands to be conveyed must to be addressed to York Region, contain wording to the effect that York Region shall be entitled to rely on such reports or documentation in their entirety, and such reports or documentation shall be satisfactory to York Region.

28. Prior to final approval, the Owner shall certify, in wording satisfactory to the Transportation and Community Planning Department, that no contaminant, pollutant, waste of any nature, hazardous substance, toxic substance, dangerous good, or other substance or material defined or regulated under applicable environmental laws is present at, on, in or under all lands to be conveyed to York Region (including soils, substrata, surface water and groundwater, as applicable): (i) at a level or concentration that exceeds the Environmental Protection Act O. Reg. 153/04 full depth generic site condition standards applicable to the intended use that such lands will be put by York Region at the time of conveyance or any other remediation standards published or administered by governmental authorities applicable to the intended land use; and (ii) in such a manner, condition or emanating from such lands in such a way, that would result in liability under applicable environmental laws. The Assessment, any subsequent environmental reports or other documentation and the Owner's certification shall be done at no cost to York Region.

29. The Owner shall agree in the subdivision agreement, in wording satisfactory to the Transportation and Community Planning Department, to be responsible to decommission any existing wells on the owner's lands in accordance with all applicable provincial legislation and guidelines and to the satisfaction of the area municipality.

30. The Owner shall agree, prior to the development approval of Blocks 167, 168, 171 and 172 that access to Blocks 167, 168, 171 and 172 shall be via the internal subdivision road network. Direct access shall not be permitted to Davis Drive.

31. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department that Street 'B' shall be designed to intersect Davis Drive at a right angle.

32. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department, that the throat width of Street 'B' shall be designed to accommodate one 5.0 metre inbound lane and two 3.5 metre outbound lanes for a distance of 60.0 metres from the widened limit of Davis Drive; no intersection or residential access shall be permitted on Street 'B' within 60.0 metres of the widened limit of Davis Drive.

33. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department, that the right-of-way width of Street 'B' shall meet the requirements of the Town of Newmarket, including the pavement width of Street 'B' as noted in Condition 32.

34. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation and Community Planning Department, that pedestrian access to shall be provided to the boundary roads and adjacent land uses.

35. Prior to final approval, the Owner shall demonstrate, to the satisfaction of the Transportation Services Department, that all local underground services will be installed within the area of the development lands and not within York Region's road allowance. If a buffer or easement is needed to accommodate the local services adjacent to York Region's Right of Way, then the Owner shall provide a satisfactory buffer or easement to the Area Municipality, at no cost to the Region.

36. The Owner shall agree in the subdivision agreement, in wording satisfactory to the Transportation Services Department that the Owner will be responsible for determining the location of all utility plants within York Region right-of-way and for the cost of relocating, replacing, repairing and restoring any appurtenances damaged during construction of the proposed site works. The Owner must review, or ensure that any consultants retained by the Owner, review, at an early stage, the applicable authority's minimum vertical clearances for aerial cable systems and their minimum spacing and cover requirements. The Owner shall be entirely responsible for making any adjustments or relocations, if necessary, prior to the commencement of any construction.

37. The Owner shall agree in the subdivision agreement, in wording satisfactory to the Water Resources Branch, that prior to site plan approval for Block 171, the Owner shall conduct a subsurface investigation to identify any need for dewatering and/or groundwater depressurization, and where applicable, submit a detailed dewatering plan prepared by a qualified professional to the Water Resources Branch for approval.

38. The Owner shall enter into an agreement with York Region, agreeing to satisfy all conditions, financial and otherwise, of the Regional Corporation; Regional Development Charges are payable prior to final approval in accordance with By-law DC-0007-2007-040, as amended by By-law # 2010-49.

39. The Region of York Transportation and Community Planning Department shall advise that Conditions 1 to 38 inclusive, have been satisfied.

R.J. Burnside & Associates Limited 17345 Leslie Street, Suite 200 Newmarket ON L3Y 0A4 Canada
telephone (905) 953-8967 **fax** (905) 953-8945 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Memo

Date:	June 25, 2012	**File No.:**	300030567.0000
Project:	Estates of Glenway Town of Newmarket Review of Traffic Impact Study		
Prepared By:	Henry Centen, P.Eng.		
Distribution:	David Scomazzon, P.Eng.		

This memo provides my review of the following documentation:

- Traffic Impact Study, Estates of Glenway, Town of Newmarket; prepared for Marianneville Developments Limited; prepared by Cole Engineering; dated March 2012.

For context, our summary of the major conclusions and recommendations of the Traffic Impact Study (TIS) is as follows:

a) Existing traffic conditions (based on November 2011 traffic counts):

   - Left turn movements at the intersections of Yonge Street / Davis Drive and Yonge Street / Millard Avenue are over capacity in the PM peak hour. Optimization of the signal timing at these intersections will mitigate these deficiencies and result in acceptable operations.

   - The northbound left turn movement at the intersection of Yonge Street / Bathurst Street is over capacity. This deficiency cannot be mitigated by optimizing the signal timing, but will require additional lanes (e.g. dual northbound left turn lane) to be implemented by the Region.

b) The traffic horizon periods considered included 2011, 2016, 2021 and 2026. A growth rate of 2% per annum (compounded) was applied to all through movements, based on average historical traffic growth (i.e. 2003 to 2008) across the corridors in the study area.

c) Trip generation for single family units was based on traffic counts taken at Eagle Street / John Bowser Crescent and Eagle Street / Glenway Circle, as representative proxy sites. Trip generation rates for other land uses were based on standard rates provided in the Trip Generation Manual (Institute of Transportation Engineers).

d) Trip generation from all of the land use types, with the exception of the single family and semi-detached units and the golf course, were reduced by 11% to reflect a forecasted modal shift towards transit and away from car travel.

e) Background traffic forecasts also included the following developments in the immediate study area:

- Horizon Year 2016 – Yonge / Millard (400 units); Yonge / Davis (400 units); Davis/ Bathurst (Bailey Subdivision, 150 units); Yonge / Eagle (York Region office, 200,000 sq. ft).; 17645 Yonge Street (214 retirement / special needs' suites, 184 apartments). These developments were forecast to generate 565 vph in the AM peak hour and 573 vph in the PM peak hour.
- Horizon Year 2021 – North of Davis (Toth Subdivision, 310 units); Yonge / Eagle (York Region office, Ph. 2; 200,000 sq.ft.); 17645 Yonge Street (178 retirement suites; 155 apartments). These developments were forecast to generate 642 vph in the AM peak hour and 681 vph in the PM peak hour.

f) Traffic forecasts for the Glenway development included the following:
730 residential units; 20,000 sq.ft. commercial gross floor area; nine hole golf course and clubhouse. This development is forecast to generate the following:

- Year 2016 – 268 vph in the AM peak hour, 349 vph in the PM peak hour.
- Year 2021 – additional 122 vph in the AM peak hour, additional 149 vph in the PM peak hour.

g) The following directional distribution was assumed for the traffic from all of the developments considered:

- 40% to/from the south
- 20% to/from the north
- 20% to/from the east
- 20% to/from the west.

h) Under the 2016 and 2021 background traffic conditions, the signalized intersections at Davis / Bathurst and Davis / Yonge will be over capacity. Since the lane configurations at these intersections are at full build-out, mitigation measures to maintain acceptable traffic operations may be limited to implementing Transportation Demand Management and increased transit usage. Operations at the other signalized, and unsignalized, intersections in the study area will operate below capacity and with short delays.

i) Under the 2016 total traffic condition, the impact of the Glenway development traffic is forecast to be minimal, with the capacity deficiencies primarily resulting from the growth in background traffic. The northbound left turn movement, at the proposed intersection of Street B / Davis Drive is forecast to fail (i.e. even with separate outgoing left turn and right turn lanes). It is forecast that signal warrants will not be met at the intersection of Street B / Davis Drive by 2016, assuming operation as a tee intersection (i.e. Toth Subdivision not yet built). It is forecast that the warrants for a westbound left turn lane (i.e. 15 metres storage, unsignalized conditions) will be

met at this intersection by 2016. While back-of-queue analysis confirms that 15 metres of storage is sufficient, it is recommended that 30 metres of storage be provided for the westbound left turn lane at the Street B intersection (unsignalized conditions), as per typical York Region requirements. In addition, an eastbound right turn lane is required at the Street B intersection by 2016, as per typical York Region standards.

j) Under the 2021 total traffic condition, the impact of the Glenway development traffic at the major intersections is forecast to be minimal, with the capacity deficiencies continuing to worsen, due primarily to the growth in background traffic. It is forecasted that signalization warrants will be met at the intersection of Street B / Davis Drive by 2021 (i.e. including Toth Subdivision on fourth leg of intersection) and it is recommended that exclusive left turn lanes be placed on each leg of this intersection. Due to the proximity of the existing eastbound left turn lane at the mall access (i.e. 240 metres east of the Street B intersection), it is recommended that the left turn lane between the Street B intersection and the mall intersection be continuous in that area. Under signalized conditions, the intersection of Street B / Davis Drive is forecast to operate with an excellent Level of Service through horizon year 2026. A few movements at the Crosslands Gate / Eagle Street intersection and at the Millard Avenue / Eagle Street intersection are also forecast to be over capacity in the 2021 time horizon, under total traffic conditions.

k) Under the 2026 total traffic condition (i.e. 5 years after forecasted build-out), the deficiencies at the primary intersections are forecast to continue to worsen. However all movements at the unsignalized intersections are forecast to operate with acceptable Levels of Service and below their capacities.

l) To minimize traffic infiltration onto the local roads, the proposed golf clubhouse facility is located with direct access to Bathurst Street, the proposed commercial block with direct access to Davis Drive, and the proposed medium and high density residential developments (i.e. 60% of total proposed Glenway units) with access to the new public road intersection at Davis Drive.

m) Future traffic operations will be better than forecasted due to improved transit operations in this area, including:

- High transit service frequencies
- Better accessibility to transit stations
- Provision of an exclusive right-of-way for transit vehicles, thereby removing them from the general traffic mix.

n) The proposed Street B / Davis Drive intersection meets the sight distance requirements for safe operations as follows:

- A stopping sight distance of 203 metres is provided from the east, whereas 135 metres is required.
- A decision sight distance of 288 metres is provided to the east, whereas 240 metres is required.

o) Recommendations are made to increase mobility via various bicycle initiatives (eg. bike parking, wayfinding signs etc.).

p) Various Transportation Demand Management (TDM) initiatives are identified including:

- Locating transit stops within a 400 metre walking distance.
- Existing GO Transit terminal is located within walking/cycling distance of development.
- York Transit growth in ridership of 33% between 2004 and 2009, compared to population growth of 13%, validating the assumptions regarding travel modes.
- Proposed Yonge Street rapidway and Davis Drive rapidway.
- New GO Transit Station at Yonge Street / Mulock Drive.
- Newmarket's pedestrian and cycling facility network and support program for walking and cycling.
- TDM strategies including ridership matching services, carpool parking, car share programs.
- Glenway builder is prepared to provide $25 prepaid VIVA / YRT / GO / PESTRO cards to each household in the development.
- Municipal financial incentives to use transit.
- Welcome packages for new residents to include cycling information.
- Marketing and education programs (e.g. York travelling brochure, transit aps for Smart phones).

q) Low posted speeds on the minor collector roads (i.e. 40 km/h on Crossland Gate and Alex Doner Drive), will calm traffic. Additional traffic calming measures for consideration include: speed tables, raised crosswalks, speed humps, bike lanes, street trees, speed enforcement programs, roadway striping, street closures.

r) Considering the minor traffic increases from the proposed development, and the distribution across multiple access points, there will not be any significant adverse impact on traffic operations on the abutting road network or at the site accesses.

Burnside Review Comments

We have reviewed the methodology and details provided in the TIS and provide the following comments and/or questions:

1. We note that the new public roads being proposed in this subdivision have 20 metre wide road allowances. The typical road allowance widths based on the current Town Standards are 18 metres for Local Roads, 21 metres for Minor Collector Roads and 26 metres for Primary Collector Roads. All public roads should be revised to conform to Town Standards.

2. The primary intersections with the arterial roads (i.e. Davis Drive, Yonge Street, Bathurst Street) are under the jurisdiction of the Region of York. Comments should be obtained from the Region and reviewed.

3. The traffic counts at the intersection of Bathurst Street / Davis Drive and Bathurst Street / Sykes Road do not balance. For example, in the AM peak hour southbound

direction, the counts show 886 vph leaving the Davis Drive intersection, but 1593 vph arriving at the Sykes intersection. Similarly, in the AM northbound direction, the counts show 1255 vph leaving the Sykes intersection but only 591 vph arriving at the Davis intersection. It is suggested that the counts be checked.

4. The horizon period considered in the TIS is 5 years after build-out. The Region's guidelines for large developments and multi-phase development require consideration of 10 years after the last phase. We suggest that horizon year 2031 be considered.

5. The assumed growth in background traffic (i.e. 2% per annum, compounded) is based on historical AADT growth on the area roadways, which varies significantly (i.e. range of -0.4% to +5.1%). The growth along these corridors is being significantly impacted by developments in the immediate area, as well as road improvement projects in this area. We defer to the Region, through their EMME/2 macro transportation model, to confirm whether the proposed growth rate is appropriate. Proposed Regional projects (e.g. proposed 4-laning of Bathurst Street from Green Lane to Highway 11) will have significant impacts on traffic patterns in this area.

6. The trip generation rates used for the single family units are based on a single day of traffic counts at two proxy intersections in the existing Glenway Subdivision. These proxy rates are only about 60% of the unit rates recommended in the Trip Generation Manual (Institute of Transportation Engineers) and about 75% of the rates that have been used in other area developments (e.g. Northwest Newmarket Neighbourhood, which has been subject to ongoing traffic monitoring over an extended time period). Considering the limited monitoring at the proxy site, we suggest that the proxy rates used are too low for planning purposes, and should be revised upward.

7. The TIS assumes 150 units at the intersection of Davis Drive / Bathurst Street, whereas a recent TIS (Dillon, March 2012) is proposing 200 units. Also the TIS shows a direct access onto Bathurst Street for this development, whereas the recent TIS shows access to Sykes Road. Also the Davis Drive / Bathurst Street development proposes an additional intersection with Davis Drive (potentially signalized), which may impact operations at the existing Glenway intersection (i.e. Crossland Gate). The TIS should be updated to take into account the most recent plans, as well as to confirm any impacts that the Glenway Subdivision development may have on the operations of the proposed access to the Davis Drive / Bathurst Street Subdivision from Sykes Road.

8. Tables 4.2 and 4.3 list potential "other developments" to be included in the traffic generation analysis, however the Phase 2 development at Yonge Street / Davis Drive (i.e. 24 storey residential tower, plus commercial/retail) is not listed (i.e. as identified in the TIS in Appendix F). Also Tables 4.5 and 4.6 do not include the traffic from the proposed residential developments at Yonge Street / Davis Drive or at Yonge Street / Millard Avenue (total of 800 units, as per Table 4.2). The traffic analysis should be revised to include all identified developments within the horizon periods considered.

9. We understand that the Region is proposing works that may impact the operations at the Bathurst Street / Davis Drive intersection. Since operations at this intersection have been identified to be problematic, such proposed works should be considered as part of the TIS analysis.

10. Not all of the developments proposed in the immediate area have been accounted for in the analysis. For example, the Lowton Phase 7 development (234 units), located on Bathurst Street, immediately north of Woodspring Avenue, will have an impact on traffic in the study area. The proponent should confirm with the Town that all active planning applications have been considered in the calculation of background traffic.

11. The basis for the traffic forecasts on the roads to the north of Davis Drive (ie. Ford Wilson Boulevard and the Toth Subdivision access) should be confirmed, to ensure consistency with any previous TIS work, or ongoing monitoring work, for those areas.

12. The TIS applies an 11% reduction in trips (i.e. from medium and high density residential, commercial, office uses, seniors' facilities), to reflect the potential increased modal split towards transit. This reduction is based on the non-auto modal split (11%) in the 2006 Transportation Tomorrow Survey. The unit trip generation rates do not typically include the impact of transit facilities. While some reduction in car trips may be applicable, due to a more aggressive transit program proposed in this area, the basis of the quantification of such a reduction is not clear. Based on the information presently available, we believe that the proposed reduction in trips may result in an under-estimation of car trips in this area. Additional analysis should be provided to confirm if any reduction in trips should be applied, for planning purposes, or to support any forecasted impact of transit facilities. As noted in Section 5.3 of the TIS, York Region has been operating rapid transit services on Yonge Street, between the Newmarket terminal and Finch Station (Toronto) since 2005. For comparison, the impact of such additional transit services may be able to be identified in the 2011 Transportation Tomorrow Survey, once that data is available.

13. The TIS notes that the Bathurst Street / Davis Drive and Yonge Street / Davis Drive intersections are built-out presently (Section 4.6.2). However the TIS (Section 10.0, Conclusions) notes that dual NB left turn lanes are required at both of these intersections, which is not consistent with the earlier observation. Considering the high northbound left turn movement at the Bathhurst Street / Davis Drive intersection (i.e. 517 vph NBL), we would concur that the implementation of a second northbound left turn lane may provide some mitigation for traffic operations at that intersection. For the Yonge Street / Davis Drive intersection, a maximum of 296 vph is forecast for the NBL movement, which is below the Region's threshold for double left turn lanes (i.e. 400 vph).

14. The TIS suggests that the unsignalized intersections will operate below capacity and with short delays under 2021 background traffic conditions. However we note that there are a number of movements that will operate above capacity, some with considerable delays (e.g. under 2021 background traffic conditions, the NBL at the GO Terminal access / Davis Drive is forecast to operate with 574 seconds of delay and the SBL at the Toth Subdivision / Davis Drive intersection is forecast to operate

with 479 seconds of delay). While the recommended signalization of the Toth Subdivision intersection will mitigate the operational deficiencies at that location, no mitigation is recommended for the GO Terminal access. We assume that the minor volume of traffic using the NB left movement from the GO terminal would divert to the Eagle Street access under such conditions, however this should be confirmed in the TIS.

15. Section 5.5 of the TIS notes that the proposed clubhouse for the golf course and the proposed commercial block in the Glenway development will have primary access from the Regional roads (i.e. Bathurst Street and Davis Drive). Considering the congestion along the Region's arterial roads, they may prefer that these facilities access the municipal roads, with access to the Region's roads via the signalized intersections in those areas. Access constraints should be confirmed with the Region.

16. The TIS suggests that traffic infiltration in the existing neighbourhoods is mitigated by the placement of the higher traffic generators in close proximity to the Regional arterial roads. However no quantification of overall daily traffic volumes or speeds (i.e. before and after development) has been provided to assess whether traffic calming issues may be a concern in the established neighbourhoods. In addition a number of private, gated roads are proposed within the development, to reduce traffic infiltration (i.e. short-cutting). The TIS should provide additional analysis of internal traffic circulation issues, including the internal traffic volumes, the proposed interface between the public and private roads, emergency access etc..

17. We note that Table 7.1 recommends 15 metres of westbound left turn storage at the intersection of Street B / Davis Drive, whereas Appendix M shows 25 metres of storage being required. This storage requirement would increase substantially under 2021 conditions, if the intersection remains unsignalized, and may not be practical. Also the left turn lane warrant analysis assumes a 4-lane divided highway, whereas the proposed functional design shows an un-divided highway. The analysis should be revised to use the correct graph (un-divided highway).

18. The traffic signal volume warrants, provided for the proposed intersection of Street B / Davis Drive, are based on free flow criteria (i.e. operating speed greater than or equal to 70 km/h) and single approach lanes. It should be confirmed with the Region whether the signal warrants should be based on restricted flow conditions, which would raise the volume threshold. Also the signal threshold criteria should be based on two approach lanes, which reflects the existing lane structure. We believe that the decision to implement traffic signals at this location may be based on the Region's *Peak Hour Delay For Entering onto the Major Street from the Side Street (Transportation Impact Study Guideline, Region of York).* The TIS should provide an analysis of the Region's delay warrant, which is not presently included. The TIS should model the Street B / Davis Drive intersection for 2021 total traffic conditions, as unsignalized, to confirm the delays (i.e. the analysis in the TIS only considers signalized conditions for 2021 total traffic at this intersection).

19. Section 6.1.3 notes that all unsignalized movements will have acceptable Levels of Service and capacities, under 2026 total traffic conditions. However we note that the northbound movements at the Crossland Gate / Eagle Street intersection are

forecast to have a LOS F and volume/capacity of 1.26 and the northbound movements at the Millard Avenue / Eagle Street intersection are forecast to have a LOS F and volume/capacity of 1.09. In addition the Go Terminal Access / Davis Drive intersection is forecast to have delays of 916 seconds for the northbound left turn movement, although such movements are within capacity. The TIS should provide comment on these traffic operations. In addition traffic operations at the proposed Street D / Millard Avenue intersection should be reviewed, including the impacts that traffic operations at adjacent intersections may have on this intersection.

20. Section 7.3 provides an analysis for the turning sight distance and decision sight distance, in an easterly direction, for the proposed Street B / Davis Drive intersection. We assume there are no sight distance constraints in a westerly direction, although the TIS should confirm this. Also the sight distance analysis does not consider the turning sight distance requirements explicitly, which may be more restrictive than the decision sight distance, depending on the criteria applied. However, considering that this intersection will likely be signalized, the sight distances available are considered to be adequate.

21. Back of queue reports/analysis has not been provided for the signalized intersections. Such analysis should be included in the TIS, to verify any conflicts between intersection operations.

APPENDIX B
Existing Road Network And Transit Assessment

1.0 Road Network

1.1. Existing Conditions

The existing road network, lane configurations and traffic control within the study area are illustrated in **Figure 2-1**. The details of the road sections are outlined below.

Davis Drive is an east-west four-lane major arterial road under the jurisdiction of York Region (the "Region"). Davis Drive maintains a speed limit of 60 km/h within the study area and provides exclusive turn lanes at all key intersections. Davis Drive is a key arterial roadway within the Town and Regional road network as it provides a direct connection from Highway 400 to the west though to Highway 404 to the east.

Yonge Street is a north-south four-lane major arterial road under the jurisdiction of the Region. It maintains a speed limit of 60 km/h within the study area and provides exclusive turn lanes at all key intersections. Yonge Street is a key arterial roadway within the Town and Regional road network and is identified as a Rapid Transit Corridor in the Regional Transportation Master Plan that will ultimately provide rapid transit infrastructure along its entire length within the Region.

Bathurst Street is a north-south four-lane arterial road under the jurisdiction of the Region and maintains a speed limit of 60 km/h within the study area.

Eagle Street West is a north-south two-lane collector road under the jurisdiction of the Town and maintains a posted speed limit of 50 km/h within the study area.

Millard Avenue West is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a posted speed limit of 40 km/h within the study area.

Crossland Gate is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a speed limit of 40 km/h within the study area.

Alex Doner Drive is an east-west two-lane minor collector road under the jurisdiction of the Town and maintains a speed limit of 40 km/h within the study area.

APPENDIX C

Existing Turning Movement Counts And Signal Timing Plan

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-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

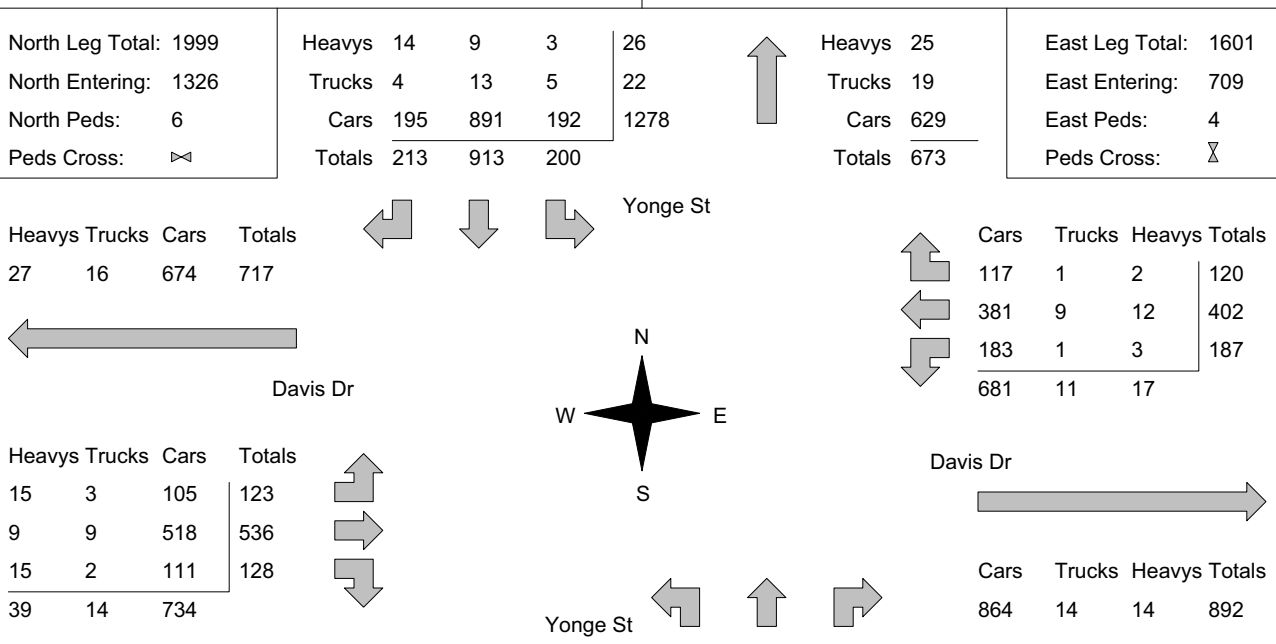
Municipality: Newmarket
Site #: 1103000001
Intersection: Yonge St & Davis Dr
TFR File #: 2
Count date: 23-Feb-11

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Afternoon Peak Diagram

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

One Hour Peak
From: 16:00:00
To: 17:00:00

Municipality: Newmarket
Site #: 1103000001
Intersection: Yonge St & Davis Dr
TFR File #: 2
Count date: 23-Feb-11

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Yonge St runs N/S

North Leg Total: 2652
North Entering: 1162
North Peds: 22
Peds Cross: ⋈

Heavys	5	4	3	12
Trucks	2	5	4	11
Cars	157	699	283	1139
Totals	164	708	290	

Heavys	19
Trucks	16
Cars	1455
Totals	1490

East Leg Total: 2236
East Entering: 1159
East Peds: 14
Peds Cross: ⧖

Yonge St

Heavys	Trucks	Cars	Totals
20	13	972	1005

Cars	Trucks	Heavys	Totals
251	1	1	253
617	9	10	636
268	0	2	270
1136	10	13	

Davis Dr

N
W E
S

Heavys	Trucks	Cars	Totals
13	3	257	273
13	16	555	584
16	2	140	158
42	21	952	

Davis Dr

Cars	Trucks	Heavys	Totals
1035	21	21	1077

Yonge St

Peds Cross: ⧖
West Peds: 18
West Entering: 1015
West Leg Total: 2020

Cars	1107
Trucks	7
Heavys	22
Totals	1136

Cars	198	947	197	1342
Trucks	2	12	1	15
Heavys	5	5	5	15
Totals	205	964	203	

Peds Cross: ⋈
South Peds: 22
South Entering: 1372
South Leg Total: 2508

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Total Count Diagram

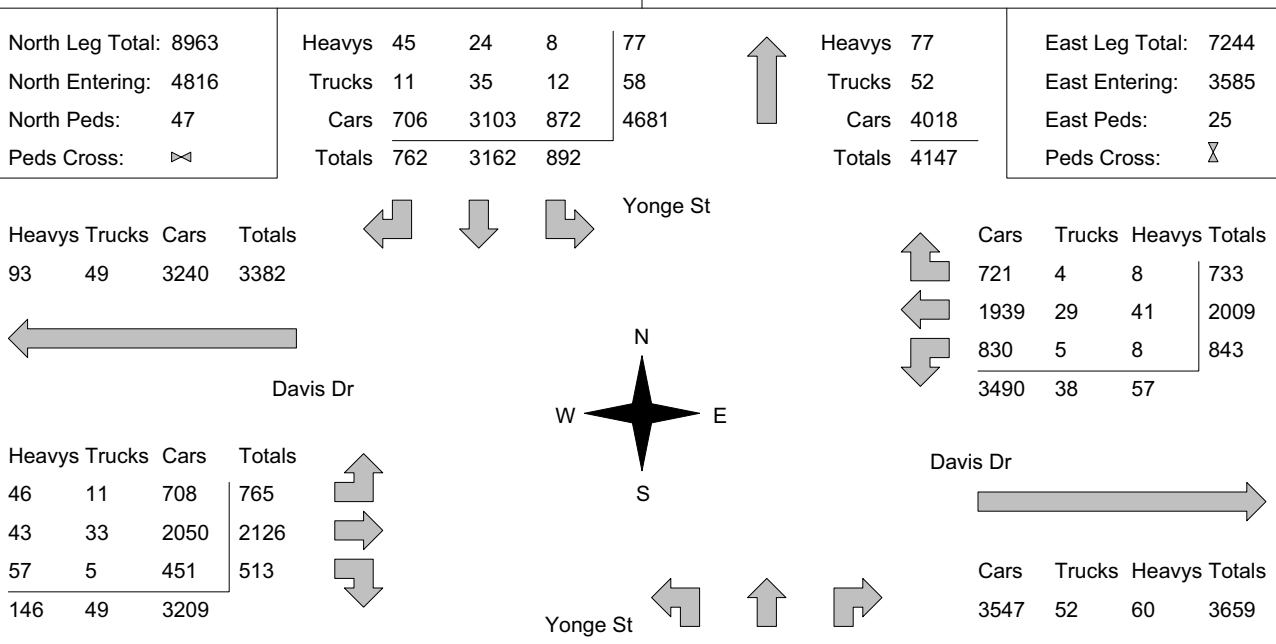
Municipality: Newmarket
Site #: 1103000001
Intersection: Yonge St & Davis Dr
TFR File #: 2
Count date: 23-Feb-11

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Yonge St runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.
Traffic Count Summary

Intersection: Yonge St & Davis Dr | **Count Date:** 23-Feb-11 | **Municipality:** Newmarket

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	182	871	220	1273	4	1766
9:00:00	193	893	191	1277	8	2005
16:00:00	0	0	1	1	0	1
17:00:00	290	708	164	1162	22	2534
18:00:00	222	660	181	1063	13	2371
Totals:	887	3132	757	4776	47	8677

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	98	300	95	493	3
9:00:00	104	451	173	728	8
16:00:00	0	0	0	0	0
17:00:00	205	964	203	1372	22
18:00:00	204	934	170	1308	16
	611	2649	641	3901	49

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	142	403	91	636	0	1250
9:00:00	188	403	128	719	4	1500
16:00:00	0	0	0	0	0	22
17:00:00	270	636	253	1159	14	2174
18:00:00	243	567	261	1071	7	2039
Totals:	843	2009	733	3585	25	6985

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	87	442	85	614	5
9:00:00	133	517	131	781	5
16:00:00	5	12	5	22	0
17:00:00	273	584	158	1015	18
18:00:00	266	571	131	968	5
	764	2126	510	3400	33

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	678	854	17	1223	1109

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Count Date: 23-Feb-11 Site #: 1103000001

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	35	35	183	183	53	53	0	0	2	2	1	1	0	0	6	6	4	4	1	1
7:30:00	68	33	385	202	107	54	0	0	2	0	1	0	1	1	6	0	7	3	2	1
7:45:00	127	59	611	226	143	36	0	0	5	3	2	1	2	1	8	2	11	4	4	2
8:00:00	175	48	857	246	205	62	4	4	5	0	2	0	3	1	9	1	13	2	4	0
8:15:00	232	57	1090	233	249	44	4	0	8	3	4	2	3	0	12	3	19	6	8	4
8:30:00	287	55	1329	239	289	40	5	1	11	3	5	1	4	1	13	1	22	3	10	2
8:45:00	319	32	1502	173	338	49	5	0	18	7	6	1	5	1	17	4	25	3	10	0
9:00:00	364	45	1721	219	373	35	6	1	23	5	7	1	5	0	20	3	31	6	12	2
9:00:12	364	0	1721	0	373	0	6	0	23	0	7	0	5	0	20	0	31	0	12	0
16:00:00	364	0	1721	0	374	1	6	0	23	0	7	0	5	0	20	0	31	0	12	0
16:15:00	432	68	1874	153	413	39	8	2	24	1	8	1	6	1	21	1	32	1	16	4
16:30:00	512	80	2049	175	454	41	8	0	25	1	8	0	7	1	22	1	33	1	18	2
16:45:00	577	65	2236	187	499	45	10	2	25	0	8	0	7	0	23	1	34	1	20	2
17:00:00	647	70	2420	184	531	32	10	0	28	3	9	1	8	1	24	1	36	2	34	14
17:15:00	702	55	2568	148	586	55	11	1	29	1	10	1	8	0	24	0	38	2	40	6
17:30:00	753	51	2717	149	630	44	11	0	32	3	11	1	8	0	24	0	40	2	44	4
17:45:00	820	67	2882	165	673	43	11	0	33	1	11	0	8	0	24	0	44	4	45	1
18:00:00	867	47	3073	191	701	28	12	1	35	2	11	0	8	0	24	0	45	1	47	2
18:15:00	872	5	3103	30	706	5	12	0	35	0	11	0	8	0	24	0	45	0	47	0
18:15:53	872	0	3103	0	706	0	12	0	35	0	11	0	8	0	24	0	45	0	47	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Count Date: 23-Feb-11 Site #: 1103000001

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	37	37	88	88	20	20	0	0	3	3	0	0	0	0	4	4	1	1	0	0
7:30:00	58	21	182	94	39	19	0	0	4	1	0	0	1	1	6	2	2	1	0	0
7:45:00	94	36	291	109	62	23	1	1	6	2	2	2	1	0	8	2	4	2	0	0
8:00:00	140	46	386	95	84	22	1	0	8	2	3	1	1	0	9	1	4	0	0	0
8:15:00	183	43	508	122	117	33	2	1	12	4	3	0	1	0	14	5	5	1	1	1
8:30:00	228	45	594	86	145	28	2	0	14	2	3	0	2	1	15	1	5	0	4	3
8:45:00	277	49	672	78	179	34	2	0	15	1	3	0	4	2	20	5	6	1	4	0
9:00:00	320	43	767	95	210	31	5	3	16	1	3	0	5	1	23	3	6	0	4	0
9:00:12	320	0	767	0	210	0	5	0	16	0	3	0	5	0	23	0	6	0	4	0
16:00:00	320	0	767	0	210	0	5	0	16	0	3	0	5	0	23	0	6	0	4	0
16:15:00	393	73	924	157	279	69	5	0	18	2	3	0	6	1	25	2	7	1	9	5
16:30:00	460	67	1073	149	345	66	5	0	21	3	4	1	7	1	29	4	7	0	13	4
16:45:00	525	65	1233	160	400	55	5	0	24	3	4	0	7	0	31	2	7	0	15	2
17:00:00	588	63	1384	151	461	61	5	0	25	1	4	0	7	0	33	2	7	0	18	3
17:15:00	657	69	1548	164	524	63	5	0	27	2	4	0	8	1	36	3	8	1	20	2
17:30:00	719	62	1681	133	597	73	5	0	28	1	4	0	8	0	37	1	8	0	24	4
17:45:00	775	56	1836	155	662	65	5	0	28	0	4	0	8	0	39	2	8	0	25	1
18:00:00	830	55	1939	103	721	59	5	0	29	1	4	0	8	0	41	2	8	0	25	0
18:15:00	830	0	1939	0	721	0	5	0	29	0	4	0	8	0	41	0	8	0	25	0
18:15:53	830	0	1939	0	721	0	5	0	29	0	4	0	8	0	41	0	8	0	25	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Count Date: 23-Feb-11 Site #: 1103000001

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	23	23	56	56	20	20	1	1	3	3	0	0	0	0	1	1	0	0	0	0
7:30:00	48	25	113	57	37	17	1	0	4	1	1	1	0	0	4	3	1	1	0	0
7:45:00	71	23	176	63	56	19	2	1	6	2	2	1	0	0	5	1	1	0	1	1
8:00:00	95	24	283	107	92	36	2	0	12	6	2	0	1	1	5	0	1	0	3	2
8:15:00	117	22	387	104	133	41	3	1	13	1	2	0	1	0	8	3	2	1	4	1
8:30:00	143	26	485	98	175	42	3	0	15	2	2	0	1	0	10	2	2	0	6	2
8:45:00	169	26	583	98	210	35	5	2	21	6	2	0	1	0	13	3	3	1	9	3
9:00:00	195	26	714	131	262	52	6	1	23	2	3	1	1	0	14	1	3	0	11	2
9:00:12	195	0	714	0	262	0	6	0	23	0	3	0	1	0	14	0	3	0	11	0
16:00:00	195	0	714	0	262	0	6	0	23	0	3	0	1	0	14	0	3	0	11	0
16:15:00	249	54	936	222	305	43	7	1	30	7	4	1	3	2	15	1	4	1	15	4
16:30:00	301	52	1163	227	354	49	7	0	33	3	4	0	4	1	16	1	4	0	21	6
16:45:00	353	52	1398	235	407	53	7	0	34	1	4	0	4	0	17	1	4	0	26	5
17:00:00	393	40	1661	263	459	52	8	1	35	1	4	0	6	2	19	2	8	4	33	7
17:15:00	451	58	1909	248	504	45	8	0	35	0	5	1	6	0	20	1	8	0	38	5
17:30:00	500	49	2177	268	543	39	9	1	36	1	5	0	7	1	21	1	8	0	45	7
17:45:00	548	48	2357	180	584	41	9	0	36	0	7	2	7	0	22	1	8	0	48	3
18:00:00	595	47	2589	232	625	41	9	0	37	1	7	0	7	0	23	1	9	1	49	1
18:15:00	595	0	2589	0	625	0	9	0	37	0	7	0	7	0	23	0	9	0	49	0
18:15:53	595	0	2589	0	625	0	9	0	37	0	7	0	7	0	23	0	9	0	49	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis
www.accu-traffic.ca
Tel: 1-416-910-0171
Fax: 1-888-711-3125

Accu-Traffic Inc.

Count Date: 23-Feb-11 Site #: 1103000001

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	15	15	99	99	4	4	1	1	1	1	0	0	3	3	2	2	2	2	1	1
7:30:00	25	10	198	99	19	15	2	1	1	0	0	0	5	2	5	3	4	2	1	0
7:45:00	42	17	290	92	41	22	3	1	4	3	0	0	9	4	9	4	7	3	3	2
8:00:00	70	28	425	135	74	33	3	0	5	1	0	0	14	5	12	3	11	4	5	2
8:15:00	93	23	550	125	108	34	4	1	7	2	1	1	16	2	14	2	13	2	5	0
8:30:00	119	26	655	105	130	22	4	0	10	3	2	1	22	6	16	2	18	5	7	2
8:45:00	147	28	808	153	152	22	6	2	13	3	2	0	24	2	18	2	22	4	8	1
9:00:00	187	40	924	116	186	34	7	1	14	1	3	1	26	2	21	3	27	5	10	2
9:00:12	187	0	926	2	186	0	7	0	14	0	3	0	26	0	21	0	28	1	10	0
16:00:00	192	5	936	10	190	4	7	0	14	0	3	0	26	0	21	0	28	0	10	0
16:15:00	251	59	1062	126	221	31	8	1	18	4	4	1	29	3	24	3	32	4	15	5
16:30:00	313	62	1193	131	250	29	9	1	21	3	4	0	31	2	28	4	37	5	21	6
16:45:00	385	72	1333	140	289	39	9	0	27	6	5	1	38	7	31	3	41	4	25	4
17:00:00	449	64	1491	158	330	41	10	1	30	3	5	0	39	1	34	3	44	3	28	3
17:15:00	517	68	1607	116	355	25	10	0	31	1	5	0	40	1	37	3	47	3	29	1
17:30:00	572	55	1751	144	387	32	10	0	31	0	5	0	42	2	39	2	52	5	32	3
17:45:00	635	63	1899	148	413	26	10	0	31	0	5	0	45	3	40	1	54	2	33	1
18:00:00	707	72	2050	151	449	36	11	1	33	2	5	0	46	1	43	3	56	2	33	0
18:15:00	708	1	2050	0	451	2	11	0	33	0	5	0	46	0	43	0	57	1	33	0
18:15:53	708	0	2050	0	451	0	11	0	33	0	5	0	46	0	43	0	57	0	33	0

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlinton , Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Cold
Analyst: Crystal

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	1	0	8	168	5	25	5	7	2	126	27	375
07:15	1	3	0	12	152	4	37	3	8	1	138	42	401
07:30	3	2	4	5	141	7	41	2	8	3	115	42	373
07:45	1	8	0	15	144	6	24	15	13	4	172	66	468
08:00	0	4	0	13	129	9	26	11	11	5	156	76	440
08:15	5	4	4	13	132	9	39	13	18	9	175	57	478
08:30	5	7	0	26	110	13	41	9	23	12	175	45	466
08:45	5	4	2	17	117	13	29	26	20	8	194	65	500
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	1	0	8	165	4	24	5	7	1	120	26	362
07:15	1	3	0	9	147	3	36	3	7	1	131	42	383
07:30	1	2	4	5	131	7	41	2	8	3	110	42	356
07:45	1	8	0	12	137	6	23	15	12	3	168	64	449
08:00	0	4	0	11	122	9	24	11	10	5	151	76	423
08:15	4	4	4	12	130	9	36	13	17	9	169	55	462
08:30	5	7	0	23	104	13	39	9	20	10	168	44	442
08:45	5	4	2	16	113	13	28	26	19	7	187	64	484
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	0	0	3	1	1	0	0	1	6	1	13
07:15	0	0	0	3	5	1	1	0	1	0	7	0	18
07:30	2	0	0	0	10	0	0	0	0	0	5	0	17
07:45	0	0	0	3	7	0	1	0	1	1	4	2	19
08:00	0	0	0	2	7	0	2	0	1	0	5	0	17
08:15	1	0	0	1	2	0	3	0	1	0	6	2	16
08:30	0	0	0	3	6	0	2	0	3	2	7	1	24
08:45	0	0	0	1	4	0	1	0	1	1	7	1	16
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	0	1	1	0	0	0	0	1	1	2
07:15	0	2	2	0	2	2	0	0	0	0	0	0	4
07:30	0	2	2	0	2	2	1	0	1	1	0	1	6
07:45	0	0	0	0	1	1	3	4	7	0	0	0	8
08:00	0	0	0	0	3	3	0	0	0	0	0	0	3
08:15	0	0	0	0	2	2	10	2	12	3	0	3	17
08:30	0	0	0	0	0	0	0	2	2	0	0	0	2
08:45	1	0	1	2	0	2	4	1	5	0	0	0	8
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	19	6	69	488	44	135	59	72	34	700	243	1884
Factor	0.75	0.68	0.38	0.66	0.92	0.85	0.82	0.57	0.78	0.71	0.90	0.80	0.94
Approach factor	0.77			0.98			0.89			0.91			

Peak Hour Vehicle Summary

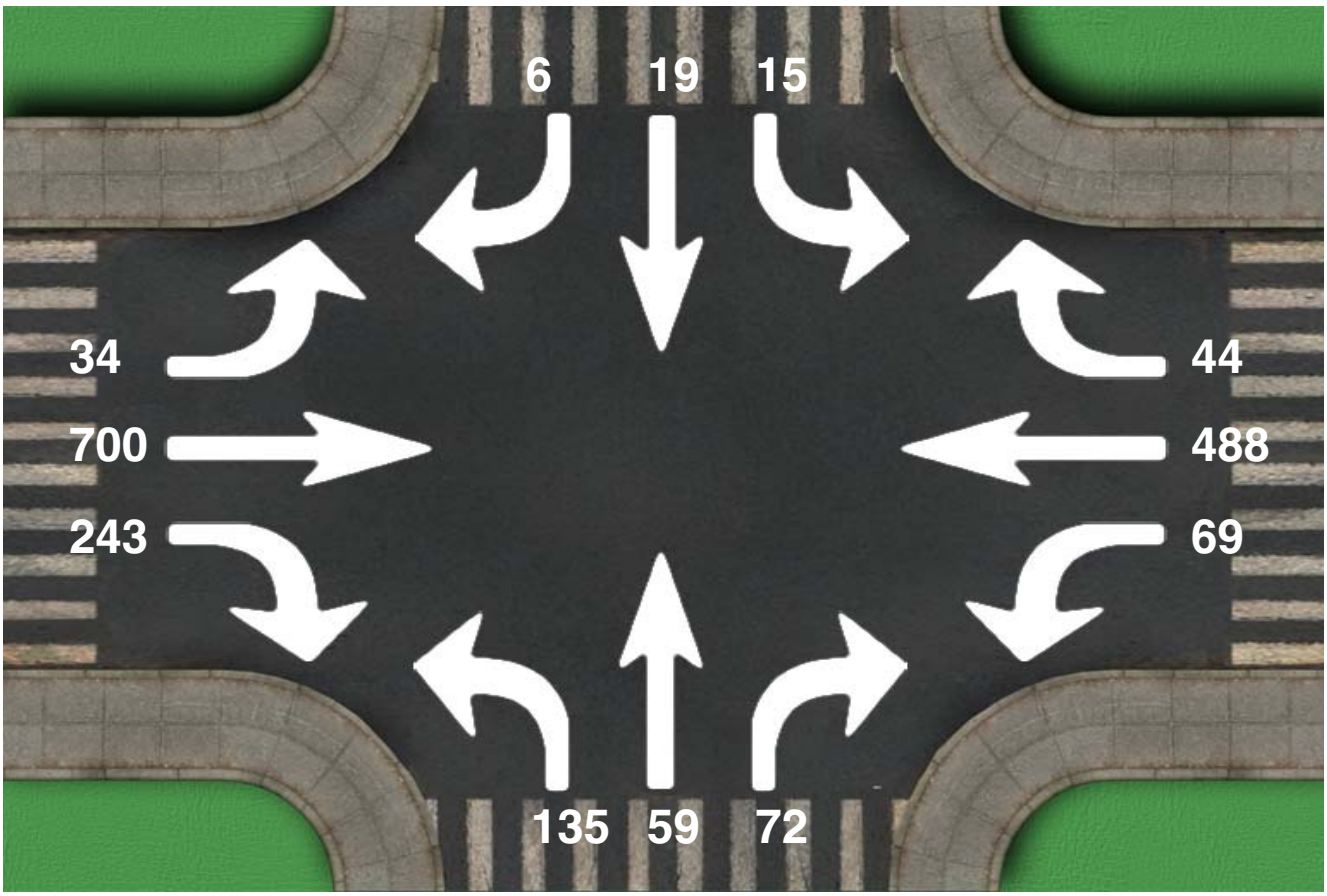
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	14	19	6	62	469	44	127	59	66	31	675	239	1811
Truck	1	0	0	7	19	0	8	0	6	3	25	4	73

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	0	1	2	5	7	14	5	19	3	0	3	30

Intersection Peak Hour

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Cold
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	19	6	69	488	44	135	59	72	34	700	243	1884
Factor	0.75	0.68	0.38	0.66	0.92	0.85	0.82	0.57	0.78	0.71	0.90	0.80	0.94
Approach factor	0.77			0.98			0.89			0.91			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlinton , Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Eagle St at Davis Dr, Newmarket Ontario**
GPS Coordinates:
Date: **2011-11-02**
Day of week: **Wednesday**
Weather: **Sunny**
Analyst: **Crystal**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	1	0	0	0	0	0	2	0	0	0	0	0	3
16:00	23	41	11	36	150	22	55	45	14	11	145	23	576
16:15	18	28	10	33	179	19	47	49	19	13	179	38	632
16:30	29	18	11	30	149	31	68	44	22	20	157	48	627
16:45	26	28	7	26	159	29	54	48	26	12	186	44	645
17:00	48	46	7	33	173	18	74	44	20	20	180	28	691
17:15	29	41	7	41	165	19	59	44	27	19	208	48	707
17:30	35	33	6	43	165	18	64	42	33	12	149	47	647
17:45	30	28	7	33	148	24	41	31	28	16	215	31	632
18:00	1	4	1	3	0	1	5	7	1	1	0	1	25

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	1	0	0	0	0	0	2	0	0	0	0	0	3
16:00	23	41	11	31	146	22	53	45	14	11	138	23	558
16:15	18	28	10	32	176	19	47	49	19	13	171	38	620
16:30	29	18	11	30	145	31	68	44	21	20	154	48	619
16:45	26	28	7	25	156	28	54	47	25	12	181	43	632
17:00	48	46	7	31	171	18	72	44	19	20	178	28	682
17:15	29	41	7	41	165	18	59	44	26	19	202	48	699
17:30	35	33	6	43	161	18	63	42	31	12	148	47	639
17:45	30	28	6	32	147	24	41	31	27	16	213	31	626
18:00	1	4	1	3	0	1	5	7	1	1	0	1	25

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	5	4	0	2	0	0	0	7	0	18
16:15	0	0	0	1	3	0	0	0	0	0	8	0	12
16:30	0	0	0	0	4	0	0	0	1	0	3	0	8
16:45	0	0	0	1	3	1	0	1	1	0	5	1	13
17:00	0	0	0	2	2	0	2	0	1	0	2	0	9
17:15	0	0	0	0	0	1	0	0	1	0	6	0	8
17:30	0	0	0	0	4	0	1	0	2	0	1	0	8
17:45	0	0	1	1	1	0	0	0	1	0	2	0	6
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	3	0	3	1	7	8	10	2	12	2	0	2	25
16:15	1	0	1	0	6	6	5	2	7	4	0	4	18
16:30	2	0	2	0	5	5	3	0	3	2	4	6	16
16:45	0	2	2	1	5	6	8	0	8	1	1	2	18
17:00	0	0	0	0	4	4	6	0	6	0	0	0	10
17:15	0	0	0	0	1	1	2	0	2	0	0	0	3
17:30	0	0	0	0	7	7	0	1	1	1	0	1	9
17:45	0	0	0	0	6	6	2	1	3	0	1	1	10
18:00	0	0	0	0	1	1	0	0	0	0	0	0	1

Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	138	148	27	143	662	84	251	178	106	63	723	167	2690
Factor	0.72	0.80	0.96	0.83	0.96	0.72	0.85	0.93	0.80	0.79	0.87	0.87	0.95
Approach factor	0.77			0.98			0.96			0.87			

Peak Hour Vehicle Summary

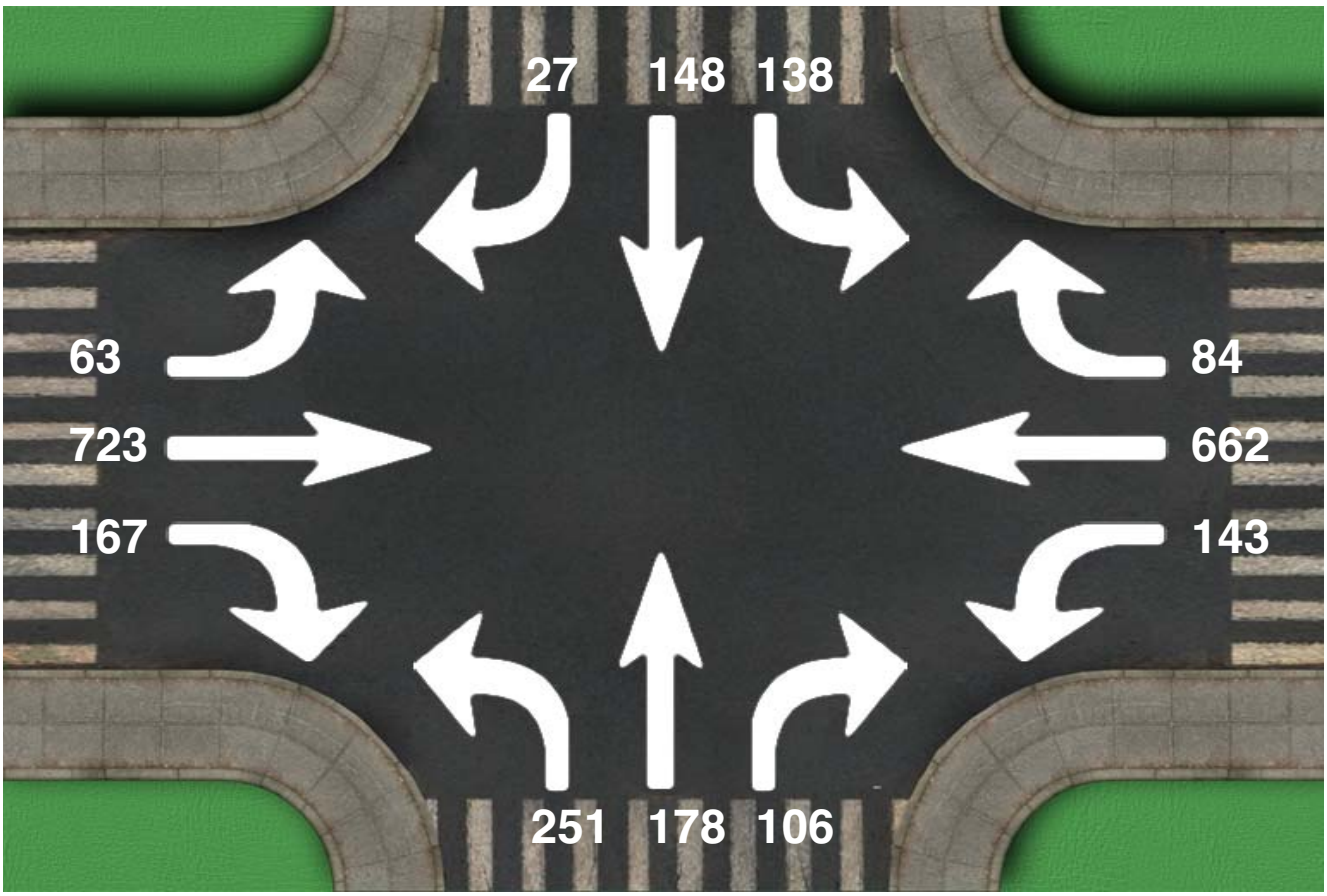
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	138	148	27	140	653	82	248	177	101	63	709	166	2652
Truck	0	0	0	3	9	2	3	1	5	0	14	1	38

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	2	2	1	17	18	16	1	17	2	1	3	40

Intersection Peak Hour

Location: Eagle St at Davis Dr, Newmarket Ontario
GPS Coordinates:
Date: 2011-11-02
Day of week: Wednesday
Weather: Sunny
Analyst: Crystal



Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	138	148	27	143	662	84	251	178	106	63	723	167	2690
Factor	0.72	0.80	0.96	0.83	0.96	0.72	0.85	0.93	0.80	0.79	0.87	0.87	0.95
Approach factor	0.77			0.98			0.96			0.87			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Go Transit Access at Davis Dr, Newmarket Ontario**
GPS Coordinates: **N = 44.010450, W= -79.451423**
Date: **2011-11-09**
Day of week: **Wednesday**
Weather: **Cool**
Analyst: **Crystal**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	1	1	11	0	1	0	0	0	3	0	17
07:00	0	0	2	1	231	0	4	0	1	3	160	3	405
07:15	0	0	7	2	201	0	0	0	2	3	158	3	376
07:30	0	0	10	0	175	0	0	0	0	11	164	2	362
07:45	0	0	9	1	180	8	0	1	0	14	251	3	467
08:00	0	0	8	1	157	0	0	0	2	18	224	1	411
08:15	0	0	14	1	163	0	0	0	1	15	231	2	427
08:30	0	0	8	2	153	0	0	1	0	17	236	0	417
08:45	0	0	4	3	123	0	1	0	1	42	261	1	436
09:00	0	0	0	0	0	0	0	0	0	0	1	0	1

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	1	1	11	0	1	0	0	0	3	0	17
07:00	0	0	2	1	222	0	4	0	1	2	154	3	389
07:15	0	0	7	2	190	0	0	0	2	3	151	3	358
07:30	0	0	9	0	161	0	0	0	0	9	160	2	341
07:45	0	0	7	1	172	6	0	1	0	14	243	3	447
08:00	0	0	8	1	149	0	0	0	2	17	217	1	395
08:15	0	0	14	1	154	0	0	0	1	14	222	2	408
08:30	0	0	8	2	143	0	0	1	0	16	228	0	398
08:45	0	0	4	3	119	0	1	0	1	42	255	1	426
09:00	0	0	0	0	0	0	0	0	0	0	1	0	1

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	9	0	0	0	0	1	6	0	16
07:15	0	0	0	0	11	0	0	0	0	0	7	0	18
07:30	0	0	1	0	14	0	0	0	0	2	4	0	21
07:45	0	0	2	0	8	2	0	0	0	0	8	0	20
08:00	0	0	0	0	8	0	0	0	0	1	7	0	16
08:15	0	0	0	0	9	0	0	0	0	1	9	0	19
08:30	0	0	0	0	10	0	0	0	0	1	8	0	19
08:45	0	0	0	0	4	0	0	0	0	0	6	0	10
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	1	0	1	0	0	0	0	0	0	1	0	1	2
07:15	0	1	1	1	1	2	0	2	2	2	1	3	8
07:30	0	0	0	0	0	0	0	1	1	0	0	0	1
07:45	0	0	0	0	0	0	0	2	2	0	0	0	2
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	1	0	1	0	4	4	0	0	0	5
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	1	1	0	2	2	0	0	0	3
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	39	5	653	8	0	2	3	64	942	6	1722
Factor	0.00	0.00	0.70	0.62	0.91	0.25	0.00	0.50	0.38	0.89	0.94	0.50	0.92
Approach factor	0.70			0.88			0.62			0.94			

Peak Hour Vehicle Summary

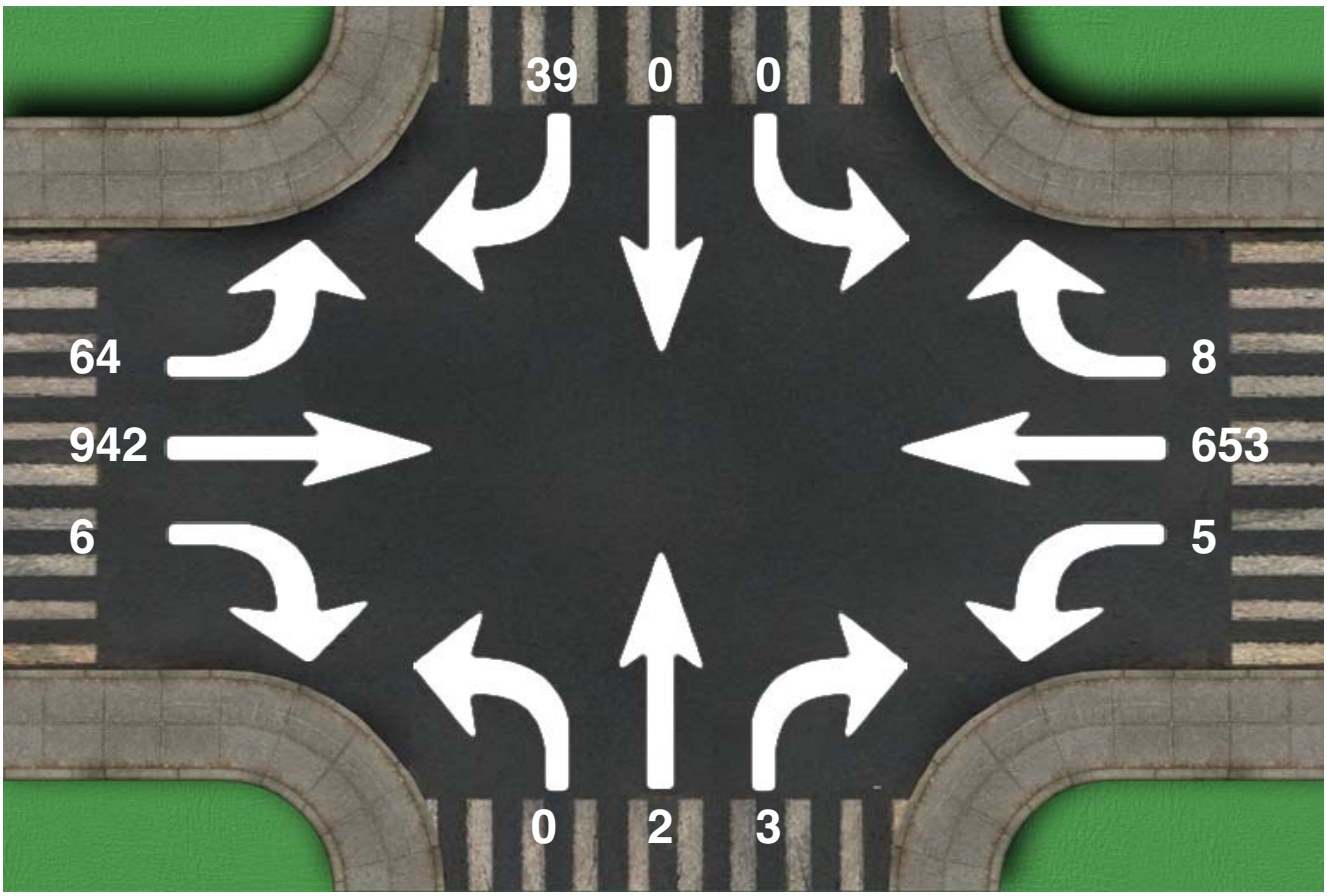
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	0	37	5	618	6	0	2	3	61	910	6	1648
Truck	0	0	2	0	35	2	0	0	0	3	32	0	74

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	1	0	1	0	6	6	0	0	0	7

Intersection Peak Hour

Location: Go Transit Access at Davis Dr, Newmarket Ontario
GPS Coordinates: N = 44.010450, W= -79.451423
Date: 2011-11-09
Day of week: Wednesday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	39	5	653	8	0	2	3	64	942	6	1722
Factor	0.00	0.00	0.70	0.62	0.91	0.25	0.00	0.50	0.38	0.89	0.94	0.50	0.92
Approach factor	0.70			0.88			0.62			0.94			

Dynamic Traffic Solutions
1049 Havendale Blud
Burlington , Ontario, L7p-3p7
905-467-5672

Turn Count Summary

Location: Go Station Access at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010293, W= -79.451670
Date: 2011-11-09
Day of week: Wednesday
Weather: Raining
Analyst: Crystal

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	26	3	225	2	0	0	3	32	184	5	480
16:15	0	0	40	6	200	2	0	1	7	36	214	1	507
16:30	0	0	40	6	272	1	2	1	1	57	241	1	622
16:45	0	0	47	0	227	2	0	2	6	62	246	0	592
17:00	0	0	52	0	241	2	1	0	2	58	227	1	584
17:15	0	0	40	1	227	1	2	0	0	52	199	4	526
17:30	0	0	38	7	234	0	0	1	5	56	250	2	593
17:45	0	0	32	7	182	1	0	0	3	38	229	6	498
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	26	3	217	2	0	0	3	32	177	5	465
16:15	0	0	40	6	198	2	0	1	7	36	204	1	495
16:30	0	0	40	6	267	1	2	1	1	56	233	1	608
16:45	0	0	45	0	224	2	0	2	6	62	243	0	584
17:00	0	0	52	0	235	2	1	0	2	58	221	1	572
17:15	0	0	40	1	226	1	2	0	0	51	195	4	520
17:30	0	0	38	7	230	0	0	1	5	56	245	2	584
17:45	0	0	31	7	180	1	0	0	3	38	225	6	491
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	0	0	0	8	0	0	0	0	0	7	0	15
16:15	0	0	0	0	2	0	0	0	0	0	10	0	12
16:30	0	0	0	0	5	0	0	0	0	1	8	0	14
16:45	0	0	2	0	3	0	0	0	0	0	3	0	8
17:00	0	0	0	0	6	0	0	0	0	0	6	0	12
17:15	0	0	0	0	1	0	0	0	0	1	4	0	6
17:30	0	0	0	0	4	0	0	0	0	0	5	0	9
17:45	0	0	1	0	2	0	0	0	0	0	4	0	7
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	3	3	0	0	0	3
16:30	0	0	0	0	0	0	0	0	0	3	0	3	3
16:45	0	0	0	0	0	0	0	1	1	1	0	1	2
17:00	0	0	0	0	0	0	0	1	1	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	1	0	1	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	1	1	0	0	0	1
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	179	7	967	6	5	3	9	229	913	6	2324
Factor	0.00	0.00	0.86	0.29	0.89	0.75	0.62	0.38	0.38	0.92	0.93	0.38	0.93
Approach factor	0.86			0.88			0.53			0.93			

Peak Hour Vehicle Summary

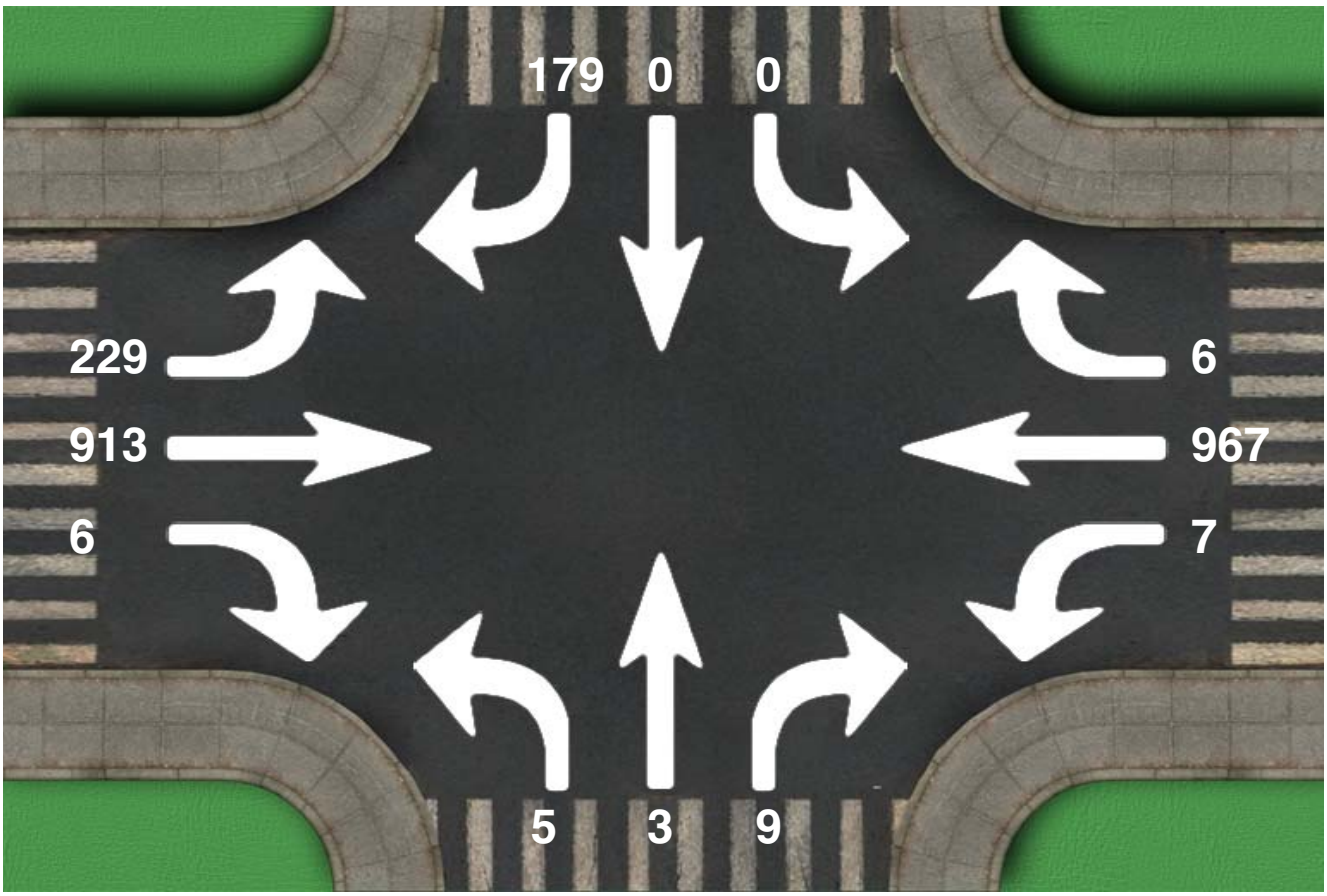
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	0	177	7	952	6	5	3	9	227	892	6	2284
Truck	0	0	2	0	15	0	0	0	0	2	21	0	40

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	2	2	4	0	4	6

Intersection Peak Hour

Location: Go Station Access at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010293, W= -79.451670
Date: 2011-11-09
Day of week: Wednesday
Weather: Raining
Analyst: Crystal



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	179	7	967	6	5	3	9	229	913	6	2324
Factor	0.00	0.00	0.86	0.29	0.89	0.75	0.62	0.38	0.38	0.92	0.93	0.38	0.93
Approach factor	0.86			0.88			0.53			0.93			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington , Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: Ford Wilson Blvd at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010489, W= -79.451382
Date: 2011/11/01
Day of week: Wednesday
Weather: Cool
Analyst: CT

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	35	0	37	1	184	5	3	0	3	2	96	2	368
07:15	29	0	24	2	203	6	2	0	5	2	139	1	413
07:30	28	1	29	3	151	15	3	0	5	9	142	3	389
07:45	32	0	25	3	148	11	5	0	3	11	196	5	439
08:00	38	0	28	9	163	13	2	0	11	4	184	5	457
08:15	23	0	24	16	156	9	3	1	10	1	201	14	458
08:30	28	0	10	11	134	7	9	1	8	5	193	6	412
08:45	24	1	15	5	122	15	6	0	6	4	202	6	406
09:00	1	0	0	1	6	1	0	0	3	1	17	1	31

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	35	0	36	1	181	5	3	0	3	2	92	2	360
07:15	28	0	24	2	196	6	2	0	5	2	135	1	401
07:30	28	1	28	3	139	15	3	0	4	7	136	3	367
07:45	30	0	23	3	144	10	5	0	3	11	193	5	427
08:00	38	0	26	8	156	13	2	0	11	4	175	5	438
08:15	22	0	22	15	148	8	3	1	9	1	192	13	434
08:30	28	0	10	9	124	7	8	1	7	4	187	5	390
08:45	24	1	15	4	119	14	5	0	6	3	193	5	389
09:00	1	0	0	1	6	1	0	0	3	1	16	1	30

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	1	0	3	0	0	0	0	0	4	0	8
07:15	1	0	0	0	7	0	0	0	0	0	4	0	12
07:30	0	0	1	0	12	0	0	0	1	2	6	0	22
07:45	2	0	2	0	4	1	0	0	0	0	3	0	12
08:00	0	0	2	1	7	0	0	0	0	0	9	0	19
08:15	1	0	2	1	8	1	0	0	1	0	9	1	24
08:30	0	0	0	2	10	0	1	0	1	1	6	1	22
08:45	0	0	0	1	3	1	1	0	0	1	9	1	17
09:00	0	0	0	0	0	0	0	0	0	0	1	0	1

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	0	1	1	0	0	0	0	1	1	2
07:15	1	0	1	0	1	1	0	0	0	0	0	0	2
07:30	0	0	0	0	0	0	0	2	2	0	1	1	3
07:45	0	0	0	0	0	0	0	0	0	2	0	2	2
08:00	1	1	2	0	5	5	0	1	1	1	0	1	9
08:15	1	0	1	0	0	0	0	0	0	0	0	0	1
08:30	0	0	0	0	0	0	0	1	1	1	0	1	2
08:45	0	0	0	0	0	0	0	0	0	0	1	1	1
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	121	0	87	39	601	40	19	2	32	21	774	30	1766
Factor	0.80	0.00	0.78	0.61	0.92	0.77	0.53	0.50	0.73	0.48	0.96	0.54	0.96
Approach factor	0.79			0.92			0.74			0.95			

Peak Hour Vehicle Summary

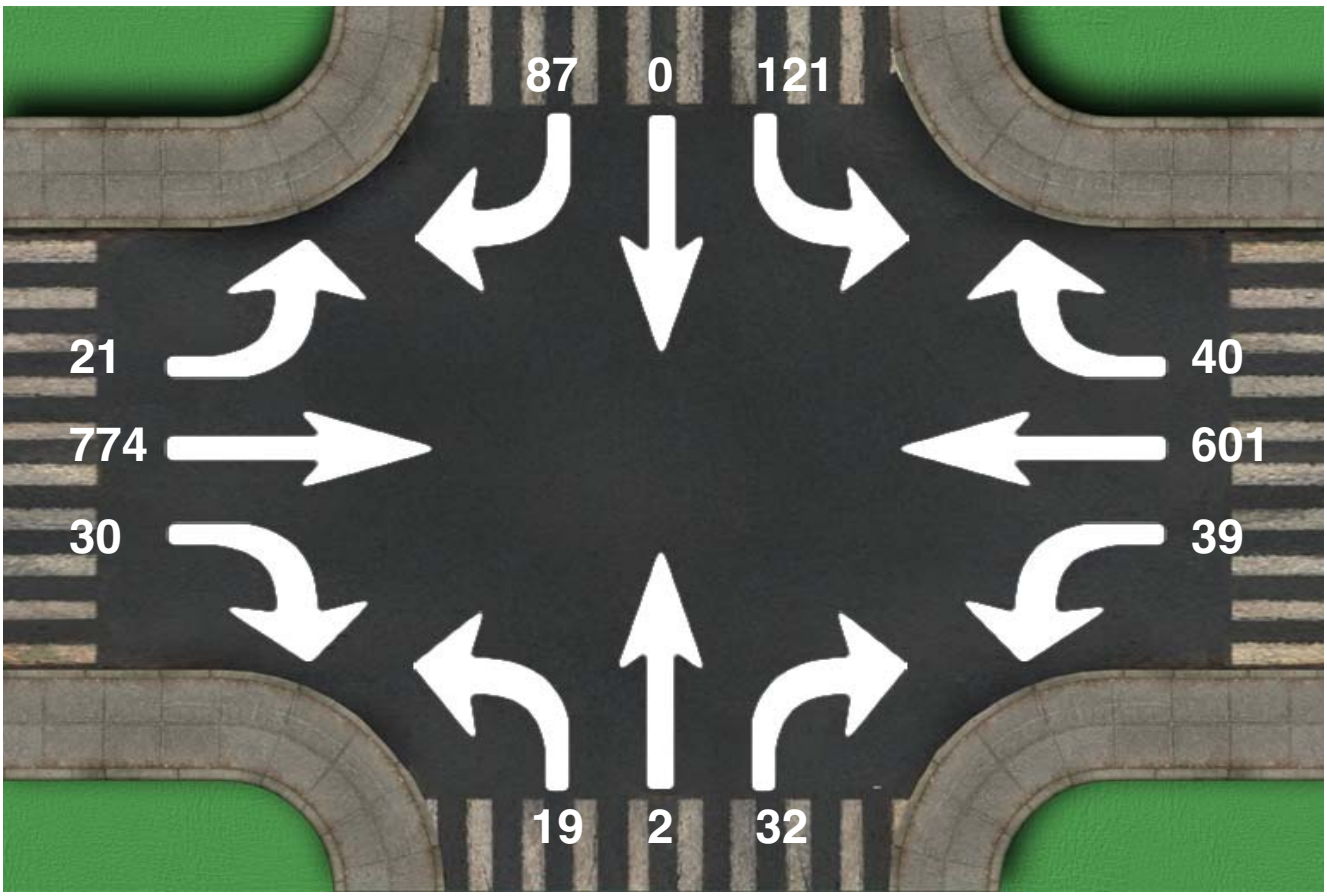
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	118	0	81	35	572	38	18	2	30	20	747	28	1689
Truck	3	0	6	4	29	2	1	0	2	1	27	2	77

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	1	3	0	5	5	0	2	2	4	0	4	14

Intersection Peak Hour

Location: Ford Wilson Blvd at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.010489, W= -79.451382
Date: 2011/11/01
Day of week: Wednesday
Weather: Cool
Analyst: CT



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	121	0	87	39	601	40	19	2	32	21	774	30	1766
Factor	0.80	0.00	0.78	0.61	0.92	0.77	0.53	0.50	0.73	0.48	0.96	0.54	0.96
Approach factor	0.79			0.92			0.74			0.95			

dynamic Traffic Solutions
1049Havendale Blvd
Burlington , Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Ford Wilson at Davis Dr W, Newmarket Ontario**
GPS Coordinates: **N = 44.052098, W= -79.497093**
Date: **2011/11/01**
Day of week: **Tuesday**
Weather: **Cool**
Analyst: **CT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:03	11	0	7	5	141	15	3	0	14	19	144	8	367
16:15	9	0	3	18	210	29	7	0	16	19	190	5	506
16:30	16	0	5	8	249	30	4	0	32	37	230	4	615
16:45	23	0	7	8	213	37	10	0	4	51	229	13	595
17:00	9	0	5	14	253	37	4	0	14	40	193	4	573
17:15	13	0	3	12	230	37	5	1	16	46	268	6	637
17:30	16	1	3	11	173	24	6	0	10	55	214	12	525
17:45	26	0	10	15	160	35	5	0	6	37	245	11	550
18:00	1	0	1	3	37	4	1	0	4	8	71	2	132

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:03	10	0	7	5	134	15	2	0	13	16	136	7	345
16:15	9	0	3	18	202	29	7	0	16	18	179	5	486
16:30	16	0	5	8	243	30	4	0	32	37	223	4	602
16:45	23	0	7	8	206	37	10	0	4	51	223	13	582
17:00	9	0	5	14	251	37	4	0	14	40	191	4	569
17:15	13	0	3	12	221	37	5	1	16	46	267	6	627
17:30	16	1	3	11	167	24	6	0	10	55	212	12	517
17:45	26	0	10	15	159	35	5	0	6	37	243	11	547
18:00	1	0	1	3	37	4	1	0	4	8	71	2	132

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:03	1	0	0	0	7	0	1	0	1	3	8	1	22
16:15	0	0	0	0	8	0	0	0	0	1	11	0	20
16:30	0	0	0	0	6	0	0	0	0	0	7	0	13
16:45	0	0	0	0	7	0	0	0	0	0	6	0	13
17:00	0	0	0	0	2	0	0	0	0	0	2	0	4
17:15	0	0	0	0	9	0	0	0	0	0	1	0	10
17:30	0	0	0	0	6	0	0	0	0	0	2	0	8
17:45	0	0	0	0	1	0	0	0	0	0	2	0	3
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:03	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	1	0	1	0	0	0	0	0	0	0	0	0	1
16:30	0	1	1	0	1	1	0	0	0	0	1	1	3
16:45	0	0	0	0	0	0	0	0	0	1	0	1	1
17:00	0	0	0	0	0	0	1	0	1	0	0	0	1
17:15	1	0	1	0	1	1	0	0	0	0	0	0	2
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	61	0	20	42	945	141	23	1	66	174	920	27	2420
Factor	0.66	0.00	0.71	0.75	0.93	0.95	0.57	0.25	0.52	0.85	0.86	0.52	0.95
Approach factor	0.68			0.93			0.62			0.88			

Peak Hour Vehicle Summary

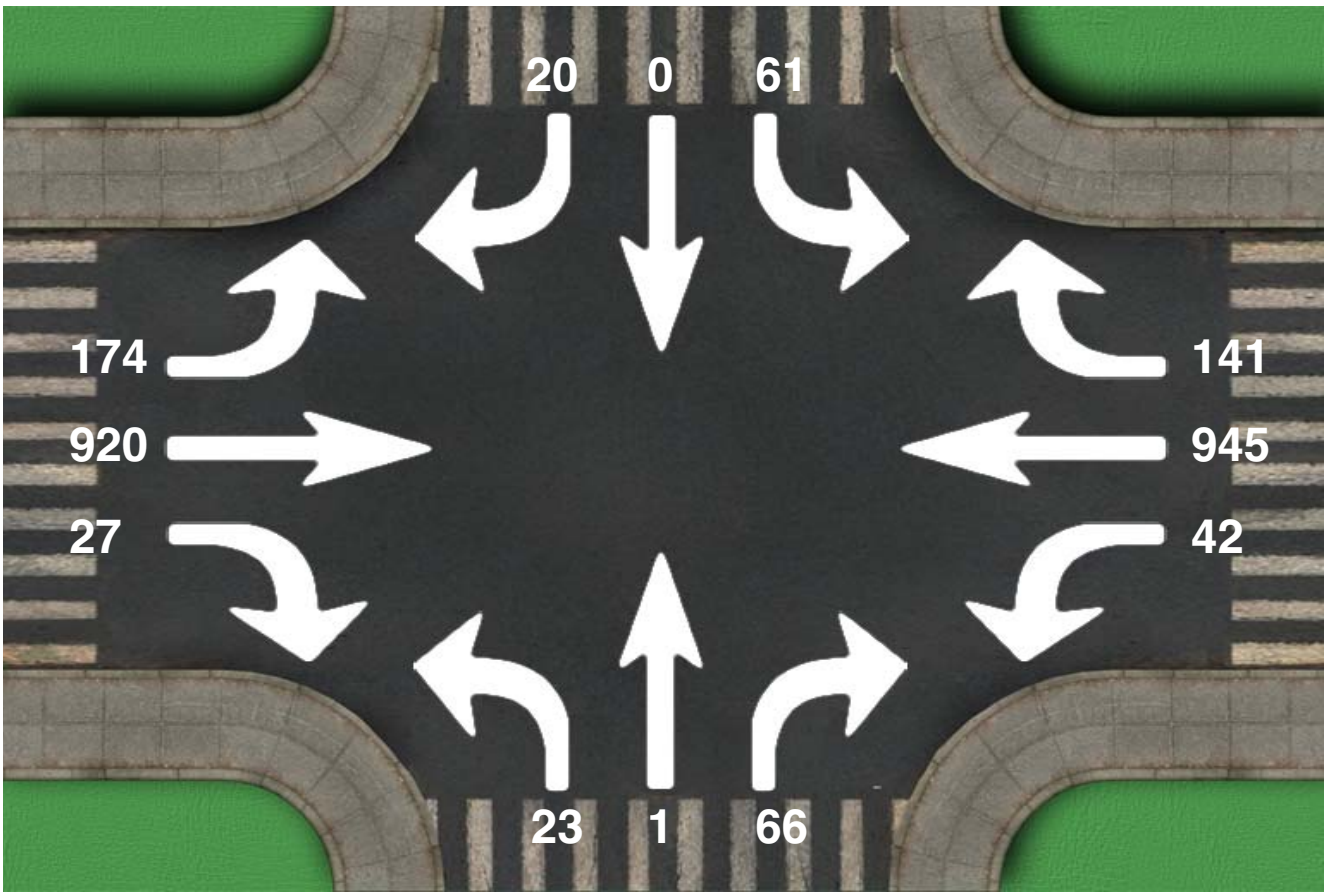
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	61	0	20	42	921	141	23	1	66	174	904	27	2380
Truck	0	0	0	0	24	0	0	0	0	0	16	0	40

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	1	2	0	2	2	1	0	1	1	1	2	7

Intersection Peak Hour

Location: Ford Wilson at Davis Dr W, Newmarket Ontario
GPS Coordinates: N = 44.052098, W= -79.497093
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: CT



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	61	0	20	42	945	141	23	1	66	174	920	27	2420
Factor	0.66	0.00	0.71	0.75	0.93	0.95	0.57	0.25	0.52	0.85	0.86	0.52	0.95
Approach factor	0.68			0.93			0.62			0.88			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Yonge ST at Eagle St , Toronto, On**
GPS Coordinates:
Date: **November 1, 2011**
Day of week: **Tuesday**
Weather: **Cool**
Analyst: **AT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	18	163	3	19	21	12	10	135	15	6	16	18	436
07:15	18	244	7	47	23	13	10	130	30	9	33	23	587
07:30	25	296	5	42	16	22	10	137	37	5	47	40	682
07:45	28	303	15	52	34	30	37	231	54	15	73	61	933
08:00	23	253	15	56	39	35	37	195	71	10	47	42	823
08:15	9	258	23	47	60	18	73	258	61	6	40	35	888
08:30	17	240	63	41	53	30	80	220	46	9	29	49	877
08:45	25	231	30	37	46	31	92	200	65	7	49	47	860
09:00	0	2	0	0	0	0	0	1	0	0	0	0	3

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	18	157	3	19	21	11	10	123	15	6	15	18	416
07:15	17	238	7	47	22	13	10	126	30	9	33	23	575
07:30	25	290	5	41	16	21	9	131	35	5	46	39	663
07:45	28	290	15	52	34	30	32	228	52	13	73	60	907
08:00	23	245	14	54	39	33	35	192	71	10	47	40	803
08:15	9	256	22	47	59	18	72	251	61	6	40	35	876
08:30	17	231	62	41	52	30	80	217	45	9	29	48	861
08:45	25	226	30	35	44	30	90	191	64	6	48	45	834
09:00	0	2	0	0	0	0	0	1	0	0	0	0	3

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	6	0	0	0	1	0	12	0	0	1	0	20
07:15	1	6	0	0	1	0	0	4	0	0	0	0	12
07:30	0	6	0	1	0	1	1	6	2	0	1	1	19
07:45	0	13	0	0	0	0	5	3	2	2	0	1	26
08:00	0	8	1	2	0	2	2	3	0	0	0	2	20
08:15	0	2	1	0	1	0	1	7	0	0	0	0	12
08:30	0	9	1	0	1	0	0	3	1	0	0	1	16
08:45	0	5	0	2	2	1	2	9	1	1	1	2	26
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	1	1	0	1	1	1	0	1	0	0	0	3
07:15	1	0	1	0	0	0	0	0	0	0	1	1	2
07:30	0	1	1	0	1	1	0	0	0	0	0	0	2
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	1	0	1	1
08:15	2	0	2	2	0	2	1	1	2	0	0	0	6
08:30	0	1	1	0	0	0	0	0	0	0	1	1	2
08:45	1	2	3	1	0	1	0	0	0	1	2	3	7
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	77	1054	116	196	186	113	227	904	232	40	189	187	3521
Factor	0.69	0.87	0.46	0.88	0.77	0.81	0.71	0.88	0.82	0.67	0.65	0.77	0.94
Approach factor	0.90			0.95			0.87			0.70			

Peak Hour Vehicle Summary

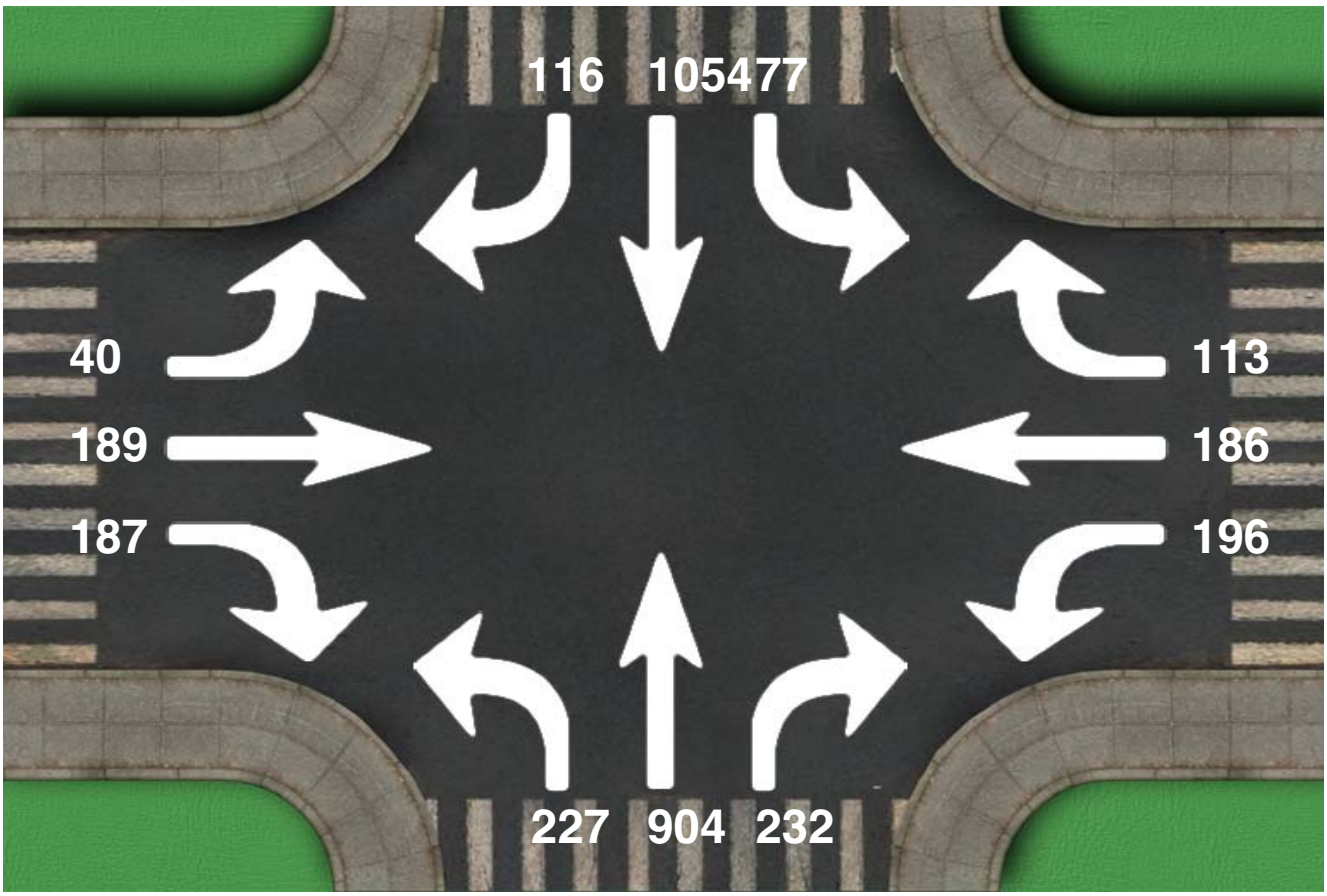
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	77	1022	113	194	184	111	219	888	229	38	189	183	3447
Truck	0	32	3	2	2	2	8	16	3	2	0	4	74

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	1	3	2	0	2	1	1	2	1	1	2	9

Intersection Peak Hour

Location: Yonge ST at Eagle St , Toronto, On
GPS Coordinates:
Date: November 1, 2011
Day of week: Tuesday
Weather: Cool
Analyst: AT



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	77	1054	116	196	186	113	227	904	232	40	189	187	3521
Factor	0.69	0.87	0.46	0.88	0.77	0.81	0.71	0.88	0.82	0.67	0.65	0.77	0.94
Approach factor	0.90			0.95			0.87			0.70			

Dynamic Traffic Solutions
1049 Havendale Blvd Burlington, Ont, L7P-3P7
Dynamictrafficsolutions.com
michael@dynamictrafficsolutions.com 905-467-5672

Dynamic Traffic Solutions

Intersection: Yonge St. & Eagle St. Newmarket, ON
Date: November 1, 2011 **Analyst: CT**

Total Vehicle Traffic

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	57	347	44	12	52	49	59	264	13	51	46	23	1017
16:15	55	339	53	18	46	79	26	241	11	38	37	27	970
16:30	76	331	43	26	63	59	59	315	15	46	45	24	1102
16:45	83	348	51	23	83	71	47	265	17	51	56	39	1134
17:00	50	260	40	17	44	63	25	230	11	36	48	25	849
17:15	50	287	41	14	60	58	38	259	15	38	38	27	925
17:30	56	305	36	13	51	58	47	250	12	42	45	24	939
17:45	47	281	33	13	53	50	37	267	10	38	40	32	901
												Total	7837

Car Traffic

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	54	343	42	12	51	48	54	259	10	51	46	23	993
16:15	55	336	53	17	39	74	22	233	7	36	32	21	925
16:30	73	328	42	25	60	55	55	312	10	46	41	22	1069
16:45	82	342	51	23	82	69	45	264	14	51	54	38	1115
17:00	48	257	39	17	43	62	24	226	10	36	46	24	832
17:15	50	285	40	14	58	58	36	256	12	38	37	26	910
17:30	53	301	36	11	49	55	45	247	11	40	42	22	912
17:45	47	278	32	13	51	49	35	265	8	37	39	30	884

Truck Traffic

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	4					3	5	1				14
16:15		3		1	3	1	1	7			1		17
16:30	2	3			1	1		2			3	1	13

Dynamic Traffic Solutions
1049 Havendale Blvd Burlington, Ont, L7P-3P7
Dynamictrafficsolutions.com
michael@dynamictrafficsolutions.com 905-467-5672

Pedestrian Volumes

	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	2		2		1	1	2		2				10
16:15					4	4	3	1	4	2	4	6	28
16:30	1		1	1	2	3	4	1	5		1	1	20
16:45					1	1	2		2		1	1	8
17:00	1		1		1	1	1	2	1		2	1	11
17:15			1		1		1	1	2			1	7
17:30	2			1	2	2	2		1	2	1	2	15
17:45			1		1	1	2	1	1	1	1	1	10

Dynamic Traffic Solutions
1049 Havendale Blvd Burlington, Ont, L7P-3P7
Dynamictrafficsolutions.com
michael@dyı 467-5672

Dynamic Traffic Solutions

Intersection Peak Hour

Time: 16:00 - 17:00

Peak Hour Snapshot

Cars	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	54	343	42	12	51	48	54	259	10	51	46	23	993
16:15	55	336	53	17	39	74	22	233	7	36	32	21	925
16:30	73	328	42	25	60	55	55	312	10	46	41	22	1069
16:45	82	342	51	23	82	69	45	264	14	51	54	38	1115

Trucks	Northbound			Eastbound			Southbound			Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	1	4					3	5	1				14
16:15		3		1	3	1	1	7			1		17
16:30	2	3			1	1		2			3	1	13
16:45	1	6				1		1	1		1		11

Peak Hour Vehicle Summary

	Northbound			Eastbound			Southbound			Westbound			
Traffic	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Car	264	1349	188	77	232	246	176	1068	41	184	173	104	4102
Bus	4	16	0	1	4	3	4	15	2	0	5	1	55
Totals	268	1365	188	78	236	249	180	1083	43	184	178	105	4157

Peak Hour Pedestrians

	Northbound			Eastbound			Southbound			Westbound			
Volume	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
Pedestrian	3		3	1	8	9	11	2	13	2	6	8	66

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington , Ontario, L3P-3P7
905-467-5672

Turn Count Summary

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates:
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: Cy

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	4	174	24	2	13	1	12	99	4	4	8	21	366
07:15	3	237	22	10	8	4	21	107	5	7	6	41	471
07:30	4	283	28	6	12	3	17	104	7	11	8	49	532
07:45	13	342	41	14	17	7	29	135	11	11	29	55	704
08:00	10	288	47	9	13	7	33	152	6	13	29	30	637
08:15	28	263	33	20	32	9	53	160	10	15	15	22	660
08:30	8	250	45	11	26	10	49	140	8	6	20	29	602
08:45	9	229	36	7	37	6	48	178	10	22	19	32	633
09:00	0	54	4	1	1	1	6	26	1	0	1	4	99

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	4	169	22	2	13	1	12	90	4	3	8	20	348
07:15	3	230	22	10	7	4	21	106	5	7	6	41	462
07:30	4	277	25	6	12	3	17	97	7	10	7	48	513
07:45	13	336	40	14	17	7	29	129	11	9	29	55	689
08:00	10	283	45	9	13	7	33	144	6	13	29	29	621
08:15	28	259	32	20	32	9	53	153	9	15	15	21	646
08:30	8	243	45	11	26	10	49	136	8	6	20	29	591
08:45	9	221	35	7	37	6	45	170	10	21	19	32	612
09:00	0	54	4	1	1	1	5	24	1	0	1	4	96

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	5	2	0	0	0	0	9	0	1	0	1	18
07:15	0	7	0	0	1	0	0	1	0	0	0	0	9
07:30	0	6	3	0	0	0	0	7	0	1	1	1	19
07:45	0	6	1	0	0	0	0	6	0	2	0	0	15
08:00	0	5	2	0	0	0	0	8	0	0	0	1	16
08:15	0	4	1	0	0	0	0	7	1	0	0	1	14
08:30	0	7	0	0	0	0	0	4	0	0	0	0	11
08:45	0	8	1	0	0	0	3	8	0	1	0	0	21
09:00	0	0	0	0	0	0	1	2	0	0	0	0	3

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	0	0	0	1	0	1	0	0	0	0	3	3	4
07:15	1	0	1	0	0	0	1	0	1	0	0	0	2
07:30	1	0	1	0	0	0	0	0	0	1	1	2	3
07:45	0	1	1	0	1	1	0	0	0	0	0	0	2
08:00	1	0	1	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	1	1	0	0	0	0	4	4	5
08:30	1	2	3	0	0	0	1	1	2	1	1	2	7
08:45	0	1	1	1	1	2	2	0	2	0	2	2	7
09:00	2	1	3	0	0	0	1	0	1	1	0	1	5

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	59	1143	166	54	88	33	164	587	35	45	93	136	2603
Factor	0.53	0.84	0.88	0.68	0.69	0.82	0.77	0.92	0.80	0.75	0.80	0.62	0.92
Approach factor	0.86			0.72			0.88			0.72			

Peak Hour Vehicle Summary

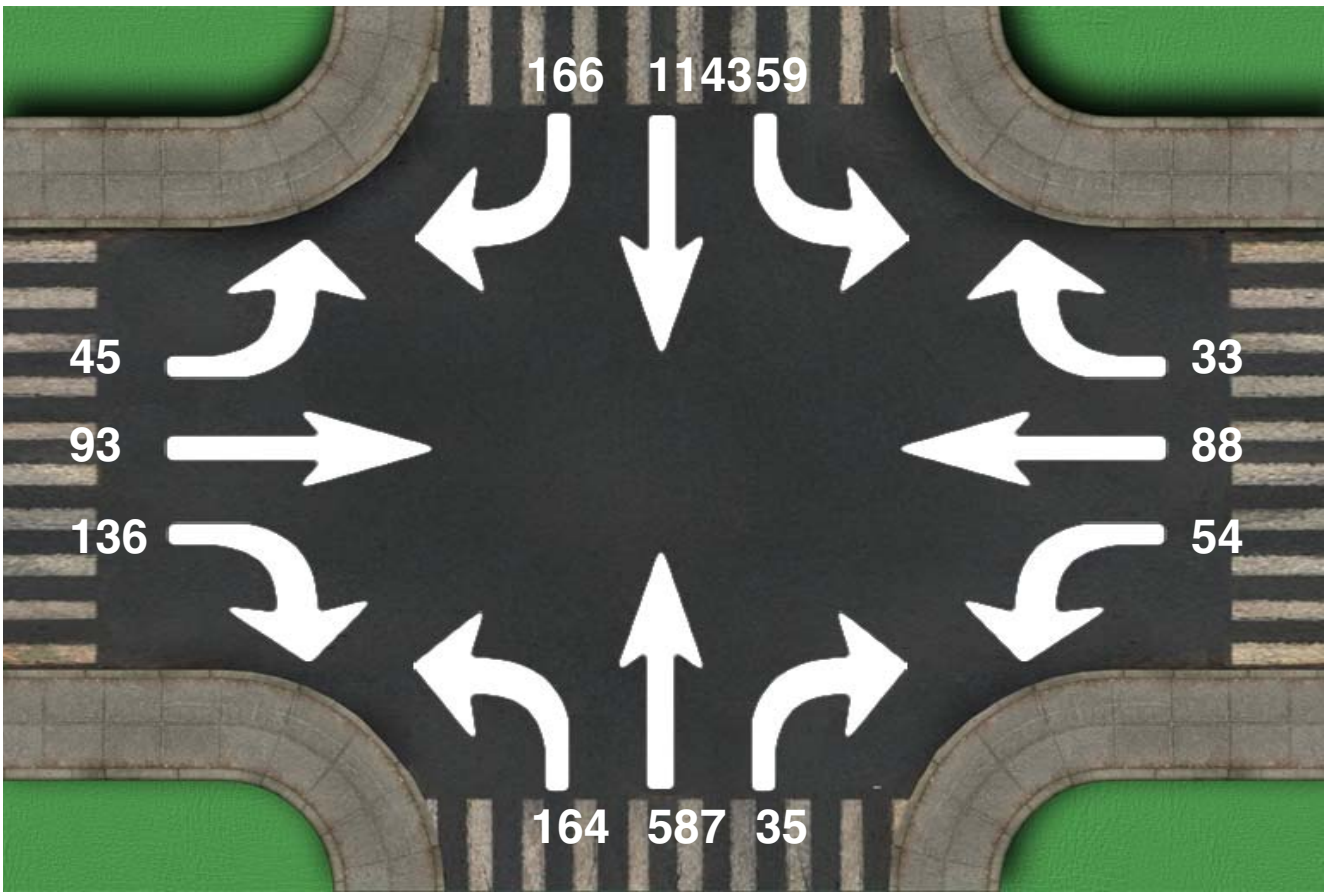
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	59	1121	162	54	88	33	164	562	34	43	93	134	2547
Truck	0	22	4	0	0	0	0	25	1	2	0	2	56

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	3	5	0	2	2	1	1	2	1	5	6	15

Intersection Peak Hour

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates:
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: Cy



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	59	1143	166	54	88	33	164	587	35	45	93	136	2603
Factor	0.53	0.84	0.88	0.68	0.69	0.82	0.77	0.92	0.80	0.75	0.80	0.62	0.92
Approach factor	0.86			0.72			0.88			0.72			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050631, W= -79.479335
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: Cy

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	15	212	12	9	31	18	22	334	7	21	22	22	725
16:15	34	224	21	16	25	15	33	342	11	30	29	11	791
16:30	43	162	24	15	28	15	32	371	7	40	35	33	805
16:45	23	226	18	14	27	18	31	382	9	27	25	25	825
17:00	18	261	14	19	24	9	24	346	20	41	26	32	834
17:15	12	240	19	5	58	24	21	322	19	25	35	38	818
17:30	14	233	15	19	21	16	24	311	20	27	29	23	752
17:45	13	264	9	21	27	16	26	287	13	20	25	16	737
18:00	0	0	0	0	1	1	0	0	0	1	0	0	3

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	15	209	12	9	31	17	21	331	7	21	22	22	717
16:15	34	217	21	16	25	15	32	337	11	29	29	11	777
16:30	41	161	23	15	28	15	32	368	6	40	35	33	797
16:45	23	224	18	14	27	18	31	378	8	26	24	25	816
17:00	18	259	14	18	24	9	24	340	20	41	26	32	825
17:15	12	237	19	5	58	24	21	320	18	25	35	38	812
17:30	14	230	15	19	21	16	24	307	20	27	29	23	745
17:45	13	263	9	21	27	16	26	285	13	20	24	16	733
18:00	0	0	0	0	1	1	0	0	0	1	0	0	3

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	3	0	0	0	1	1	3	0	0	0	0	8
16:15	0	7	0	0	0	0	1	5	0	1	0	0	14
16:30	2	1	1	0	0	0	0	3	1	0	0	0	8
16:45	0	2	0	0	0	0	0	4	1	1	1	0	9
17:00	0	2	0	1	0	0	0	6	0	0	0	0	9
17:15	0	3	0	0	0	0	0	2	1	0	0	0	6
17:30	0	3	0	0	0	0	0	4	0	0	0	0	7
17:45	0	1	0	0	0	0	0	2	0	0	1	0	4
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	0	0	0	0	1	1	3	3	6	0	2	2	9
16:15	2	0	2	0	4	4	1	0	1	3	2	5	12
16:30	0	0	0	0	0	0	1	0	1	0	1	1	2
16:45	1	0	1	2	0	2	1	1	2	0	0	0	5
17:00	0	0	0	1	1	2	1	1	2	0	0	0	4
17:15	1	0	1	0	1	1	1	1	2	0	2	2	6
17:30	0	1	1	0	0	0	1	0	1	2	1	3	5
17:45	1	0	1	0	1	1	0	0	0	0	0	0	2
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	96	889	75	53	137	66	108	1421	55	133	121	128	3282
Factor	0.56	0.85	0.78	0.70	0.59	0.69	0.84	0.93	0.69	0.81	0.86	0.84	0.98
Approach factor	0.90			0.74			0.94			0.88			

Peak Hour Vehicle Summary

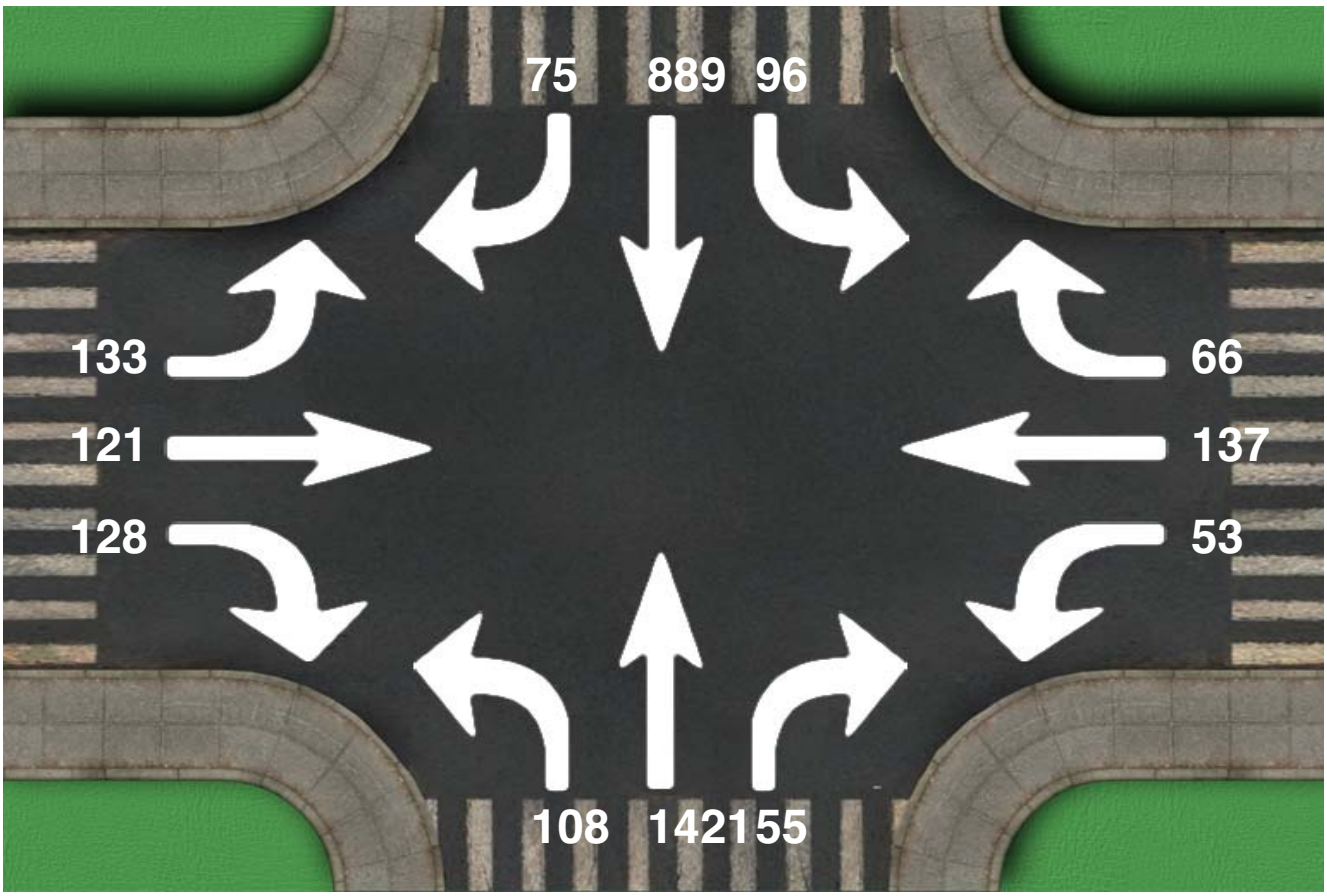
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	94	881	74	52	137	66	108	1406	52	132	120	128	3250
Truck	2	8	1	1	0	0	0	15	3	1	1	0	32

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	2	0	2	3	2	5	4	3	7	0	3	3	17

Intersection Peak Hour

Location: Yonge St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050631, W= -79.479335
Date: 2011/11/01
Day of week: Tuesday
Weather: Cool
Analyst: Cy



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	96	889	75	53	137	66	108	1421	55	133	121	128	3282
Factor	0.56	0.85	0.78	0.70	0.59	0.69	0.84	0.93	0.69	0.81	0.86	0.84	0.98
Approach factor	0.90			0.74			0.94			0.88			

, ,

Turn Count Summary

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.010493, W= -79.451377
Date: 2011-11-01
Day of week: Tuesday
Weather: Cool
Analyst: Crystal

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:01	12	24	0	3	0	15	0	23	9	0	0	0	86
07:15	17	30	0	9	0	20	0	27	13	0	0	0	116
07:30	13	39	0	11	0	12	0	28	15	0	0	0	118
07:45	32	45	0	10	0	11	0	34	20	0	0	0	152
08:00	31	58	0	15	0	18	0	26	28	0	0	0	176
08:15	32	56	0	10	0	19	0	42	27	0	0	0	186
08:30	28	67	0	23	0	19	0	43	22	0	0	0	202
08:45	18	78	0	23	0	23	0	40	25	0	0	0	207
09:00	2	9	0	1	0	0	0	3	5	0	0	0	20

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:01	12	24	0	2	0	15	0	23	9	0	0	0	85
07:15	17	29	0	7	0	19	0	27	12	0	0	0	111
07:30	13	38	0	10	0	11	0	25	15	0	0	0	112
07:45	31	43	0	10	0	11	0	31	20	0	0	0	146
08:00	31	57	0	15	0	18	0	24	28	0	0	0	173
08:15	32	55	0	10	0	19	0	40	27	0	0	0	183
08:30	28	66	0	22	0	18	0	41	22	0	0	0	197
08:45	18	75	0	22	0	23	0	39	25	0	0	0	202
09:00	2	9	0	1	0	0	0	3	5	0	0	0	20

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:01	0	0	0	1	0	0	0	0	0	0	0	0	1
07:15	0	1	0	2	0	1	0	0	1	0	0	0	5
07:30	0	1	0	1	0	1	0	3	0	0	0	0	6
07:45	1	2	0	0	0	0	0	3	0	0	0	0	6
08:00	0	1	0	0	0	0	0	2	0	0	0	0	3
08:15	0	1	0	0	0	0	0	2	0	0	0	0	3
08:30	0	1	0	1	0	1	0	2	0	0	0	0	5
08:45	0	3	0	1	0	0	0	1	0	0	0	0	5
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:01	1	1	2	0	0	0	1	0	1	0	0	0	3
07:15	0	0	0	1	2	3	1	0	1	0	0	0	4
07:30	0	1	1	0	0	0	0	0	0	0	0	0	1
07:45	1	1	2	2	0	2	1	0	1	0	0	0	5
08:00	0	0	0	0	0	0	0	0	0	1	1	2	2
08:15	0	1	1	0	3	3	1	2	3	0	1	1	8
08:30	0	0	0	0	0	0	4	0	4	0	0	0	4
08:45	1	1	2	0	0	0	0	3	3	1	0	1	6
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	109	259	0	71	0	79	0	151	102	0	0	0	771
Factor	0.85	0.83	0.00	0.77	0.00	0.86	0.00	0.88	0.91	0.00	0.00	0.00	0.93
Approach factor	0.96			0.82			0.92			0.00			

Peak Hour Vehicle Summary

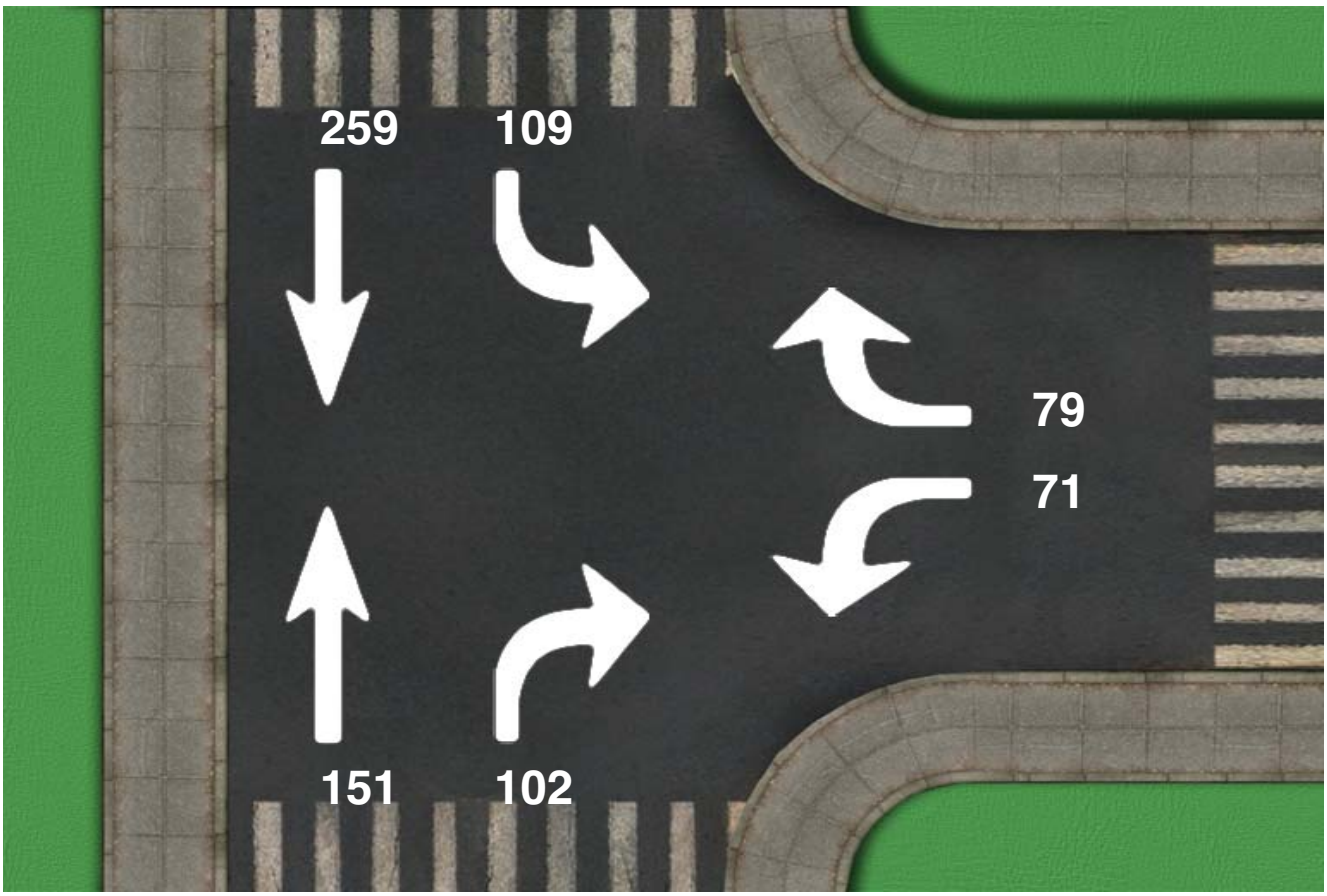
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	109	253	0	69	0	78	0	144	102	0	0	0	755
Truck	0	6	0	2	0	1	0	7	0	0	0	0	16

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	2	3	0	3	3	5	5	10	2	2	4	20

Intersection Peak Hour

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.010493, W= -79.451377
Date: 2011-11-01
Day of week: Tuesday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	109	259	0	71	0	79	0	151	102	0	0	0	771
Factor	0.85	0.83	0.00	0.77	0.00	0.86	0.00	0.88	0.91	0.00	0.00	0.00	0.93
Approach factor	0.96			0.82			0.92			0.00			

Dynamic Traffic Solutions
1049 Havende Blvd
Burlington , Ontario, L7P3P7
905-467-5672

Turn Count Summary

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050093, W= -79.483536
Date: 2011-11-01
Day of week: Tuesdsy
Weather: Sunny
Analyst: Crystal

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	21	70	0	17	0	34	0	68	13	0	0	0	223
16:15	23	62	0	20	0	32	0	66	13	0	0	0	216
16:30	16	55	0	24	0	47	0	82	19	0	0	0	243
16:45	16	81	0	23	0	36	0	96	16	0	0	0	268
17:00	28	80	0	22	0	43	0	82	17	0	0	0	272
17:15	21	86	0	23	0	35	0	80	18	0	0	0	263
17:30	29	90	0	15	0	28	0	65	16	0	0	0	243
17:45	26	82	0	25	0	22	0	96	13	0	0	0	264
18:00	0	1	0	0	0	0	0	1	0	0	0	0	2

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	20	68	0	16	0	34	0	67	13	0	0	0	218
16:15	23	61	0	19	0	32	0	65	12	0	0	0	212
16:30	16	55	0	24	0	45	0	81	18	0	0	0	239
16:45	16	80	0	22	0	36	0	96	16	0	0	0	266
17:00	28	80	0	22	0	43	0	80	17	0	0	0	270
17:15	21	84	0	23	0	35	0	79	18	0	0	0	260
17:30	29	90	0	15	0	28	0	65	16	0	0	0	243
17:45	26	82	0	25	0	22	0	96	13	0	0	0	264
18:00	0	1	0	0	0	0	0	1	0	0	0	0	2

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	1	2	0	1	0	0	0	1	0	0	0	0	5
16:15	0	1	0	1	0	0	0	1	1	0	0	0	4
16:30	0	0	0	0	0	2	0	1	1	0	0	0	4
16:45	0	1	0	1	0	0	0	0	0	0	0	0	2
17:00	0	0	0	0	0	0	0	2	0	0	0	0	2
17:15	0	2	0	0	0	0	0	1	0	0	0	0	3
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:00	0	3	3	0	2	2	1	3	4	0	0	0	9
16:15	0	3	3	3	0	3	2	2	4	1	0	1	11
16:30	0	4	4	3	1	4	1	0	1	1	2	3	12
16:45	0	1	1	3	4	7	0	0	0	1	0	1	9
17:00	1	2	3	1	2	3	7	0	7	2	0	2	15
17:15	4	3	7	1	5	6	3	1	4	3	0	3	20
17:30	0	1	1	0	0	0	5	0	5	0	0	0	6
17:45	0	0	0	1	2	3	1	0	1	0	0	0	4
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	81	302	0	92	0	161	0	340	70	0	0	0	1046
Factor	0.72	0.88	0.00	0.96	0.00	0.86	0.00	0.89	0.92	0.00	0.00	0.00	0.96
Approach factor	0.89			0.89			0.92			0.00			

Peak Hour Vehicle Summary

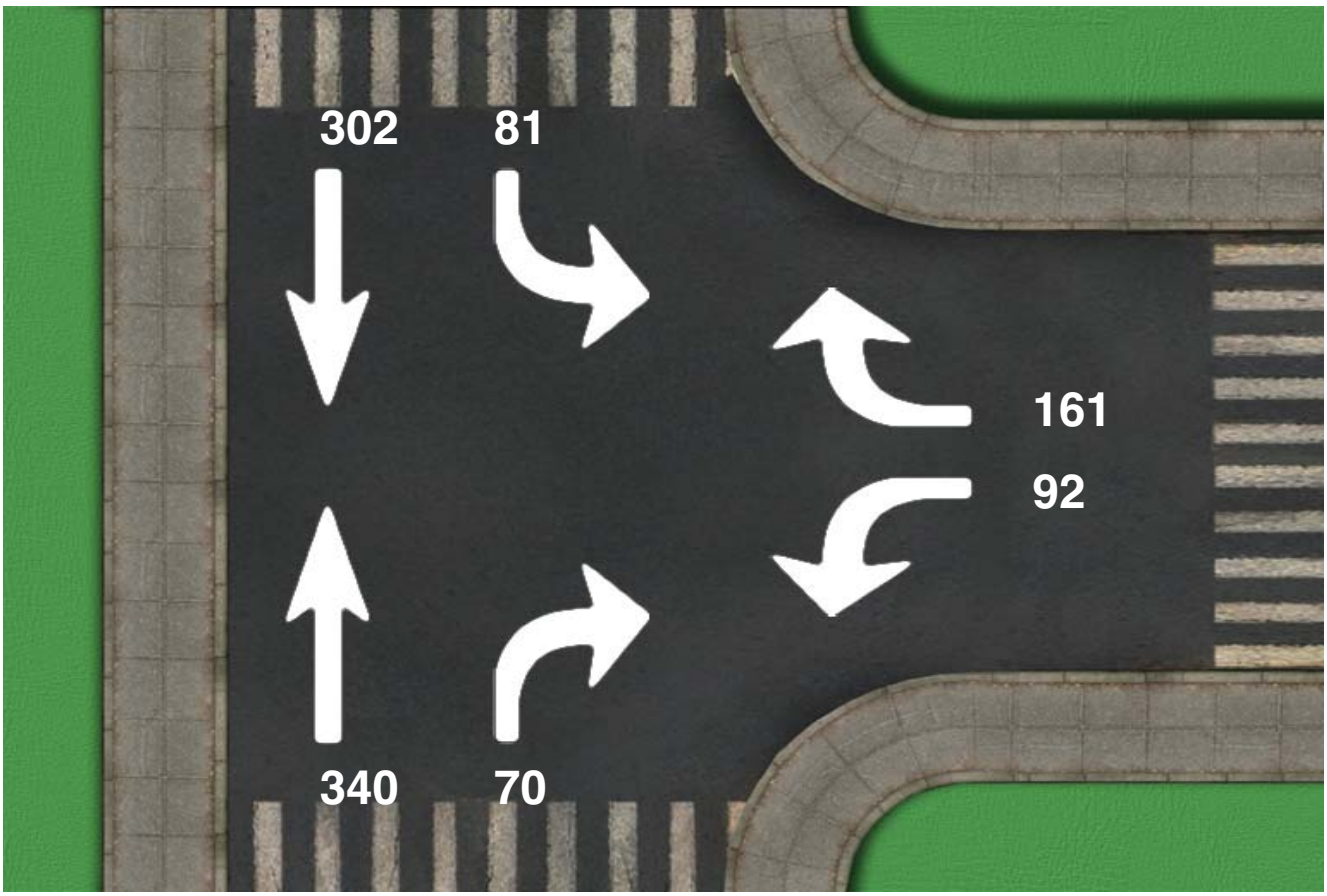
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	81	299	0	91	0	159	0	336	69	0	0	0	1035
Truck	0	3	0	1	0	2	0	4	1	0	0	0	11

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	5	10	15	8	12	20	11	1	12	7	2	9	56

Intersection Peak Hour

Location: Eagle St at Millard Ave, Newmarket Ontario
GPS Coordinates: N = 44.050093, W= -79.483536
Date: 2011-11-01
Day of week: Tuesdsy
Weather: Sunny
Analyst: Crystal



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	81	302	0	92	0	161	0	340	70	0	0	0	1046
Factor	0.72	0.88	0.00	0.96	0.00	0.86	0.00	0.89	0.92	0.00	0.00	0.00	0.96
Approach factor	0.89			0.89			0.92			0.00			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, ON, L7P 3P7
905-467-5672

Turn Count Summary

Location: **Crossland Gate at Alex Doner Dr, Newmarket**
GPS Coordinates:
Date: **Nov 3,2011**
Day of week: **Thursday**
Weather: **Sunny**
Analyst: **AT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	8	3	0	0	0	2	7	0	1	0	12	33
07:30	0	7	1	0	0	0	7	0	0	2	0	12	29
07:45	0	19	3	0	0	0	15	3	0	2	0	24	66
08:00	0	20	2	0	0	0	15	7	0	3	0	18	65
08:15	0	12	2	0	0	0	13	4	0	2	0	11	44
08:30	0	13	6	0	0	0	13	5	0	4	0	17	58
08:45	0	6	10	0	0	0	18	5	0	11	0	43	93
09:00	0	6	4	0	0	0	10	4	0	8	0	11	43

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	8	3	0	0	0	1	7	0	1	0	12	32
07:30	0	7	1	0	0	0	5	0	0	1	0	12	26
07:45	0	19	3	0	0	0	15	3	0	2	0	24	66
08:00	0	20	1	0	0	0	15	7	0	3	0	18	64
08:15	0	12	2	0	0	0	11	4	0	2	0	11	42
08:30	0	13	6	0	0	0	12	5	0	4	0	16	56
08:45	0	6	10	0	0	0	17	5	0	9	0	42	89
09:00	0	6	4	0	0	0	10	4	0	8	0	11	43

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	1	0	0	0	0	0	1
07:30	0	0	0	0	0	0	2	0	0	1	0	0	3
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	1	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	0	0	2	0	0	0	0	0	2
08:30	0	0	0	0	0	0	1	0	0	0	0	1	2
08:45	0	0	0	0	0	0	1	0	0	2	0	1	4
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	1	1	0	0	0	1	0	1	2
07:30	1	0	1	2	0	2	1	0	1	0	0	0	4
07:45	1	0	1	0	0	0	0	0	0	0	0	0	1
08:00	0	0	0	0	1	1	0	0	0	1	0	1	2
08:15	0	0	0	0	0	0	0	1	1	2	0	2	3
08:30	3	1	4	0	2	2	0	2	2	3	0	3	11
08:45	3	0	3	0	2	2	0	0	0	5	1	6	11
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Peak Hour Vehicle Summary

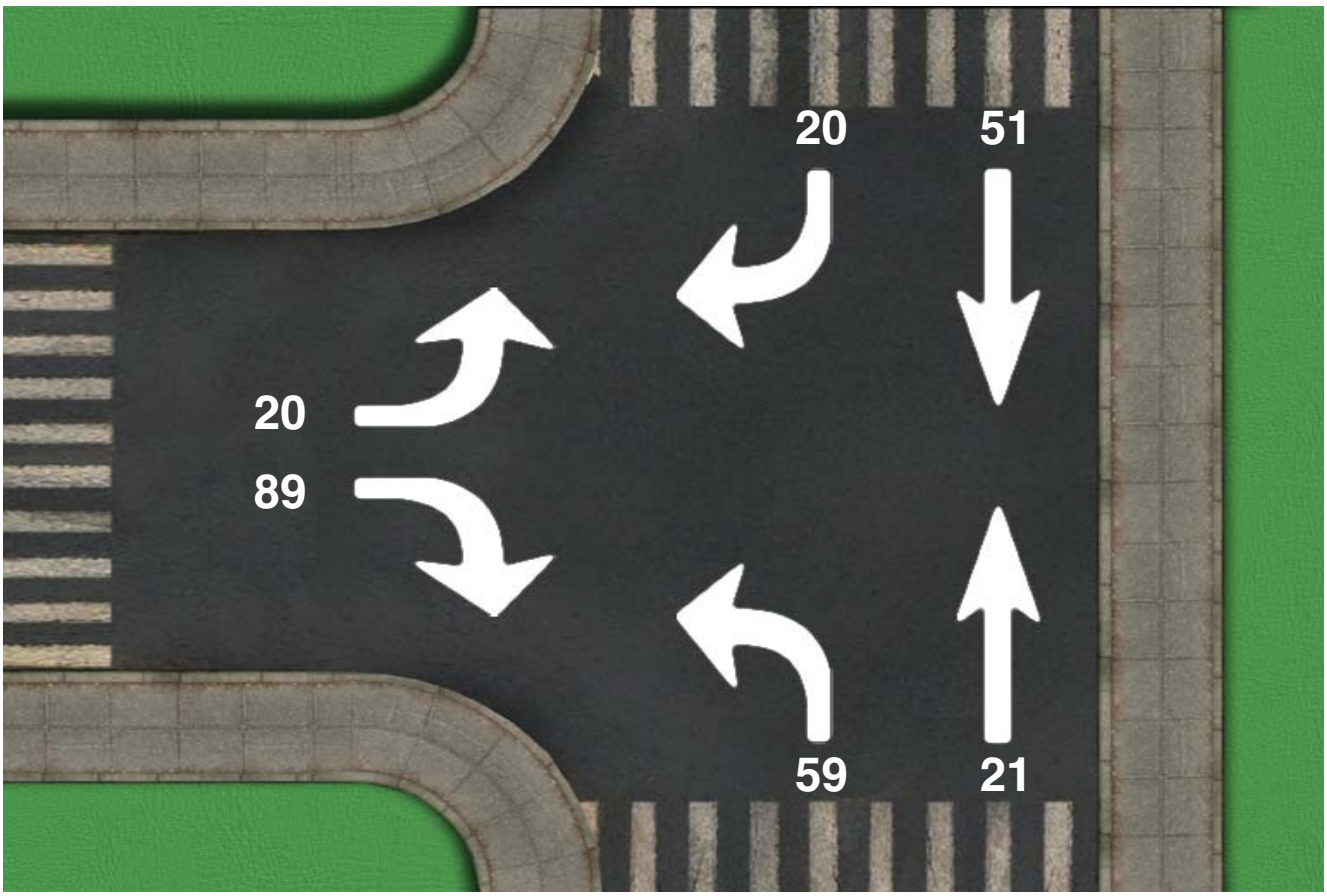
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	51	19	0	0	0	55	21	0	18	0	87	251
Truck	0	0	1	0	0	0	4	0	0	2	0	2	9

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	6	1	7	0	5	5	0	3	3	11	1	12	27

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Sunny
Analyst: AT



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, ON, L7P 3P7
905-467-5672

Turn Count Summary

Location: **Crossland Gate at Alex Doner Dr, Newmarket**
GPS Coordinates:
Date: **Nov 3,2011**
Day of week: **Thursday**
Weather: **Cloudy**
Analyst: **AT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	10	1	0	0	0	16	16	0	2	0	11	56
16:00	0	9	3	0	0	0	13	10	0	8	0	13	56
16:15	0	4	2	0	0	0	20	11	0	3	0	11	51
16:30	0	12	0	0	0	0	17	12	0	4	0	24	69
16:45	0	13	2	0	0	0	22	15	0	3	0	12	67
17:00	0	6	5	0	0	0	19	12	0	1	0	14	57
17:15	0	6	4	0	0	0	21	11	0	3	0	12	57
17:30	0	7	0	0	0	0	24	8	0	3	0	16	58
17:45	0	8	2	0	0	0	23	12	0	1	0	9	55
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	9	1	0	0	0	15	16	0	2	0	11	54
16:00	0	8	3	0	0	0	13	10	0	8	0	12	54
16:15	0	4	2	0	0	0	19	11	0	2	0	11	49
16:30	0	12	0	0	0	0	16	12	0	4	0	23	67
16:45	0	13	2	0	0	0	22	14	0	3	0	11	65
17:00	0	6	4	0	0	0	19	12	0	1	0	14	56
17:15	0	6	4	0	0	0	21	11	0	3	0	12	57
17:30	0	7	0	0	0	0	24	8	0	3	0	16	58
17:45	0	8	2	0	0	0	23	12	0	1	0	9	55
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	1	0	0	0	0	1	0	0	0	0	0	2
16:00	0	1	0	0	0	0	0	0	0	0	0	1	2
16:15	0	0	0	0	0	0	1	0	0	1	0	0	2
16:30	0	0	0	0	0	0	1	0	0	0	0	1	2
16:45	0	0	0	0	0	0	0	1	0	0	0	1	2
17:00	0	0	1	0	0	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:45	2	1	3	2	0	2	2	1	3	0	3	3	11
16:00	1	0	1	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	2	2	0	2	2	4
16:30	0	1	1	1	0	1	1	5	6	3	1	4	12
16:45	0	0	0	0	0	0	1	1	2	0	0	0	2
17:00	1	0	1	2	0	2	1	1	2	0	0	0	5
17:15	0	0	0	0	0	0	0	1	1	0	3	3	4
17:30	2	0	2	0	0	0	0	0	0	0	2	2	4
17:45	4	0	4	0	1	1	0	0	0	4	0	4	9
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

Peak Hour Vehicle Summary

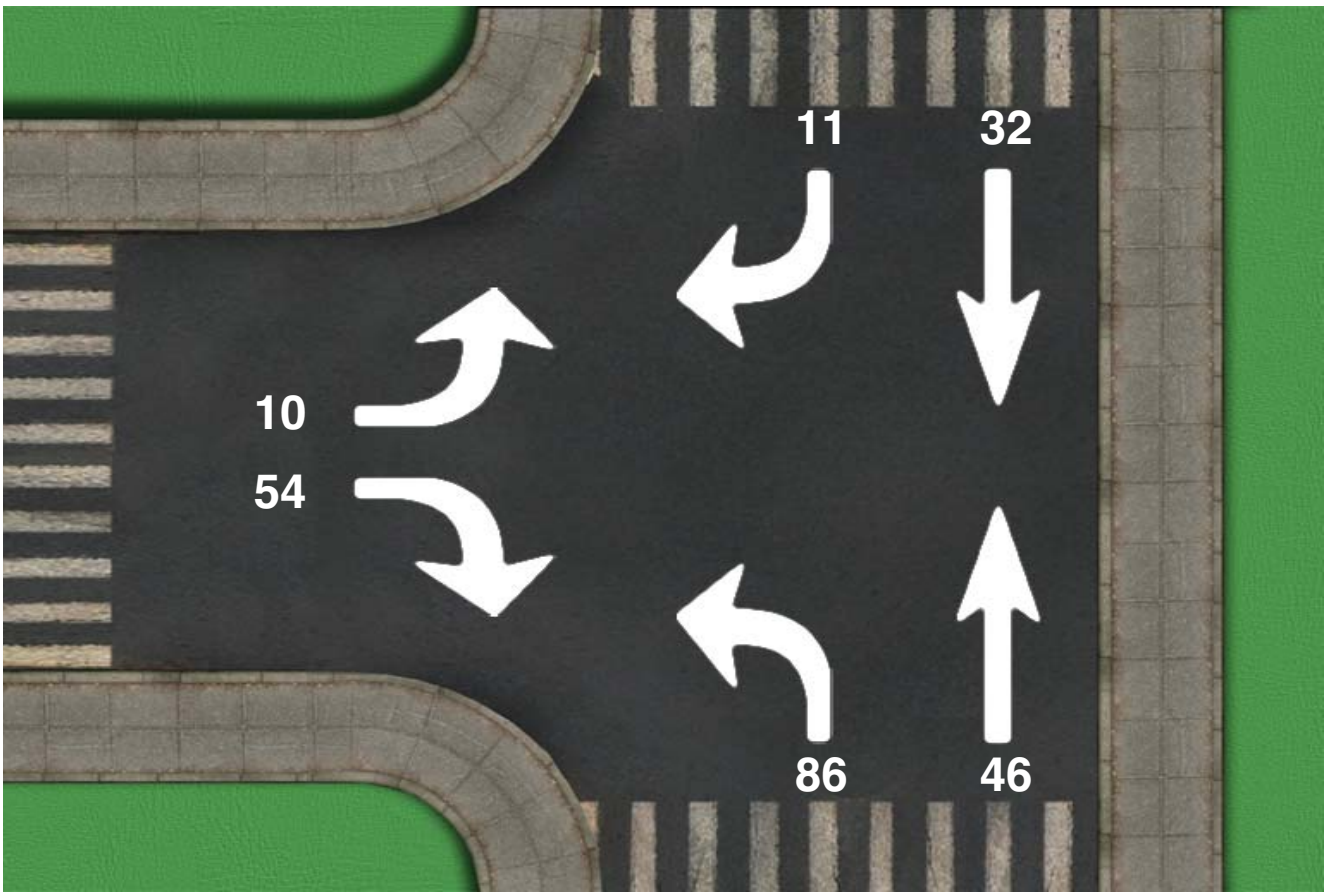
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	32	10	0	0	0	86	45	0	10	0	53	236
Truck	0	0	1	0	0	0	0	1	0	0	0	1	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	3	0	3	2	0	2	2	3	5	0	5	5	15

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Cloudy
Analyst: AT



Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

Dynamic Traffic Solutions
1049 Havensale Blvd
Newmarket, Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Ford Wilson Blvd at Crossland Gate/Alex Doner Dr, Newmarket Ontario**
GPS Coordinates: **N = 44.010430, W= -79.451554**
Date: **2011/11/01**
Day of week: **Tuesday**
Weather:
Analyst: **Crystal**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	3	0	0	0	2	4	0	0	0	3	1	0	13
07:15	0	0	3	0	0	4	0	0	0	6	2	0	15
07:30	3	0	1	0	1	7	0	0	0	5	0	0	17
07:45	2	0	5	0	0	6	0	0	0	2	3	0	18
08:00	6	0	8	0	2	10	0	0	0	3	3	0	32
08:15	13	0	12	0	4	7	0	0	0	4	3	0	43
08:30	8	0	7	0	1	9	0	0	0	8	0	0	33
08:45	7	0	6	0	2	10	0	0	0	5	2	0	32
09:00	1	0	0	0	0	0	0	0	0	1	0	0	2

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	3	0	0	0	2	4	0	0	0	3	1	0	13
07:15	0	0	3	0	0	4	0	0	0	6	2	0	15
07:30	3	0	1	0	1	6	0	0	0	5	0	0	16
07:45	2	0	5	0	0	6	0	0	0	2	3	0	18
08:00	5	0	8	0	2	10	0	0	0	3	3	0	31
08:15	13	0	10	0	4	7	0	0	0	4	3	0	41
08:30	7	0	6	0	1	8	0	0	0	7	0	0	29
08:45	6	0	5	0	2	9	0	0	0	5	2	0	29
09:00	1	0	0	0	0	0	0	0	0	1	0	0	2

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	1	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	1	0	0	0	0	0	0	0	0	0	0	0	1
08:15	0	0	2	0	0	0	0	0	0	0	0	0	2
08:30	1	0	1	0	0	1	0	0	0	1	0	0	4
08:45	1	0	1	0	0	1	0	0	0	0	0	0	3
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
06:59	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	1	1	1	0	1	2
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45	0	0	0	0	0	0	0	1	1	0	1	1	2
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	29	0	32	0	7	32	0	0	0	17	9	0	126
Factor	0.56	0.00	0.67	0.00	0.44	0.80	0.00	0.00	0.00	0.53	0.75	0.00	0.73
Approach factor	0.61			0.81			0.00			0.81			

Peak Hour Vehicle Summary

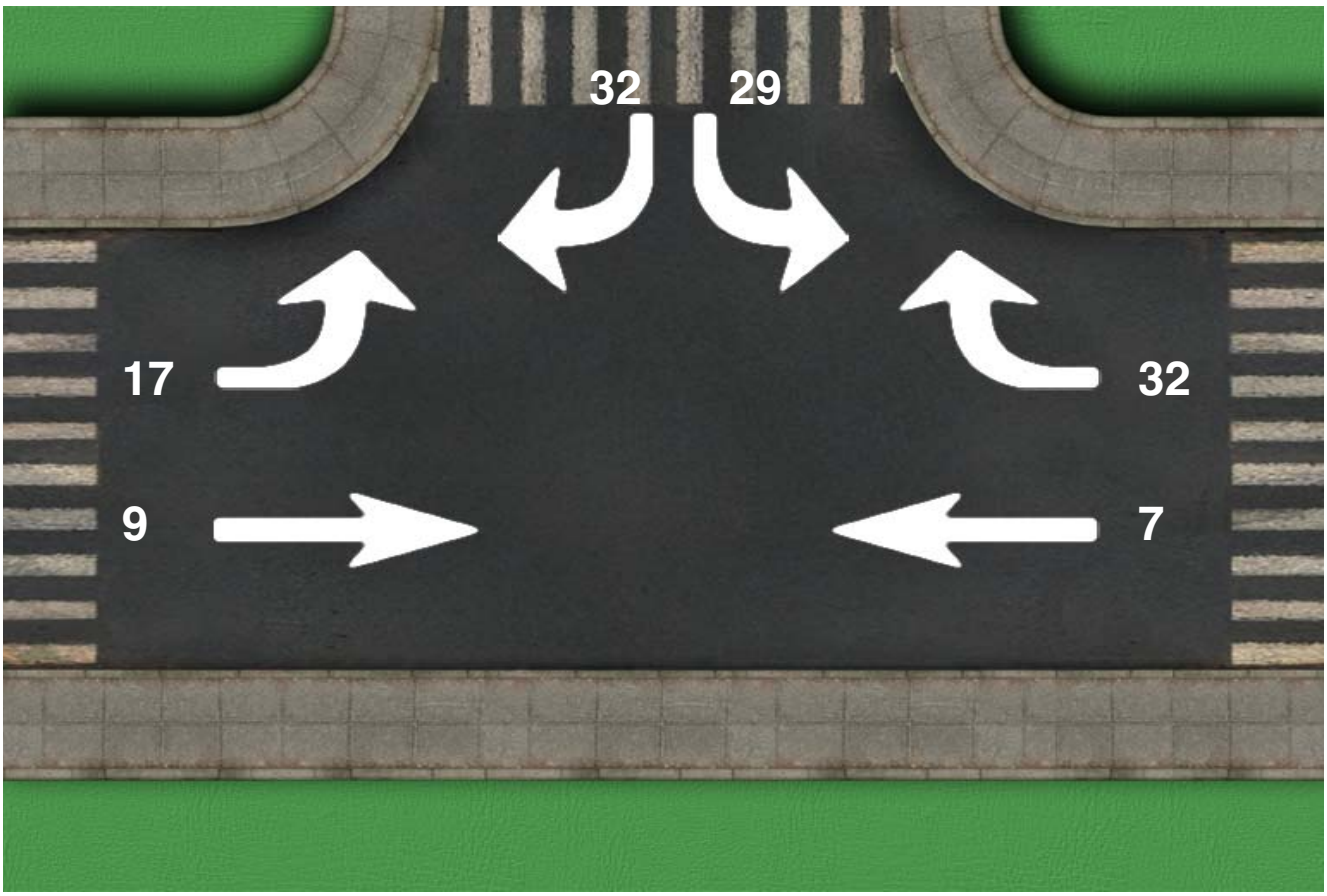
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	27	0	29	0	7	31	0	0	0	16	9	0	119
Truck	2	0	3	0	0	1	0	0	0	1	0	0	7

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	0	0	1	0	1	1

Intersection Peak Hour

Location: Ford Wilson Blvd at Crossland Gate/Alex Doner Dr, Newmarket Ontario
GPS Coordinates: N = 44.010430, W= -79.451554
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: Crystal



Intersection Peak Hour

07:45 - 08:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	29	0	32	0	7	32	0	0	0	17	9	0	126
Factor	0.56	0.00	0.67	0.00	0.44	0.80	0.00	0.00	0.00	0.53	0.75	0.00	0.73
Approach factor	0.61			0.81			0.00			0.81			

Dynamic Traffic Solution
1049 Havendale Blvd
Burlington , Ontario , L7P-3P7
905-467-5672

Turn Count Summary

Location: Ford Wilson at Crossland Gate, Newmarket Ontario
GPS Coordinates: N = 44.051837, W= -79.497373
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: CT

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	7	0	4	0	1	10	0	0	0	9	3	0	34
16:15	12	0	12	0	3	12	0	0	0	6	3	0	48
16:30	5	0	6	0	2	8	0	0	0	28	0	0	49
16:45	18	0	2	0	2	11	0	0	0	2	2	0	37
17:00	9	0	10	0	3	12	0	0	0	5	2	0	41
17:15	15	0	5	0	1	12	0	0	0	5	9	0	47
17:30	14	0	7	0	2	6	0	0	0	5	3	0	37
17:45	15	0	9	0	2	7	0	0	0	4	1	0	38
18:00	4	0	1	0	2	2	0	0	0	1	0	0	10

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	7	0	4	0	1	8	0	0	0	9	1	0	30
16:15	12	0	12	0	3	12	0	0	0	6	3	0	48
16:30	5	0	6	0	2	8	0	0	0	28	0	0	49
16:45	18	0	2	0	1	11	0	0	0	2	2	0	36
17:00	9	0	10	0	2	12	0	0	0	5	2	0	40
17:15	15	0	5	0	1	12	0	0	0	5	4	0	42
17:30	14	0	7	0	2	6	0	0	0	5	3	0	37
17:45	15	0	9	0	2	7	0	0	0	4	1	0	38
18:00	4	0	1	0	2	2	0	0	0	1	0	0	10

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	0	0	0	0	0	2	0	0	0	0	2	0	4
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	1	0	0	0	0	0	0	0	1
17:00	0	0	0	0	1	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	5	0	5
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:02	0	0	0	0	0	0	0	0	0	1	0	1	1
16:15	1	0	1	0	0	0	0	1	1	0	0	0	2
16:30	0	0	0	1	0	1	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	1	1	2	0	2	3
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	1	0	1	2	0	2	3	0	3	6
17:45	0	0	0	0	0	0	0	1	1	1	0	1	2
18:00	2	0	2	0	0	0	0	0	0	0	0	0	2

Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	44	0	30	0	10	43	0	0	0	41	7	0	175
Factor	0.61	0.00	0.62	0.00	0.83	0.90	0.00	0.00	0.00	0.37	0.58	0.00	0.89
Approach factor	0.77			0.88			0.00			0.43			

Peak Hour Vehicle Summary

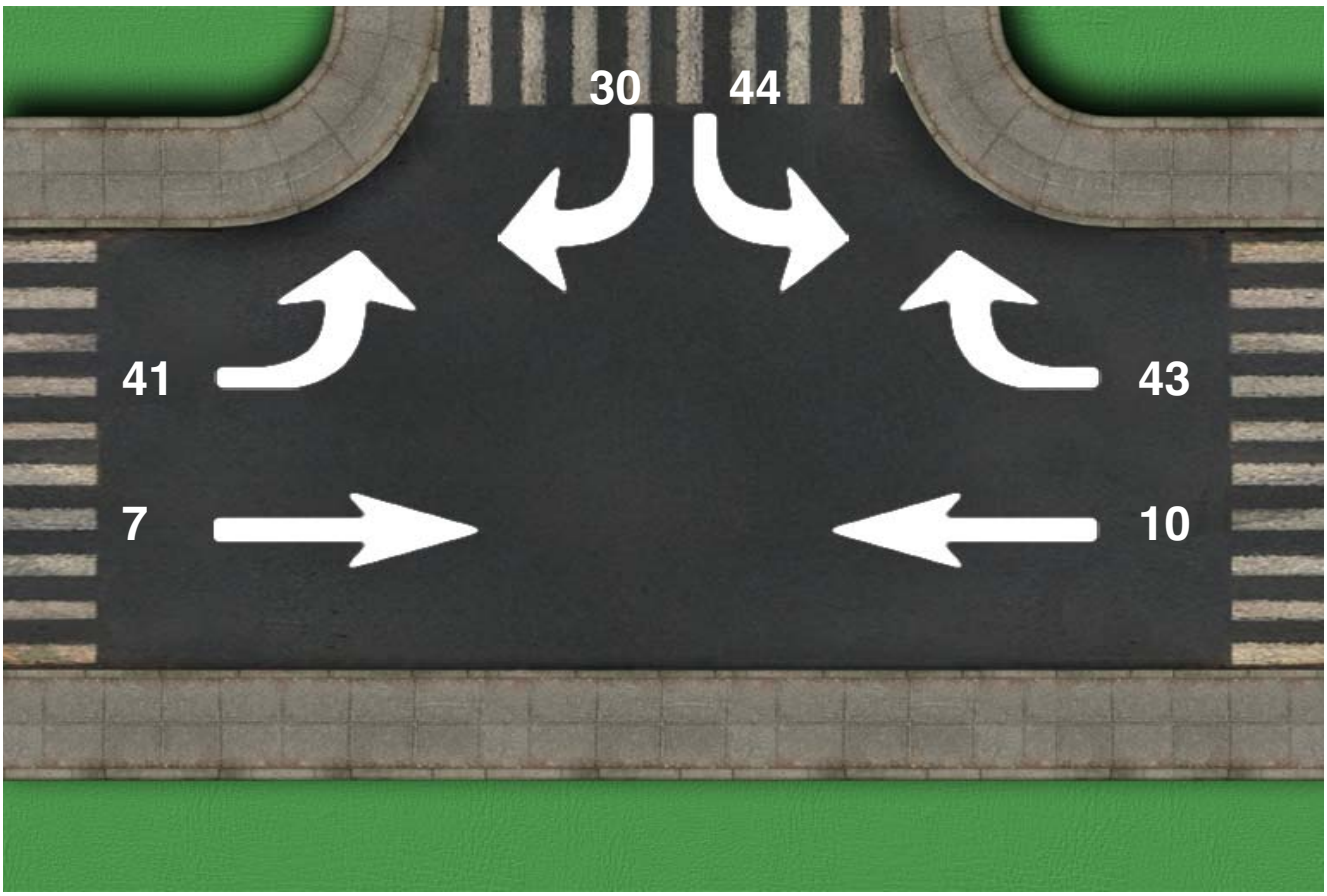
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	44	0	30	0	8	43	0	0	0	41	7	0	173
Truck	0	0	0	0	2	0	0	0	0	0	0	0	2

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	1	0	1	1	0	1	0	2	2	2	0	2	6

Intersection Peak Hour

Location: Ford Wilson at Crossland Gate, Newmarket Ontario
GPS Coordinates: N = 44.051837, W= -79.497373
Date: 2011/11/01
Day of week: Tuesday
Weather:
Analyst: CT



Intersection Peak Hour

16:15 - 17:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	44	0	30	0	10	43	0	0	0	41	7	0	175
Factor	0.61	0.00	0.62	0.00	0.83	0.90	0.00	0.00	0.00	0.37	0.58	0.00	0.89
Approach factor	0.77			0.88			0.00			0.43			

Dynamic Traffic Solutions
1049 Havedale Blvd
Burlington , Ontario, L7P-3P7
905-467-5672

Turn Count Summary

Location: **Eagle St at Crossland Gate/Peevers Crest, Newmarket Ontario**
GPS Coordinates: **N = 44.010451, W= -79.451541**
Date: **2011-11-02**
Day of week: **Thursday**
Weather: **Cool**
Analyst: **Crystal**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	29	4	2	0	0	3	24	0	7	1	12	82
07:15	0	34	6	5	0	0	3	30	0	6	0	17	101
07:30	1	29	5	1	0	1	2	26	0	6	0	16	87
07:45	0	67	8	8	1	0	13	43	3	17	0	35	195
08:00	0	58	8	5	0	1	9	40	3	14	2	25	165
08:15	0	68	9	5	2	0	11	51	1	7	1	16	171
08:30	0	61	11	1	1	0	7	57	0	13	1	20	172
08:45	0	75	18	2	2	0	7	50	1	30	2	18	205
09:00	0	1	0	0	0	0	1	4	0	0	0	0	6

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	29	3	2	0	0	3	24	0	7	0	11	79
07:15	0	33	5	5	0	0	3	30	0	6	0	17	99
07:30	1	29	4	1	0	1	2	24	0	6	0	16	84
07:45	0	66	8	7	1	0	13	42	3	17	0	35	192
08:00	0	58	8	5	0	0	9	39	3	14	2	25	163
08:15	0	68	8	5	2	0	9	50	1	7	1	16	167
08:30	0	59	10	1	1	0	7	55	0	13	1	19	166
08:45	0	75	17	2	2	0	7	48	1	29	2	18	201
09:00	0	1	0	0	0	0	1	4	0	0	0	0	6

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	1	0	0	0	0	0	0	0	1	1	3
07:15	0	1	1	0	0	0	0	0	0	0	0	0	2
07:30	0	0	1	0	0	0	0	2	0	0	0	0	3
07:45	0	1	0	1	0	0	0	1	0	0	0	0	3
08:00	0	0	0	0	0	1	0	1	0	0	0	0	2
08:15	0	0	1	0	0	0	2	1	0	0	0	0	4
08:30	0	2	1	0	0	0	0	2	0	0	0	1	6
08:45	0	0	1	0	0	0	0	2	0	1	0	0	4
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:00	2	0	2	0	0	0	0	0	0	2	1	3	5
07:15	1	0	1	0	1	1	1	0	1	2	1	3	6
07:30	2	1	3	0	0	0	0	0	0	3	1	4	7
07:45	1	0	1	0	3	3	0	1	1	1	1	2	7
08:00	0	0	0	0	3	3	1	0	1	0	1	1	5
08:15	0	2	2	0	1	1	2	0	2	0	0	0	5
08:30	0	0	0	1	0	1	0	0	0	0	1	1	2
08:45	0	0	0	0	6	6	3	0	3	4	1	5	14
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	262	46	13	5	1	34	198	5	64	6	79	713
Factor	0.00	0.87	0.64	0.65	0.62	0.25	0.77	0.87	0.42	0.53	0.75	0.79	0.87
Approach factor	0.83			0.68			0.93			0.75			

Peak Hour Vehicle Summary

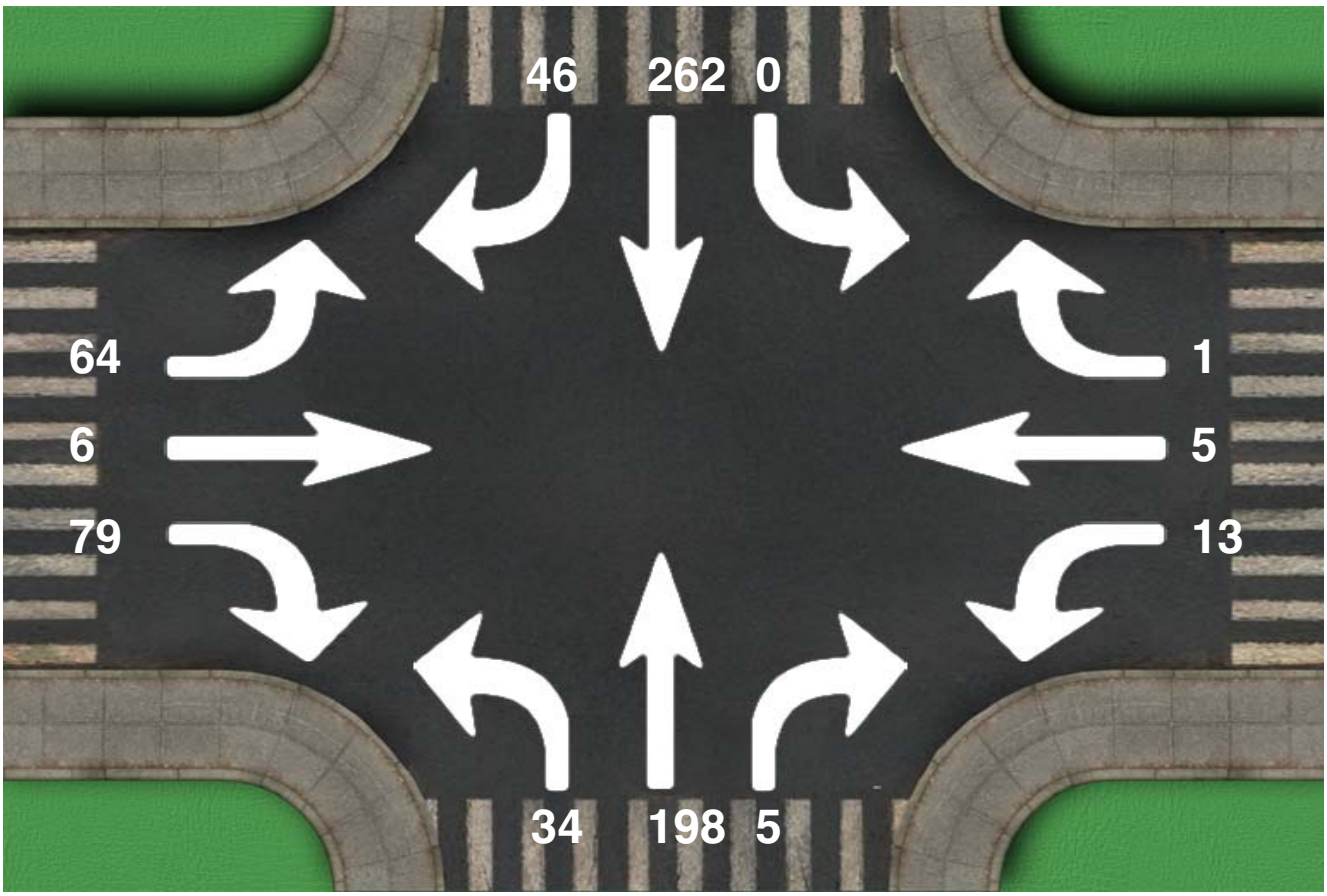
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	260	43	13	5	0	32	192	5	63	6	78	697
Truck	0	2	3	0	0	1	2	6	0	1	0	1	16

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	2	2	1	10	11	6	0	6	4	3	7	26

Intersection Peak Hour

Location: Eagle St at Crossland Gate/Peevers Crest, Newmarket Ontario
GPS Coordinates: N = 44.010451, W= -79.451541
Date: 2011-11-02
Day of week: Thursday
Weather: Cool
Analyst: Crystal



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	262	46	13	5	1	34	198	5	64	6	79	713
Factor	0.00	0.87	0.64	0.65	0.62	0.25	0.77	0.87	0.42	0.53	0.75	0.79	0.87
Approach factor	0.83			0.68			0.93			0.75			

, ,

Turn Count Summary

Location: at ,
GPS Coordinates: N = 44.046366, W= -79.485427
Date: 2011-11-03
Day of week: Saturday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	1	71	13	1	0	0	12	72	3	7	3	10	193
16:15	0	84	15	1	0	0	19	72	2	8	1	11	213
16:30	1	76	16	3	0	0	29	105	3	11	0	25	269
16:45	1	87	14	2	0	0	22	123	4	5	0	17	275
17:00	1	98	12	4	1	0	31	100	3	10	6	8	274
17:15	0	97	20	1	0	0	24	88	3	7	1	12	253
17:30	0	90	17	4	0	1	15	80	2	11	1	9	230
17:45	0	78	14	0	0	1	19	64	3	12	2	7	200
18:00	0	10	1	0	0	0	0	5	1	0	0	2	19

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	1	70	12	1	0	0	11	71	3	6	3	9	187
16:15	0	83	15	1	0	0	18	72	2	8	1	10	210
16:30	1	75	16	3	0	0	28	103	3	11	0	24	264
16:45	1	87	14	2	0	0	22	122	4	5	0	16	273
17:00	1	96	12	4	1	0	31	98	3	10	6	8	270
17:15	0	97	20	1	0	0	23	88	3	7	1	12	252
17:30	0	90	17	4	0	1	15	80	2	11	1	8	229
17:45	0	78	14	0	0	1	19	64	3	12	2	6	199
18:00	0	10	1	0	0	0	0	5	1	0	0	2	19

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:02	0	1	1	0	0	0	1	1	0	1	0	1	6
16:15	0	1	0	0	0	0	1	0	0	0	0	1	3
16:30	0	1	0	0	0	0	1	2	0	0	0	1	5
16:45	0	0	0	0	0	0	0	1	0	0	0	1	2
17:00	0	2	0	0	0	0	0	2	0	0	0	0	4
17:15	0	0	0	0	0	0	1	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	1	1
17:45	0	0	0	0	0	0	0	0	0	0	0	1	1
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
16:02	1	1	2	0	9	9	3	0	3	1	0	1	15
16:15	1	1	2	0	1	1	1	1	2	1	2	3	8
16:30	0	0	0	0	2	2	1	1	2	0	2	2	6
16:45	1	0	1	0	1	1	0	0	0	1	1	2	4
17:00	2	0	2	0	3	3	2	1	3	4	2	6	14
17:15	1	0	1	0	1	1	1	1	2	1	2	3	7
17:30	1	0	1	0	0	0	0	0	0	4	0	4	5
17:45	1	1	2	0	2	2	0	0	0	0	0	0	4
18:00	1	1	2	0	0	0	0	0	0	0	0	0	2

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	358	62	10	1	0	106	416	13	33	7	62	1071
Factor	0.75	0.91	0.77	0.62	0.25	0.00	0.85	0.85	0.81	0.75	0.29	0.62	0.97
Approach factor	0.90			0.55			0.90			0.71			

Peak Hour Vehicle Summary

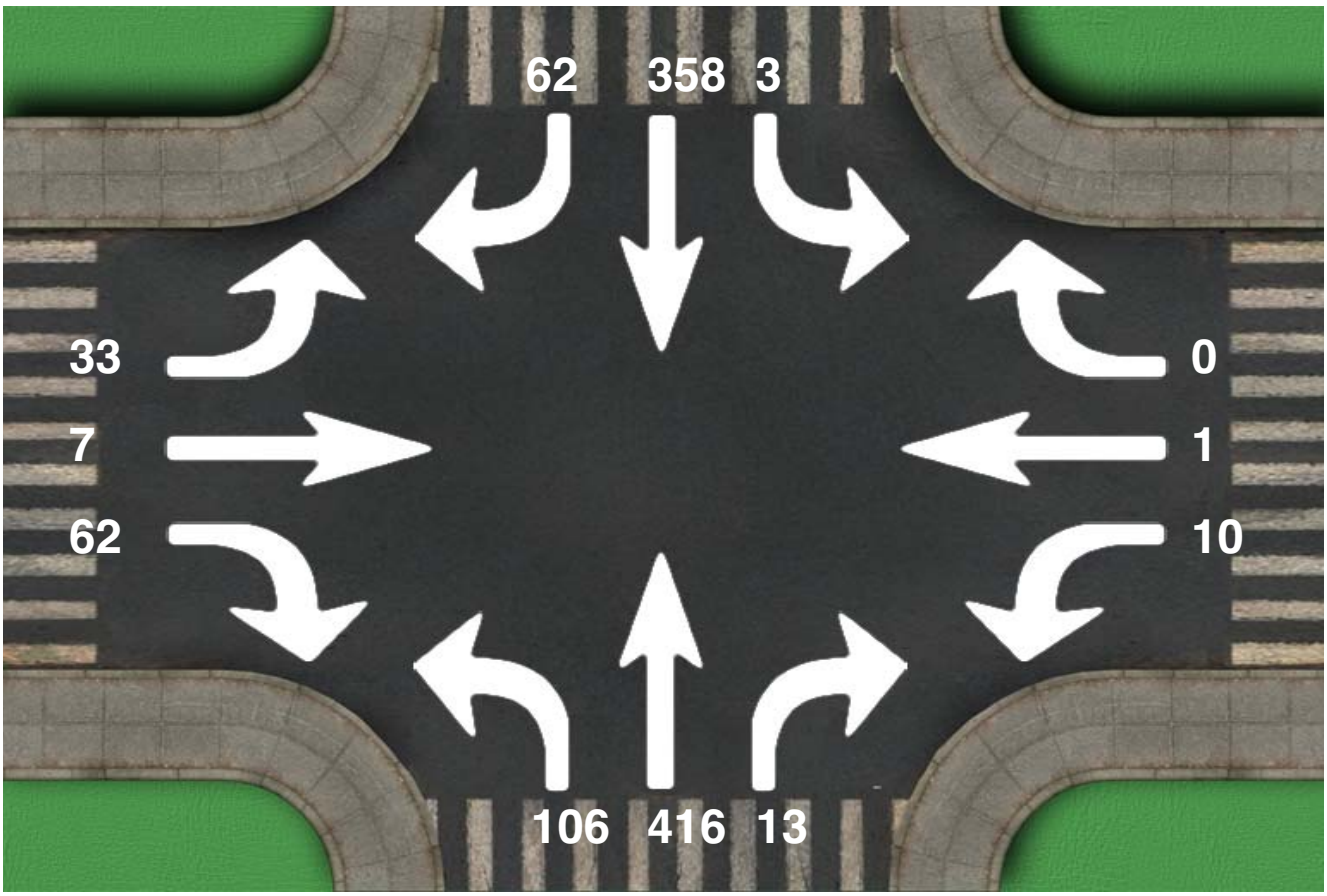
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	355	62	10	1	0	104	411	13	33	7	60	1059
Truck	0	3	0	0	0	0	2	5	0	0	0	2	12

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	4	0	4	0	7	7	4	3	7	6	7	13	31

Intersection Peak Hour

Location: at ,
GPS Coordinates: N = 44.046366, W= -79.485427
Date: 2011-11-03
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	358	62	10	1	0	106	416	13	33	7	62	1071
Factor	0.75	0.91	0.77	0.62	0.25	0.00	0.85	0.85	0.81	0.75	0.29	0.62	0.97
Approach factor	0.90			0.55			0.90			0.71			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, ON, L7P 3P7
905-467-5672

Turn Count Summary

Location: **Crossland Gate at Alex Doner Dr, Newmarket**
GPS Coordinates:
Date: **Nov 3,2011**
Day of week: **Thursday**
Weather: **Sunny**
Analyst: **AT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	8	3	0	0	0	2	7	0	1	0	12	33
07:30	0	7	1	0	0	0	7	0	0	2	0	12	29
07:45	0	19	3	0	0	0	15	3	0	2	0	24	66
08:00	0	20	2	0	0	0	15	7	0	3	0	18	65
08:15	0	12	2	0	0	0	13	4	0	2	0	11	44
08:30	0	13	6	0	0	0	13	5	0	4	0	17	58
08:45	0	6	10	0	0	0	18	5	0	11	0	43	93
09:00	0	6	4	0	0	0	10	4	0	8	0	11	43

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	8	3	0	0	0	1	7	0	1	0	12	32
07:30	0	7	1	0	0	0	5	0	0	1	0	12	26
07:45	0	19	3	0	0	0	15	3	0	2	0	24	66
08:00	0	20	1	0	0	0	15	7	0	3	0	18	64
08:15	0	12	2	0	0	0	11	4	0	2	0	11	42
08:30	0	13	6	0	0	0	12	5	0	4	0	16	56
08:45	0	6	10	0	0	0	17	5	0	9	0	42	89
09:00	0	6	4	0	0	0	10	4	0	8	0	11	43

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	1	0	0	0	0	0	1
07:30	0	0	0	0	0	0	2	0	0	1	0	0	3
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	1	0	0	0	0	0	0	0	0	0	1
08:15	0	0	0	0	0	0	2	0	0	0	0	0	2
08:30	0	0	0	0	0	0	1	0	0	0	0	1	2
08:45	0	0	0	0	0	0	1	0	0	2	0	1	4
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
07:14	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	1	1	0	0	0	1	0	1	2
07:30	1	0	1	2	0	2	1	0	1	0	0	0	4
07:45	1	0	1	0	0	0	0	0	0	0	0	0	1
08:00	0	0	0	0	1	1	0	0	0	1	0	1	2
08:15	0	0	0	0	0	0	0	1	1	2	0	2	3
08:30	3	1	4	0	2	2	0	2	2	3	0	3	11
08:45	3	0	3	0	2	2	0	0	0	5	1	6	11
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Peak Hour Vehicle Summary

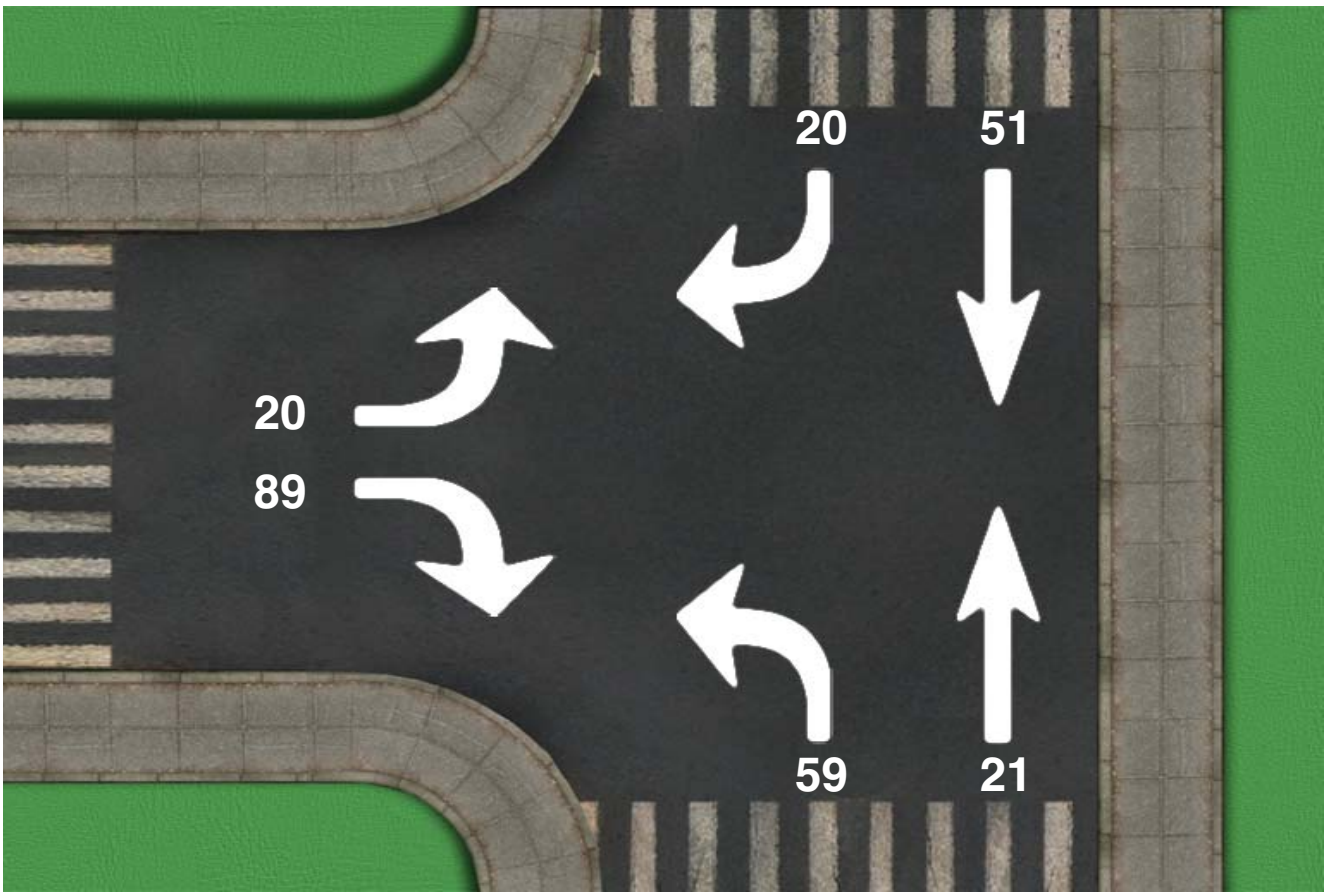
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	51	19	0	0	0	55	21	0	18	0	87	251
Truck	0	0	1	0	0	0	4	0	0	2	0	2	9

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	6	1	7	0	5	5	0	3	3	11	1	12	27

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Sunny
Analyst: AT



Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	51	20	0	0	0	59	21	0	20	0	89	260
Factor	0.00	0.64	0.50	0.00	0.00	0.00	0.82	0.75	0.00	0.45	0.00	0.52	0.70
Approach factor	0.81			0.00			0.87			0.50			

Dynamic Traffic Solutions
1049 Havendale Blvd
Burlington, ON, L7P 3P7
905-467-5672

Turn Count Summary

Location: **Crossland Gate at Alex Doner Dr, Newmarket**
GPS Coordinates:
Date: **Nov 3,2011**
Day of week: **Thursday**
Weather: **Cloudy**
Analyst: **AT**

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	10	1	0	0	0	16	16	0	2	0	11	56
16:00	0	9	3	0	0	0	13	10	0	8	0	13	56
16:15	0	4	2	0	0	0	20	11	0	3	0	11	51
16:30	0	12	0	0	0	0	17	12	0	4	0	24	69
16:45	0	13	2	0	0	0	22	15	0	3	0	12	67
17:00	0	6	5	0	0	0	19	12	0	1	0	14	57
17:15	0	6	4	0	0	0	21	11	0	3	0	12	57
17:30	0	7	0	0	0	0	24	8	0	3	0	16	58
17:45	0	8	2	0	0	0	23	12	0	1	0	9	55
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	9	1	0	0	0	15	16	0	2	0	11	54
16:00	0	8	3	0	0	0	13	10	0	8	0	12	54
16:15	0	4	2	0	0	0	19	11	0	2	0	11	49
16:30	0	12	0	0	0	0	16	12	0	4	0	23	67
16:45	0	13	2	0	0	0	22	14	0	3	0	11	65
17:00	0	6	4	0	0	0	19	12	0	1	0	14	56
17:15	0	6	4	0	0	0	21	11	0	3	0	12	57
17:30	0	7	0	0	0	0	24	8	0	3	0	16	58
17:45	0	8	2	0	0	0	23	12	0	1	0	9	55
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:45	0	1	0	0	0	0	1	0	0	0	0	0	2
16:00	0	1	0	0	0	0	0	0	0	0	0	1	2
16:15	0	0	0	0	0	0	1	0	0	1	0	0	2
16:30	0	0	0	0	0	0	1	0	0	0	0	1	2
16:45	0	0	0	0	0	0	0	1	0	0	0	1	2
17:00	0	0	1	0	0	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
15:45	2	1	3	2	0	2	2	1	3	0	3	3	11
16:00	1	0	1	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	2	2	0	2	2	4
16:30	0	1	1	1	0	1	1	5	6	3	1	4	12
16:45	0	0	0	0	0	0	1	1	2	0	0	0	2
17:00	1	0	1	2	0	2	1	1	2	0	0	0	5
17:15	0	0	0	0	0	0	0	1	1	0	3	3	4
17:30	2	0	2	0	0	0	0	0	0	0	2	2	4
17:45	4	0	4	0	1	1	0	0	0	4	0	4	9
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Peak Hour

16:45 - 17:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

Peak Hour Vehicle Summary

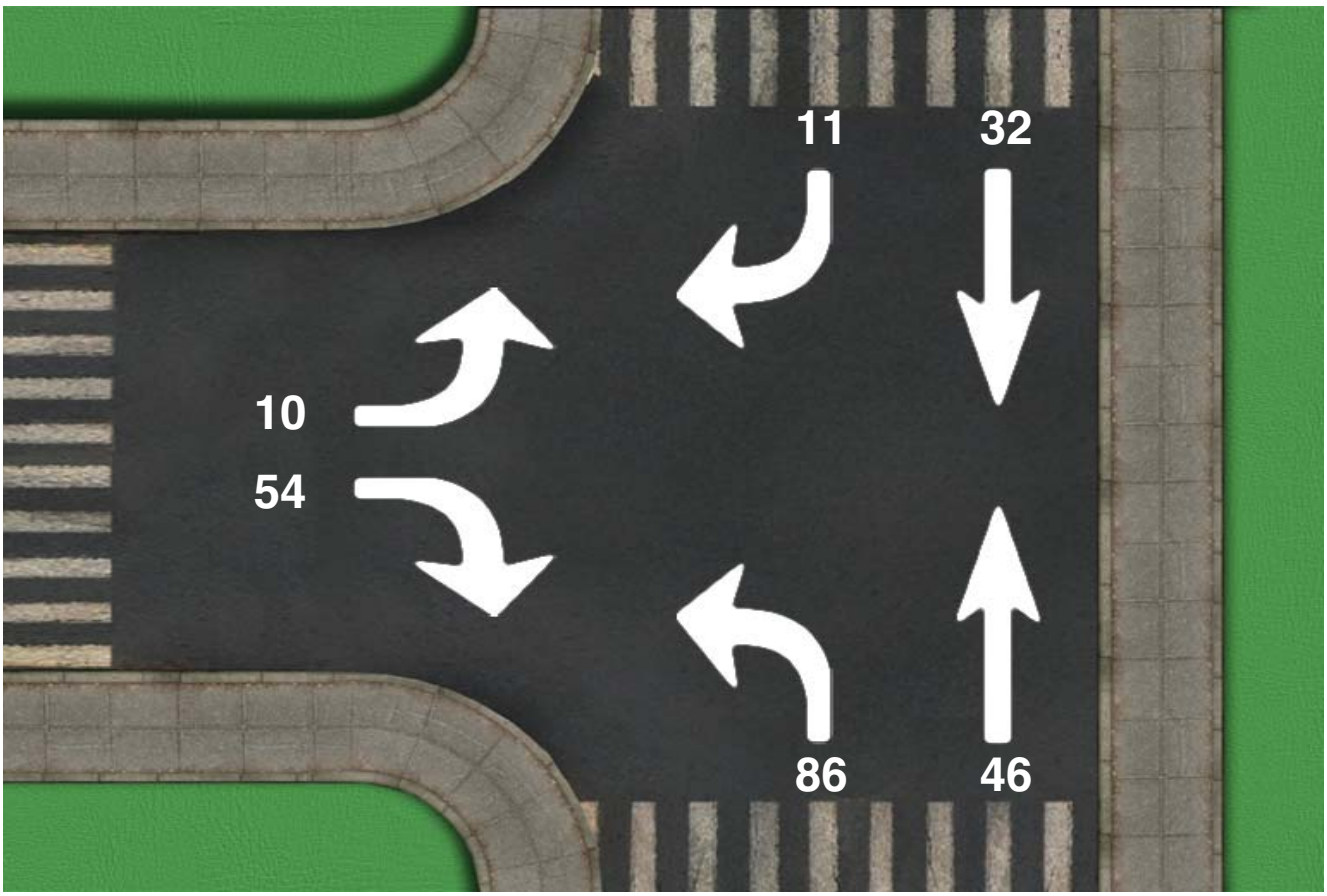
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	32	10	0	0	0	86	45	0	10	0	53	236
Truck	0	0	1	0	0	0	0	1	0	0	0	1	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	3	0	3	2	0	2	2	3	5	0	5	5	15

Intersection Peak Hour

Location: Crossland Gate at Alex Doner Dr, Newmarket
GPS Coordinates:
Date: Nov 3,2011
Day of week: Thursday
Weather: Cloudy
Analyst: AT



Intersection Peak Hour

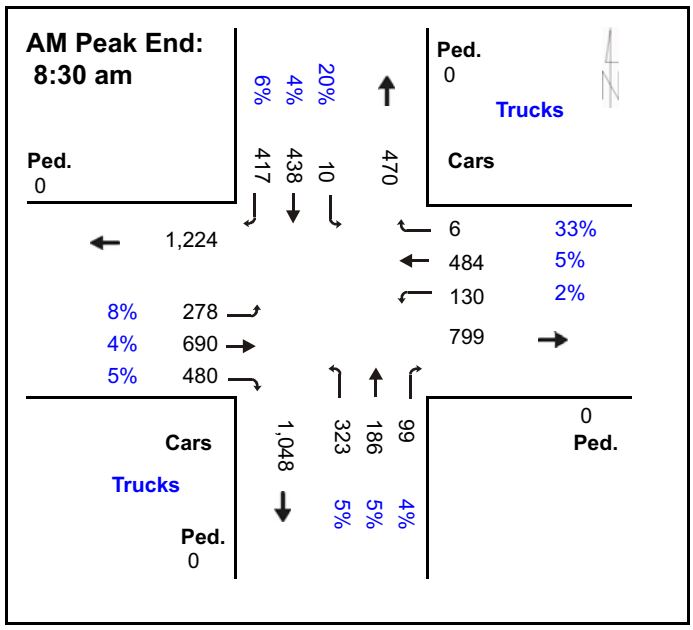
16:45 - 17:45

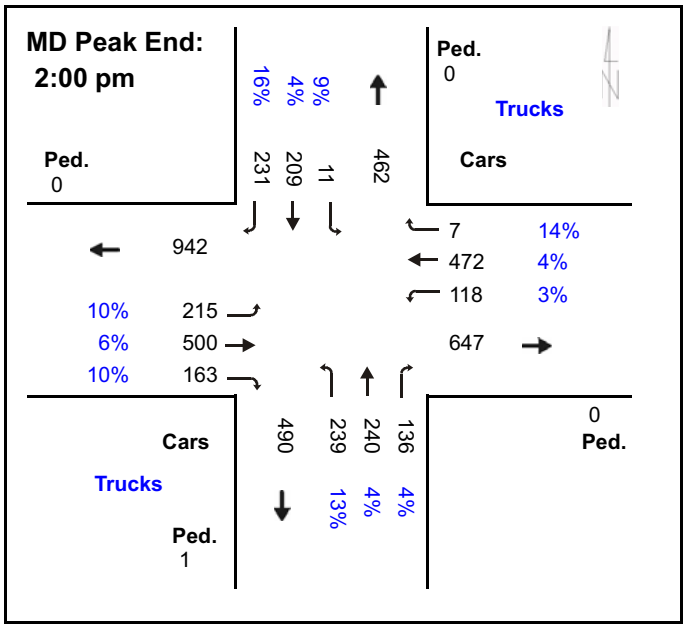
	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	32	11	0	0	0	86	46	0	10	0	54	239
Factor	0.00	0.62	0.55	0.00	0.00	0.00	0.90	0.77	0.00	0.83	0.00	0.84	0.89
Approach factor	0.72			0.00			0.89			0.84			

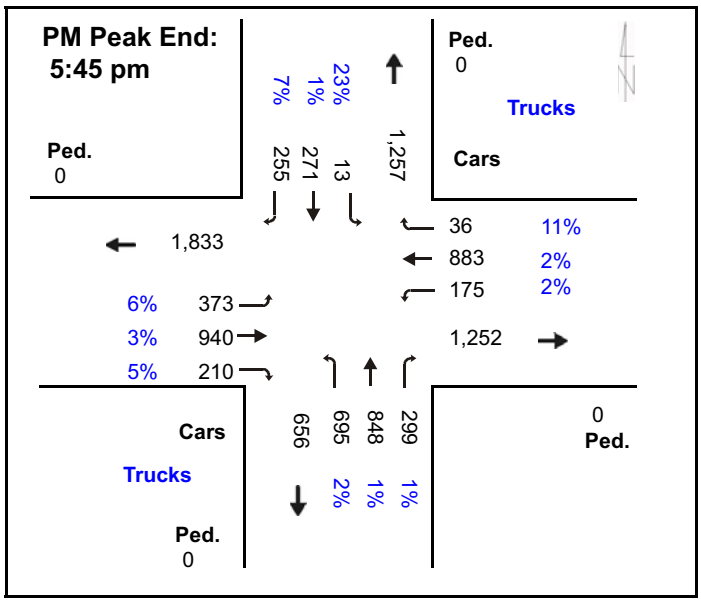
Davis Drive West & Bathurst Street

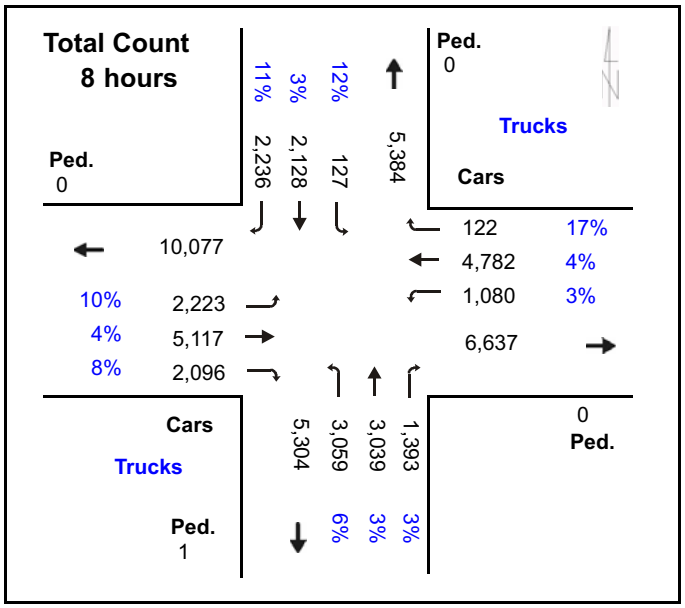
King

Intersection ID:EA1AAF9A | **Count Day:Tuesday** | **Count Date: 05-Jun-2012**





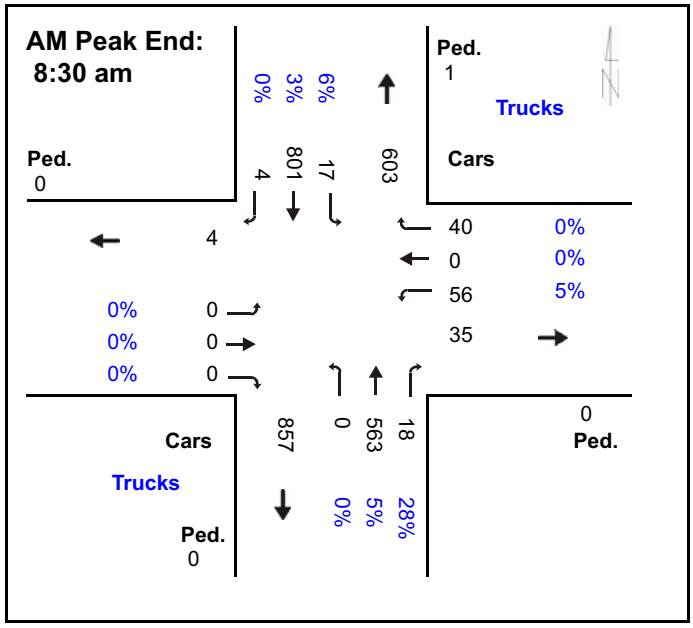


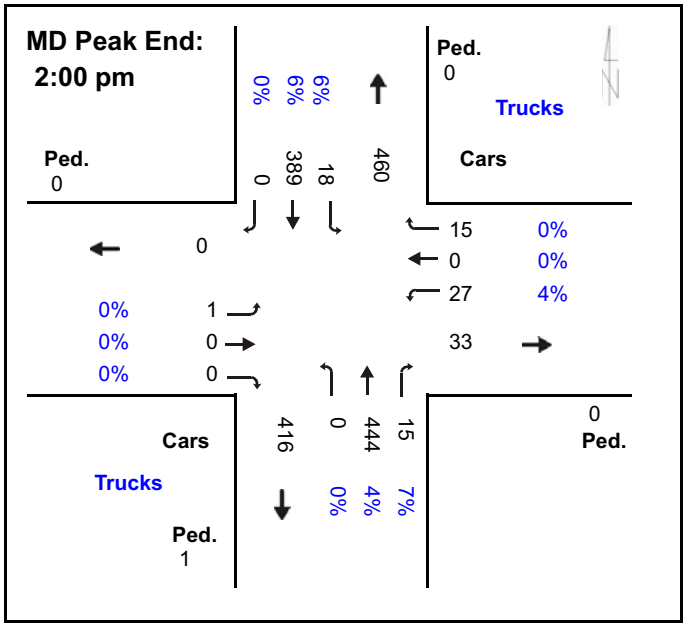


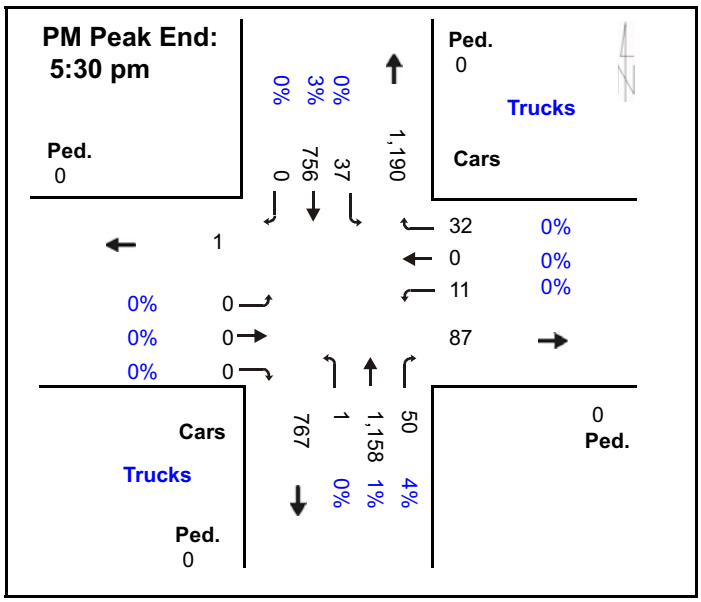
Bathurst Street & Sykes Road

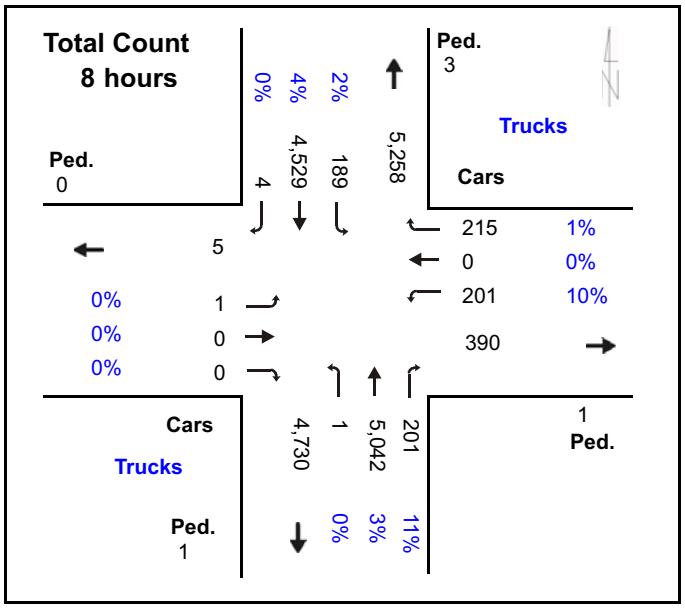
Newmarket

Intersection ID:9CF40182 | **Count Day: Thursday** | **Count Date: 21-Jan-2010**









11-Nov-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

Intersection Name : **Bayview Ave. - Crosby Ave. / Redstone Rd.**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
ALL Day	TBC	100	12 55 00 33 00 67 00 33	1	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	0	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

11-Nov-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Bayview Ave. - Crosby Ave. / Redstone Rd.

Weekly Plan : Bayview at Crosby

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
07:00	ALL Day	X	X	X	X	X	X	X
22:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Bayview at Crosby

Default Weekly Schedule : Bayview at Crosby

Date	Schedule (If blank, use the default weekly schedule)

TRAFFIC CONTROL TECHNOLOGIES - LMD 9200

INTERSECTION NAME: **Bayview Ave. (YR 34) & Crosby / Redstone**
PROGRAMMED BY: D.Rumble
CONTOLLER SERIAL #:
INTERSECTION TELEPHONE (IF DIRECT DIAL):
SECTION:

INSTALLATION DATE: December 23, 1997
PROGRAM DATE: December 23, 1997
SECURITY CODE: **1000**
ADDRESS: ~~28~~ 29

INTERVAL	PHASE (ON/OFF)							
	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
PED RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA I	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1- N/B L.T. Arrow
2- SOUTHBOUND
3- Not Used
4- EASTBOUND
5- Not Used
6- NORTHBOUND
7- Not Used
8- WESTBOUND

INTERVAL	PHASE TIMINGS							
	1	2	3	4	5	6	7	8
MIN GREEN	**7**	**30**	0	**10**	0	**30**	0	**10**
PASSAGE	**3.0**	0	0	**3.0**	0	0	0	**3.0**
YELLOW	**3.0**	**5.0**	0	**5.0**	0	**5.0**	0	**5.0**
RED	**1.0**	**2.0**	0	**2.0**	0	**2.0**	0	**2.0**
MAX I	**7**	**30**	0	**19**	0	**30**	0	**19**
MAX II	**7**	**30**	0	**19**	0	**30**	0	**19**
WALK	0	**7**	0	**7**	0	**7**	0	**7**
PED CLEAR	0	**18**	0	**18**	0	**18**	0	**18**
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

PHASES USED								
	1	2	3	4	5	6	7	8
ON/OFF	**ON**	**ON**	OFF	**ON**	OFF	**ON**	OFF	**ON**
SEQUENCE	**2**	1 = SEQ, 2 = DUAL RING, 3-7 = LEAD/LAG						
LEAD/LAG CODES (ONLY USED IF "8" WAS ENTERED FOR SEQUENCE)								
PAIRS	1 AND 2		3 AND 4		5 AND 6		7 AND 8	
CODE								
LEAD/LAG CODE - 1= NO REV, 2 = ALWAYS REV, 3 = REV BY C/S/O OR CLOCK/INPUT								

INITIALIZE/FLASH				
	INITIALIZE	ENTER FLASH	EXIT FLASH	INTERVAL CODES:
RING 1 PHASE	**2**	**2**	**2**	1 = RED
RING 2 PHASE	**6**	**6**	**6**	2 = YELLOW
INTERVAL	**2**	**1**	**2**	3 = GREEN

POWER UP/RESTART TIMINGS		
MINIMUM FLASH		(0-127 SECONDS)
1ST ALL RED AFTER FLASH		(0-127 SECONDS)

26-May-2010

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

York Region

Intersection Name : **Bayview Ave. - Elgin Mills Rd.**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	120	12 52 18 38 12 52 18 38	19	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	0	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
OFF Day	TBC	110	12 43 18 37 12 43 12 43	62	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Peak	TBC	120	12 50 20 38 12 50 12 46	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

changes due to observation
LW

08-Dec-2008

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Bayview Ave. - Elgin Mills Rd.

Weekly Plan : Bayview at Elgin Mills

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
09:30	OFF Day	X	X	X	X	X	X	X
16:00	PM Peak	X	X	X	X	X	-	-
19:30	OFF Day	X	X	X	X	X	-	-
22:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Bayview at Elgin Mills

Default Weekly Schedule : Bayview at Elgin Mills

Date	Schedule (If blank, use the default weekly schedule)

EPAC M40 PROGRAM LOG

Installation Date: _____ CTCS# 151 Address 23

Programmed Date _____

Programmed by: **D.Rumble**

INTERSECTION NAME: **Bayview Ave. (YR 34) & Elgin Mills Rd. (YR 49)**

Phasing:

1. **E/B Left Turn Arrow**
2. **WESTBOUND**
3. **N/B Left Turn Arrow**
4. **SOUTHBOUND**
5. **W/B Left Turn Arrow**
6. **EASTBOUND**
7. **S/B Left Turn Arrow**
8. **NORTHBOUND**

UTILITIES ACCESS

CODE = **9999** CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

	PHASE	1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	15	7	10	7	15	7	10
	Passage	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
	Maximum No. 1	7	30	7	19	7	30	7	19
	Maximum No. 2	7	30	7	19	7	30	7	19
	Yellow Change	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
	Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Density Times	Seconds/Actuation	0	1.5	0	0	0	1.5	0	0
	Maximum Initial	0	30	0	0	0	30	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

	PHASE	1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	18	0	20	0	18	0	20
Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0
Vehicle Control	Non Lock Memory	1	0	1	1	1	0	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

EPAC M40 PROGRAM LOG

Installation Date: **June 9, 2004** CTCS # **425**

Program Date: **June 9, 2004** Address

Programmed by: **T. Hanrahan**

INTERSECTION NAME: **Highway 9 (YR 31) & Bathurst St. (YR38)**

Phasing:

1. **EB LT Arrow**
2. **Westbound**
3. **NB LT Arrow**
4. **Southbound**
5. **WB LT Arrow**
6. **Eastbound**
7. **N/A**
8. **Northbound**

UTILITIES ACCESS

CODE = **9999** CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

	PHASE	1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	15	7	10	7	15	0	10
	Passage	4.0	5.0	3.0	4.0	3.0	5.0	0	30
	Maximum No. 1	25	50	30	30	20	50	0	30
	Maximum No. 2	30	50	30	30	20	50	0	30
	Yellow Change	3.0	5.0	3.0	4.0	3.0	5.0	0	4.0
	Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	0	2.0
Density Times	Seconds/Actuation	0	1.0	0	0	0	1.0	0	0
	Maximum Initial	0	50	0	0	0	50	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

	PHASE	1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	24	0	25	0	24	0	25
Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0
Vehicle Control	Non Lock Memory	1	0	1	1	1	0	0	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

INTERSECTION NAME: **Highway 9 @ Ford Wilson/Crossland**
PROGRAMMED BY: T Hanrahan
CONTOLLER SERIAL #:

CTCS #:
ADDRESS:
SECURITY CODE: **1000**
PROGRAM DATE: July 29 2008
INSTALLATION DATE: July 29 2008

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
PED RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA I	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1 - Not Used	**5 - Not Used**
2 - Westbound	**6 - Eastbound**
3 - Not Used	**7 - Not Used**
4 - * Southbound	*** 8 - Northbound**

* N-S THRU RESTRICTIONS -

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	0	30	0	10	0	30	0	10
PASSAGE	0	0	0	3.0	0	0	0	3.0
YELLOW	0	5.0	0	4.0	0	5.0	0	4.0
RED	0	2.0	0	2.0	0	2.0	0	2.0
MAX I	0	30	0	19	0	30	0	19
MAX II	0	50	0	50	0	50	0	50
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	17	0	23	0	17	0	23
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	off	**ON**	off	**ON**	off	**ON**	off	**ON**

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag

LEAD/LAG BARRIERS ARE:		ON/OFF

On = Barriers after each ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITILAIZE / FLASH (MM-2-2-4) 1 =RED, 2 = YEL., 3 = GRN

	INITILIZE	ENTER FL	EXIT FL
RING 1 PHASE	**2**	**2**	**2**
RING 2 PHASE	**6**	**6**	**6**
INTERVAL	**1**	**1**	**1**

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH		(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH	**5.0**	(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

07-Oct-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

Intersection Name : **Highway 9 - Eagle St./Upper Canada Mall Entrance**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	120	14 55 14 37 14 55 14 37	30	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	0	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Off Peak	TBC	110	14 40 14 42 14 40 14 42	95	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Peak	TBC	120	14 50 14 42 14 50 14 42	8	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

SPLIT ADJUSTMENTS DUE TO PEDESTRIAN CLEARANCE CHANGES.

04-Jun-2009

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Highway 9 - Eagle St./Upper Canada Mall Entrance

Weekly Plan : Hwy 9 at Eagle

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:00	AM Peak	X	X	X	X	X	-	-
09:00	Off Peak	X	X	X	X	X	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	Off Peak	X	X	X	X	X	-	-
23:00	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Hwy 9 at Eagle

Default Weekly Schedule : Hwy 9 at Eagle

Date	Schedule (If blank, use the default weekly schedule)

INTERSECTION NAME: **Highway 9 & Eagle St./Upper Canada Mall Ent.**
PROGRAMMED BY: T. Hanrahan
CONTOLLER SERIAL #:

CTCS #: 424
ADDRESS: 36
SECURITY CODE: **1000**
PROGRAM DATE:
INSTALLATION DATE:

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
MAX RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
PED RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA I	OFF	**off**	OFF	OFF	OFF	**off**	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1 -	**EB Left-turn arrow**	**5 -**	**WB left-turn arrow**
2 -	**Westbound**	**6 -**	**Eastbound**
3 -	**NB Left-turn arrow**	**7 -**	**SB left-turn arrow**
4 -	**Southbound**	**8 -**	**Northbound**

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	**7**	**30**	**7**	**10**	**7**	**30**	**7**	**10**
PASSAGE	**3.0**	**5.0**	**3.0**	**3.0**	**3.0**	**5.0**	**3.0**	**3.0**
YELLOW	**3.0**	**5.0**	**3.0**	**5.0**	**3.0**	**5.0**	**3.0**	**5.0**
RED	**1.0**	**2.0**	**1.0**	**2.0**	**1.0**	**2.0**	**1.0**	**2.0**
MAX I	**10**	**40**	**10**	**35**	**10**	**40**	**10**	**35**
MAX II	**30**	**50**	**30**	**50**	**30**	**50**	**30**	**50**
WALK	0	**7**	0	**7**	0	**7**	0	**7**
PED CLEAR	0	**23**	0	**21**	0	**23**	0	**21**
S/A	0	**1.0**	0	0	0	**1.0**	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	**50**	0	0	0	**50**	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag

LEAD/LAG BARRIERS ARE:		ON/OFF

On = Barriers after easch ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITILAIZE / FLASH (MM-2-2-4) 1 =RED, 2 = YEL., 3 = GRN

	INITILIZE	ENTER FL	EXIT FL
RING 1 PHASE	**2**	**2**	**2**
RING 2 PHASE	**6**	**6**	**6**
INTERVAL	**2**	**1**	**2**

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH		(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH		(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

19-Jul-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

Intersection Name : **Yonge St. - Davis Dr.**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	130	16 52 14 48 16 52 14 48	85	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
AM Weekend	TBC	130	16 52 14 48 16 52 14 48	32	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	0	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Off Peak	TBC	130	18 49 15 48 18 49 15 48	107	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Peak	TBC	140	22 53 17 48 22 53 17 48	22	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Weekend	TBC	140	22 53 17 48 22 53 17 48	92	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

07-Apr-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Yonge St. - Davis Dr.

Weekly Plan : Yonge at Davis Dr

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Davis Dr

Default Weekly Schedule : Yonge at Davis Dr

Date	Schedule (If blank, use the default weekly schedule)

EPAC M40 PROGRAM LOG

Installation Date: **April 18, 2004** CTCS# **304**

Programmed Date **September 6, 2011**

Programmed by: **T. Hanrahan**

INTERSECTION NAME: **Yonge Street (Y.R. 1) & Davis Dr. (YR 31)**

Phasing:

1. **N/B Left Turn Arrow**
2. **SOUTHBOUND**
3. **W/B Left Turn Arrow**
4. **EASTBOUND**
5. **S/B Left Turn Arrow**
6. **NORTHBOUND**
7. **E/B Left Turn Arrow**
8. **WESTBOUND**

UTILITIES ACCESS

CODE = **9999** CODES: Four Digits (0000 - 9999)

PHASE DATA - VEHICLE TIMINGS

	PHASE	1	2	3	4	5	6	7	8
Basic Times	Minimum Green	7	30	7	10	7	30	7	10
	Passage	3.0	0	3.0	3.0	3.0	0	3.0	3.0
	Maximum No. 1	7	30	7	30	7	30	7	30
	Maximum No. 2	7	30	7	30	7	30	7	30
	Yellow Change	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
	Red Clearance	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0

Density Times	Seconds/Actuation	0	0	0	0	0	0	0	0
	Maximum Initial	0	0	0	0	0	0	0	0
	Time Before Reduction	0	0	0	0	0	0	0	0
	Cars Before Reduction	0	0	0	0	0	0	0	0
	Time To Reduce	0	0	0	0	0	0	0	0
	Minimum Gap	0	0	0	0	0	0	0	0

PHASE DATA - PEDESTRIAN & VEHICLE CONTROL

	PHASE	1	2	3	4	5	6	7	8
Pedestrian Times	Walk	0	7	0	7	0	7	0	7
	Pedestrian Clearance	0	28	0	28	0	28	0	28

Pedestrian Control	Flashing Walk	0	0	0	0	0	0	0	0
	Extended Ped Clear	0	0	0	0	0	0	0	0
	Actuated Rest In Walk	0	0	0	0	0	0	0	0

Vehicle Control	Non Lock Memory	1	0	1	1	1	0	1	1
	Dual Entry	0	1	0	1	0	1	0	1
	Last Car Passage	0	0	0	0	0	0	0	0
	Conditional Service	0	0	0	0	0	0	0	0
	No Simultaneous Gap	0	0	0	0	0	0	0	0

Pedestrian & Vehicle Control Entry: "1" = Yes & "0" = No

19-Jul-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

Intersection Name : **Yonge St. - Eagle St.**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	130	20 54 14 42 14 60 00 56	15	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
AM Weekend	TBC	130	20 54 14 42 14 60 00 56	85	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	0	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Off Peak	TBC	120	21 43 14 42 14 50 00 56	72	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Peak	TBC	140	25 61 12 42 14 72 00 54	69	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Weekend	TBC	140	25 61 12 42 14 72 00 54	19	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

07-Apr-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Yonge St. - Eagle St.

Weekly Plan : Yonge at Eagle St

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Eagle St

Default Weekly Schedule : Yonge at Eagle St

Date	Schedule (If blank, use the default weekly schedule)

PEEK TRAFFIC

INTERSECTION NAME: **Yonge St. (YR 1) & Eagle Street**
PROGRAMMED BY: T. Hanrahan
CONTOLLER SERIAL #:

CTCS #: **300**
ADDRESS: **33**
SECURITY CODE: **1000**
PROGRAM DATE: 01/05/2001
INSTALLATION DATE: 01/05/2001

MEMORY/RECALL/CNA (MM-2-2-1)

	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
PED RECALL	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA I	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1 -	**N/B Left Turn**	**5 -**	**S/B Left Turn**
2 -	**Southbound**	**6 -**	**Northbound**
3 -	**W/B Left Turn**	**7 -**	**not used**
4 -	**Eastbound**	**8 -**	**Westbound**

PHASE TIMINGS (MM-2-2-2)

	1	2	3	4	5	6	7	8
MIN GREEN	**7**	**30**	**7**	**10**	**7**	**30**	0	**10**
PASSAGE	**3.0**	0	**3.0**	**3.0**	**3.0**	0	0	**3.0**
YELLOW	**3.0**	**5.0**	**3.0**	**5.0**	**3.0**	**5.0**	0	**5.0**
RED	**1.0**	**2.0**	**1.0**	**2.0**	**1.0**	**2.0**	0	**2.0**
MAX I	**7**	**45**	**7**	**20**	**7**	**45**	0	**20**
MAX II	**20**	**30**	**20**	**40**	**20**	**30**	0	**40**
WALK	0	**7**	0	**7**	0	**7**	0	**7**
PED CLEAR	0	**22**	0	**27**	0	**22**	0	**27**
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

Revised April 6/11

Range: 0-9.9 or 127 except max times and auto max which are 0 -255 secs.

PHASES USED (MM-2-2-3-1)

PHASE	1	2	3	4	5	6	7	8
ON/OFF	**ON**	**ON**	**ON**	**ON**	**ON**	**ON**	Off	**ON**

SEQUENCE (MM-2-2-3-2)

2	1=Sequential, 2= Dual Ring, 3-7= Spec, 8=Lead/Lag

LEAD/LAG MODES (MM-2-2-3-2-PGDN....only if Seq = Lead/Lag)

PAIRS	1 AND 2	3 AND 4	5 AND 6	7 AND 8
CODE				

Codes: 1 = No Reversal, 2 = Always Reverse, 3 = Rev. by CSO or Clock

LEAD/LAG BARRIERS (MM-2-2-3-2-PGDN-PGDN...only if lead/lag

LEAD/LAG BARRIERS ARE:		ON/OFF

On = Barriers after easch ring 1 and 2 phase pair in a vertical column

SPECIAL INCOMPATIBILITIES (MM-2-2-3-3)

PHASE	1	2	3	4	5	6	7	8
INCOMPAT PH 1-8								
INCOMPAT PH 1-8								

INITILAIZE / FLASH (MM-2-2-4) 1 =RED, 2 = YEL., 3 = GRN

	INITILIZE	ENTER FL	EXIT FL
RING 1 PHASE	**2**	**2**	**2**
RING 2 PHASE	**6**	**6**	**6**
INTERVAL	**1**	**1**	**1**

NOTE: Enter flash interval is permanently set to 1 (RED)

POWER-UP RESTART TIMINGS (MM-2-2-4-PGDN)

MINIMUM FLASH		(0-9.9 or 127 SECONDS)
1ST ALL RED AFTER FLASH		(0-9.9 or 127 SECONDS)

NOTE: Blanks = 0, OFF, or controller default values

06-Sep-2011

Regional Municipality of York
Centralized Traffic Control System
Timing Pattern Summary Report - Intersection

Intersection Name : **Yonge St. - Millard Ave.**

Pattern Name	Mode	Cycle	Splits (sec)	offset	Max Green	Omits	Veh. Recall	Ped.Omits	Ped. Recalls	Spec. O/P
AM Peak	TBC	130	15 64 00 51 00 79 14 37	80	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
AM Weekend	TBC	130	15 64 00 51 00 79 14 37	69	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Free Plan	Free	120	00 00 00 00 00 00 00 00	0	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
Off Peak	TBC	120	16 52 00 52 00 68 15 37	108	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Peak	TBC	140	15 74 00 51 00 89 14 37	105	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********
PM Weekend	TBC	140	15 70 00 55 00 85 15 40	92	11111111	NNNNNNNN	XXXXXXXX	NNNN	NNNN	********

PHASE 4 & 8 ADJUSTMENT
FOR PEDESTRIAN CLEARANCE

07-Apr-2011

Regional Municipality of York
Centralized Traffic Control System
Controller Scheduler Summary Report - Intersection

Intersection Name : Yonge St. - Millard Ave.

Weekly Plan : Yonge at Millard

Time of Day	Timing Pattern	MON	TUE	WED	THU	FRI	SAT	SUN
06:30	AM Peak	X	X	X	X	X	-	-
08:00	AM Weekend	-	-	-	-	-	X	X
09:00	Off Peak	X	X	X	X	X	-	-
10:00	PM Weekend	-	-	-	-	-	X	X
15:30	PM Peak	X	X	X	X	X	-	-
19:00	AM Weekend	-	-	-	-	-	X	X
19:30	Off Peak	X	X	X	X	X	-	-
23:59	Free Plan	X	X	X	X	X	X	X

Annual Calendar: Yonge at Millard

Default Weekly Schedule : Yonge at Millard

Date	Schedule (If blank, use the default weekly schedule)

TRAFFIC CONTROL TECHNOLOGIES - LMD 9200

INTERSECTION NAME: **Yonge St. (YR 1) & Milard Ave.**
PROGRAMMED BY: D. Rumble
CONTOLLER SERIAL #:
INTERSECTION TELEPHONE (IF DIRECT DIAL):
SECTION:

CTCS #: 331
ADDRESS: 25
SECURITY CODE: 1000
PROGRAM DATE: Sept.15, 2011
INSTALLATION DATE: November 16, 1999

INTERVAL	PHASE (ON/OFF)							
	1	2	3	4	5	6	7	8
MEMORY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
EXT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
MAX RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
PED RECALL	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA I	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
CNA II	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FL WALK	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
SOFT RECALL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WALK REST	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
COND PED	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
FWTPCL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1 - N/B Left Turn Arrow
2 - Southbound
3 - Not Used
4 - Eastbound
5 - Not Used
6 - Northbound
7 - E/B Left Turn Arrow
8 - Westbound

INTERVAL	PHASE TIMINGS							
	1	2	3	4	5	6	7	8
MIN GREEN	7	30	0	10	0	30	7	10
PASSAGE	3.0	0	0	3.0	0	0	3.0	3.0
YELLOW	3.0	5.0	0	5.0	0	5.0	3.0	5.0
RED	1.0	2.0	0	2.0	0	2.0	1.0	2.0
MAX I	7	30	0	20	0	30	7	20
MAX II	20	30	0	40	0	30	20	40
WALK	0	7	0	7	0	7	0	7
PED CLEAR	0	26	0	22	0	26	0	22
S/A	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0
MIN GAP	0	0	0	0	0	0	0	0
MAX VI	0	0	0	0	0	0	0	0
MAX EXT	0	0	0	0	0	0	0	0
AUTO MAX	0	0	0	0	0	0	0	0
AMR	0	0	0	0	0	0	0	0

PHASES USED								
	1	2	3	4	5	6	7	8
ON/OFF	ON	ON	OFF	ON	OFF	ON	ON	ON
SEQUENCE	2	1 = SEQ, 2 = DUAL RING, 3-7 = LEAD/LAG						
LEAD/LAG CODES (ONLY USED IF "8" WAS ENTERED FOR SEQUENCE)								
PAIRS	1 AND 2		3 AND 4		5 AND 6		7 AND 8	
CODE								
LEAD/LAG CODE - 1= NO REV, 2 = ALWAYS REV, 3 = REV BY C/S/O OR CLOCK/INPUT								

INITIALIZE/FLASH				
	INITIALIZE	ENTER FLASH	EXIT FLASH	INTERVAL CODES:
RING 1 PHASE	2	2	2	1 = RED
RING 2 PHASE	6	6	6	2 = YELLOW
INTERVAL	1	1	1	3 = GREEN

POWER UP/RESTART TIMINGS			
MINIMUM FLASH	5.0		(0-127 SECONDS)
1ST ALL RED AFTER FLASH			(0-127 SECONDS)

APPENDIX D

Existing Traffic

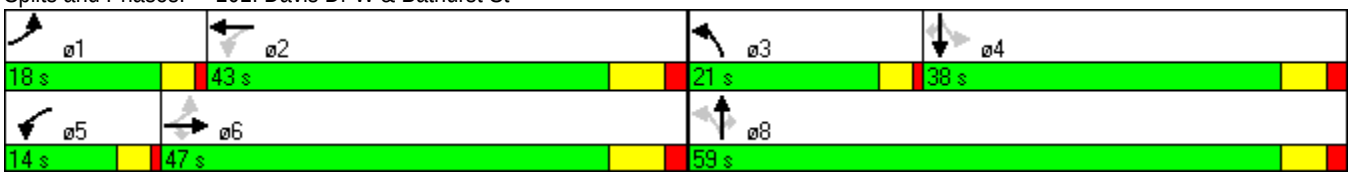
Level Of Service Calculations

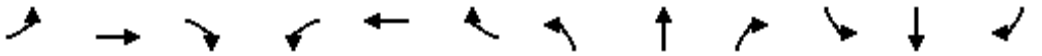
101: Davis Dr W & Bathurst St

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	833	480	130	546	323	186	99	10	438	714
Lane Group Flow (vph)	302	905	522	141	600	351	202	108	11	476	776
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	47.0	47.0	14.0	43.0	21.0	59.0	59.0	38.0	38.0	38.0
Total Split (%)	15.0%	39.2%	39.2%	11.7%	35.8%	17.5%	49.2%	49.2%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.82	0.76	0.65	0.58	0.58	0.82	0.13	0.14	0.04	0.51	1.28
Control Delay	41.0	40.6	11.1	44.2	58.0	36.7	17.4	2.7	33.4	39.5	162.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	40.6	11.1	44.2	58.0	36.7	17.4	2.7	33.4	39.5	162.9
Queue Length 50th (m)	44.3	100.3	17.1	32.0	77.5	54.9	10.0	0.0	1.9	50.2	~184.5
Queue Length 95th (m)	#79.7	124.5	54.3	50.2	96.1	#92.6	14.6	6.1	6.7	66.7	#258.3
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	367	1187	804	251	1038	431	1535	754	269	942	607
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	0.82	0.76	0.65	0.56	0.58	0.81	0.13	0.14	0.04	0.51	1.28

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	833	480	130	546	6	323	186	99	10	438	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	3510	1555	1789	3459		1738	3476	1570	1521	3510	1541
Flt Permitted	0.27	1.00	1.00	0.17	1.00		0.32	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	475	3510	1555	314	3459		582	3476	1570	1001	3510	1541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	302	905	522	141	593	7	351	202	108	11	476	776
RTOR Reduction (vph)	0	0	278	0	1	0	0	0	60	0	0	193
Lane Group Flow (vph)	302	905	244	141	599	0	351	202	48	11	476	583
Heavy Vehicles (%)	8%	4%	5%	2%	5%	33%	5%	5%	4%	20%	4%	6%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	54.0	40.6	40.6	45.4	36.0		53.0	53.0	53.0	32.2	32.2	32.2
Effective Green, g (s)	54.0	40.6	40.6	45.4	36.0		53.0	53.0	53.0	32.2	32.2	32.2
Actuated g/C Ratio	0.45	0.34	0.34	0.38	0.30		0.44	0.44	0.44	0.27	0.27	0.27
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	356	1188	526	234	1038		419	1535	693	269	942	414
v/s Ratio Prot	c0.10	0.26		0.05	0.17		c0.12	0.06			0.14	
v/s Ratio Perm	c0.28		0.16	0.18			0.25		0.03	0.01		c0.38
v/c Ratio	0.85	0.76	0.46	0.60	0.58		0.84	0.13	0.07	0.04	0.51	1.41
Uniform Delay, d1	24.0	35.4	31.2	26.7	35.6		24.6	19.9	19.3	32.5	37.2	43.9
Progression Factor	1.00	1.00	1.00	1.84	1.55		0.87	0.86	0.63	1.00	1.00	1.00
Incremental Delay, d2	16.9	4.6	2.9	4.2	2.3		13.4	0.0	0.0	0.1	0.4	197.5
Delay (s)	40.9	40.0	34.1	53.4	57.6		34.8	17.1	12.2	32.5	37.6	241.4
Level of Service	D	D	C	D	E		C	B	B	C	D	F
Approach Delay (s)		38.4			56.8			25.7			162.7	
Approach LOS		D			E			C			F	

Intersection Summary			
HCM Average Control Delay	75.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

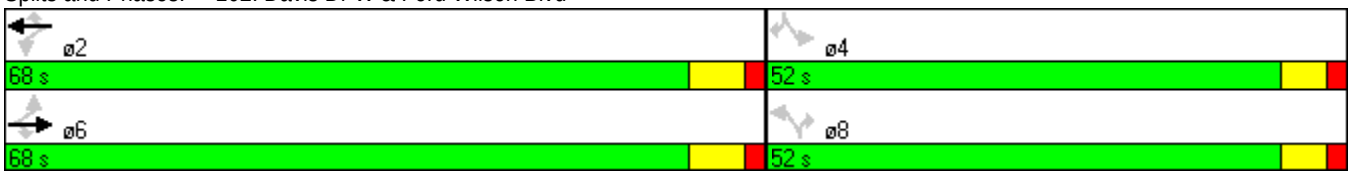
102: Davis Dr W & Ford Wilson Blvd

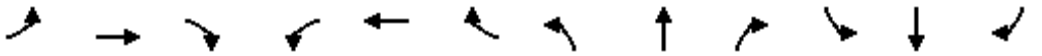
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	891	30	39	576	40	19	32	121	87
Lane Group Flow (vph)	23	968	33	42	626	43	21	35	132	95
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.07	0.52	0.04	0.20	0.34	0.05	0.03	0.06	0.20	0.14
Control Delay	23.2	22.9	12.3	15.2	14.2	2.2	23.4	7.8	25.8	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	22.9	12.3	15.2	14.2	2.2	23.4	7.8	25.8	5.3
Queue Length 50th (m)	2.3	54.4	0.6	3.7	37.4	0.3	3.1	0.0	20.6	0.0
Queue Length 95th (m)	m4.5	81.2	m3.6	m10.0	44.2	m2.9	8.3	6.5	34.8	10.5
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	346	1855	765	212	1855	830	666	604	654	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.04	0.20	0.34	0.05	0.03	0.06	0.20	0.14

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

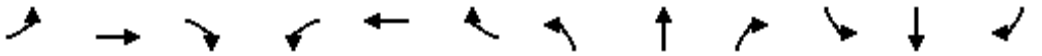
Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	891	30	39	576	40	19	0	32	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	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	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1738	3650	1473	1825	3650	1592	1738		1520	1706		1570
Flt Permitted	0.37	1.00	1.00	0.22	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	681	3650	1473	417	3650	1592	1738		1520	1706		1570
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	968	33	42	626	43	21	0	35	132	0	95
RTOR Reduction (vph)	0	0	16	0	0	21	0	0	22	0	0	59
Lane Group Flow (vph)	23	968	17	42	626	22	21	0	13	132	0	36
Confl. Peds. (#/hr)			6			2			1			5
Heavy Vehicles (%)	5%	0%	7%	0%	0%	0%	5%	0%	6%	7%	0%	2%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	346	1855	749	212	1855	809	666		583	654		602
v/s Ratio Prot		c0.27			0.17							
v/s Ratio Perm	0.03		0.01	0.10		0.01	0.01		0.01	c0.08		0.02
v/c Ratio	0.07	0.52	0.02	0.20	0.34	0.03	0.03		0.02	0.20		0.06
Uniform Delay, d1	15.0	19.7	14.7	16.1	17.5	14.7	23.1		23.0	24.7		23.4
Progression Factor	1.49	1.11	2.49	0.77	0.78	0.48	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.8	0.0	2.0	0.5	0.1	0.1		0.1	0.7		0.2
Delay (s)	22.6	22.7	36.6	14.4	14.1	7.1	23.2		23.1	25.4		23.6
Level of Service	C	C	D	B	B	A	C		C	C		C
Approach Delay (s)		23.1			13.7			23.1			24.6	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	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												
Volume (veh/h)	64	974	6	5	616	8	0	0	3	0	0	39
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)	70	1059	7	5	670	9	0	0	3	0	0	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	678			1065			1547	1890	533	1352	1885	335
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	534			1065			1456	1821	533	1250	1815	169
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	93			99			100	100	99	100	100	95
cM capacity (veh/h)	950			662			77	68	497	115	68	787

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	70	706	359	5	335	335	9	0	3	42
Volume Left	70	0	0	5	0	0	0	0	0	0
Volume Right	0	0	7	0	0	0	9	0	3	42
cSH	950	1700	1700	662	1700	1700	1700	1700	497	787
Volume to Capacity	0.07	0.42	0.21	0.01	0.20	0.20	0.01	0.00	0.01	0.05
Queue Length 95th (m)	1.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.3
Control Delay (s)	9.1	0.0	0.0	10.5	0.0	0.0	0.0	0.0	12.3	9.8
Lane LOS	A			B				A	B	A
Approach Delay (s)	0.6			0.1				12.3		9.8
Approach LOS								B		A

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	37.1%	ICU Level of Service		A
Analysis Period (min)	15			

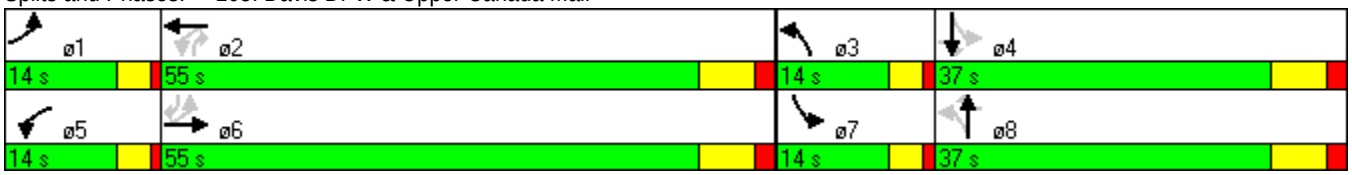
105: Davis Dr W & Upper Canada Mall

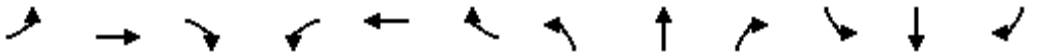
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	700	243	69	488	44	135	59	72	15	19	6
Lane Group Flow (vph)	37	761	264	75	530	48	147	64	78	16	21	7
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.06	0.35	0.68	0.15	0.23	0.15	0.48	0.20	0.07	0.06	0.12	0.01
Control Delay	7.0	13.7	21.3	6.7	11.3	14.2	43.7	46.3	2.8	35.3	50.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	13.7	21.3	6.7	11.3	14.2	43.7	46.3	2.8	35.3	50.6	7.0
Queue Length 50th (m)	3.6	41.2	21.1	4.8	29.6	0.0	29.4	12.6	0.0	3.0	4.7	0.0
Queue Length 95th (m)	m8.9	93.3	24.9	10.8	43.7	10.7	45.4	26.5	6.9	8.3	12.0	2.2
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	681	2188	606	523	2267	444	311	480	1044	313	480	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.44	0.14	0.23	0.11	0.47	0.13	0.07	0.05	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	700	243	69	488	44	135	59	72	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.45	1.00	1.00	0.31	1.00	1.00	0.57	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	870	3650	1633	605	3650	1633	1100	1921	1633	1374	1921	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	761	264	75	530	48	147	64	78	16	21	7
RTOR Reduction (vph)	0	0	235	0	0	40	0	0	32	0	0	3
Lane Group Flow (vph)	37	761	29	75	530	8	147	64	46	16	21	4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	73.1	68.8	13.4	76.5	70.5	20.3	27.2	20.3	70.5	16.3	13.4	68.8
Effective Green, g (s)	73.1	68.8	13.4	76.5	70.5	20.3	27.2	20.3	70.5	16.3	13.4	68.8
Actuated g/C Ratio	0.61	0.57	0.11	0.64	0.59	0.17	0.23	0.17	0.59	0.14	0.11	0.57
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	564	2093	182	447	2144	276	309	325	959	198	215	936
v/s Ratio Prot	0.00	c0.21		c0.01	0.15		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.02	0.10		0.00	c0.07		0.03	0.01		0.00
v/c Ratio	0.07	0.36	0.16	0.17	0.25	0.03	0.48	0.20	0.05	0.08	0.10	0.00
Uniform Delay, d1	9.4	13.8	48.2	8.6	11.9	41.6	39.1	42.8	10.5	45.2	47.9	10.9
Progression Factor	1.12	1.02	2.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.4	0.4	0.2	0.3	0.0	1.2	0.3	0.1	0.2	0.2	0.0
Delay (s)	10.5	14.5	103.3	8.8	12.2	41.7	40.3	43.1	10.6	45.4	48.1	11.0
Level of Service	B	B	F	A	B	D	D	D	B	D	D	B
Approach Delay (s)		36.4			14.0			32.9			41.2	
Approach LOS		D			B			C			D	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

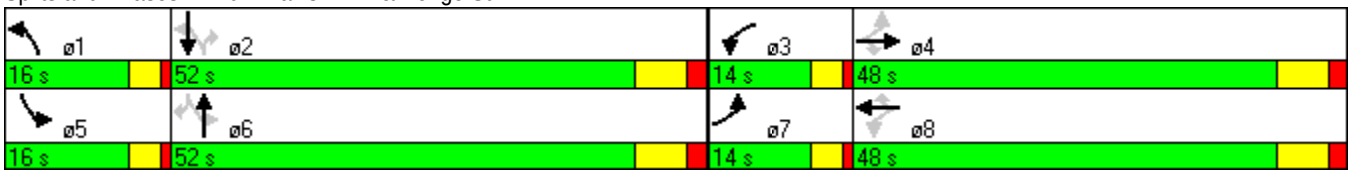
c Critical Lane Group

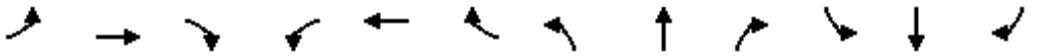
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	536	128	187	402	120	102	430	156	200	913	213
Lane Group Flow (vph)	134	583	139	203	437	130	111	467	170	217	992	232
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	14.0	42.0	42.0	11.0	42.0	42.0	14.0	42.0	42.0	14.0	42.0	42.0
Total Split (s)	14.0	48.0	48.0	14.0	48.0	48.0	16.0	52.0	52.0	16.0	52.0	52.0
Total Split (%)	10.8%	36.9%	36.9%	10.8%	36.9%	36.9%	12.3%	40.0%	40.0%	12.3%	40.0%	40.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.45	0.76	0.31	0.86	0.56	0.29	0.36	0.29	0.20	0.37	0.58	0.28
Control Delay	34.4	54.3	7.9	65.3	48.0	7.9	23.7	33.2	14.4	15.0	27.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	54.3	7.9	65.3	48.0	7.9	23.7	33.2	14.4	15.0	27.8	5.9
Queue Length 50th (m)	24.2	74.1	0.0	38.2	53.0	0.0	19.1	46.4	16.1	24.4	95.0	3.6
Queue Length 95th (m)	36.6	88.3	15.5	#56.4	65.3	15.1	27.0	50.7	23.1	42.2	133.9	21.8
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	150.0		150.0	65.0		65.0	90.0			90.0		
Base Capacity (vph)	302	1151	610	236	1151	604	350	1618	859	594	1720	839
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.51	0.23	0.86	0.38	0.22	0.32	0.29	0.20	0.37	0.58	0.28

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

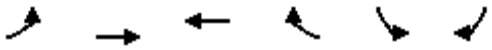




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	536	128	187	402	120	102	430	156	200	913	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.36	1.00	1.00	0.21	1.00	1.00	0.19	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	690	3650	1633	401	3650	1633	364	3650	1633	858	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	583	139	203	437	130	111	467	170	217	992	232
RTOR Reduction (vph)	0	0	110	0	0	102	0	0	90	0	0	115
Lane Group Flow (vph)	134	583	29	203	437	28	111	467	80	217	992	117
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	37.2	27.5	27.5	37.8	27.8	27.8	70.5	57.6	61.3	70.5	61.3	57.6
Effective Green, g (s)	37.2	27.5	27.5	37.8	27.8	27.8	70.5	57.6	61.3	70.5	61.3	57.6
Actuated g/C Ratio	0.29	0.21	0.21	0.29	0.21	0.21	0.54	0.44	0.47	0.54	0.47	0.44
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	282	772	345	226	781	349	301	1617	770	561	1721	724
v/s Ratio Prot	0.04	0.16		c0.07	0.12		0.03	0.13		c0.04	c0.27	
v/s Ratio Perm	0.10		0.02	c0.19		0.02	0.17		0.05	0.17		0.07
v/c Ratio	0.48	0.76	0.09	0.90	0.56	0.08	0.37	0.29	0.10	0.39	0.58	0.16
Uniform Delay, d1	36.0	48.1	41.2	39.8	45.6	40.9	16.6	23.1	19.1	15.6	24.9	21.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.64	1.32	3.98	1.00	1.00	1.00
Incremental Delay, d2	1.3	4.2	0.1	33.5	0.9	0.1	0.7	0.4	0.3	0.4	1.4	0.5
Delay (s)	37.3	52.3	41.3	73.2	46.5	41.0	28.1	31.0	76.3	16.0	26.3	22.2
Level of Service	D	D	D	E	D	D	C	C	E	B	C	C
Approach Delay (s)		48.2			52.6			40.8			24.1	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	38.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

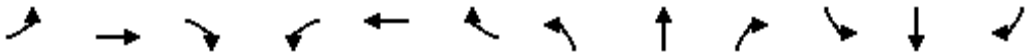
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	9	7	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	10	8	35	32	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	102	63	98	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	102	63	98	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	837	816	781	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	28	42	32	35
Volume Left	18	0	32	0
Volume Right	0	35	0	35
cSH	829	1018	1636	1700
Volume to Capacity	0.03	0.04	0.02	0.02
Queue Length 95th (m)	0.8	1.0	0.4	0.0
Control Delay (s)	9.5	8.7	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.5	8.7	3.4	
Approach LOS	A	A		

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	18.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	71	0	79	0	151	102	109	259	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	77	0	86	0	164	111	118	282	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	824	793	282	738	738	220	282			275		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	824	793	282	738	738	220	282			275		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	75	100	90	100			91		
cM capacity (veh/h)	245	294	762	313	316	825	1293			1300		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	77	86	275	400
Volume Left	0	77	0	0	118
Volume Right	0	0	86	111	0
cSH	1700	313	825	1293	1300
Volume to Capacity	0.00	0.25	0.10	0.00	0.09
Queue Length 95th (m)	0.0	7.2	2.6	0.0	2.3
Control Delay (s)	0.0	20.2	9.9	0.0	3.0
Lane LOS	A	C	A		A
Approach Delay (s)	0.0	14.8		0.0	3.0
Approach LOS	A	B			

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	48.7%	ICU Level of Service		A
Analysis Period (min)	15			

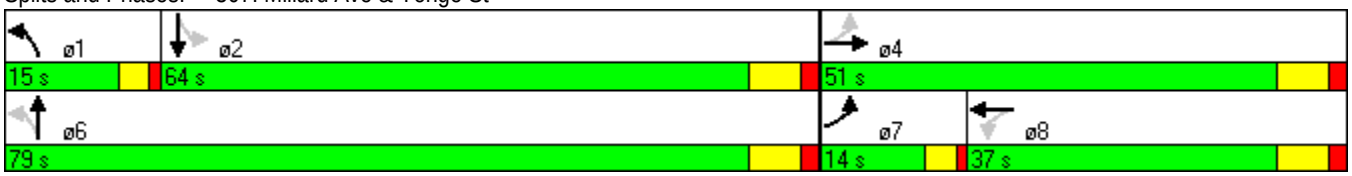
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	45	93	54	88	164	587	59	1143	166
Lane Group Flow (vph)	49	249	59	132	178	676	64	1242	180
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.12	0.44	0.23	0.31	0.69	0.32	0.18	0.72	0.11
Control Delay	29.5	29.0	44.2	40.0	55.8	14.2	15.8	18.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	29.0	44.2	40.0	55.8	14.2	15.8	18.7	0.1
Queue Length 50th (m)	8.5	37.4	12.5	25.3	35.5	29.7	5.6	59.1	0.0
Queue Length 95th (m)	17.3	60.0	25.1	43.6	#59.8	51.5	m10.3	73.1	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	411	633	268	436	266	2145	360	1733	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.39	0.22	0.30	0.67	0.32	0.18	0.72	0.11

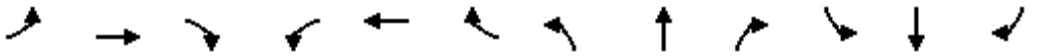
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	93	136	54	88	33	164	587	35	59	1143	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1750		1825	1843		1825	3619		1825	3650	1633
Flt Permitted	0.57	1.00		0.60	1.00		0.10	1.00		0.39	1.00	1.00
Satd. Flow (perm)	1097	1750		1161	1843		190	3619		758	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	101	148	59	96	36	178	638	38	64	1242	180
RTOR Reduction (vph)	0	42	0	0	11	0	0	3	0	0	0	0
Lane Group Flow (vph)	49	207	0	59	121	0	178	673	0	64	1242	180
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.9	39.9		29.0	29.0		76.1	76.1		60.9	60.9	130.0
Effective Green, g (s)	39.9	39.9		29.0	29.0		76.1	76.1		60.9	60.9	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	375	537		259	411		252	2119		355	1710	1633
v/s Ratio Prot	0.01	c0.12			0.07		c0.06	0.19			0.34	
v/s Ratio Perm	0.03			0.05			c0.35			0.08		0.11
v/c Ratio	0.13	0.38		0.23	0.29		0.71	0.32		0.18	0.73	0.11
Uniform Delay, d1	32.2	35.4		41.3	42.0		21.0	13.7		20.1	27.8	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.62	1.00		0.67	0.58	1.00
Incremental Delay, d2	0.2	0.5		0.5	0.4		7.1	0.3		1.0	2.4	0.1
Delay (s)	32.3	35.9		41.8	42.4		62.4	14.1		14.3	18.4	0.1
Level of Service	C	D		D	D		E	B		B	B	A
Approach Delay (s)		35.3			42.2			24.2			16.0	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

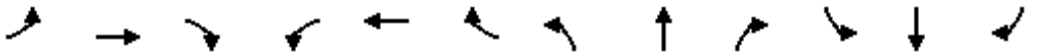
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	56	0	568	17	1027	
Lane Group Flow (vph)	61	43	637	18	1120	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.45	0.09	0.23	0.03	0.40	
Control Delay	61.6	0.4	3.4	2.5	3.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.6	0.4	3.4	2.5	3.9	
Queue Length 50th (m)	13.9	0.0	15.2	0.6	33.7	
Queue Length 95th (m)	26.9	0.0	24.7	m1.2	33.8	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	289	604	2730	590	2813	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.07	0.23	0.03	0.40	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

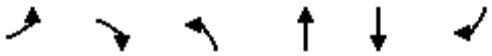
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	56	0	40	0	568	18	17	1027	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frpb, ped/bikes				1.00	0.99			1.00		1.00	1.00	
Flpb, ped/bikes				1.00	1.00			1.00		1.00	1.00	
Frt				1.00	0.85			1.00		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1738	1611			3436		1722	3542	
Flt Permitted				0.76	1.00			1.00		0.41	1.00	
Satd. Flow (perm)				1385	1611			3436		743	3542	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	61	0	43	0	617	20	18	1116	4
RTOR Reduction (vph)	0	0	0	0	39	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	61	4	0	0	636	0	18	1120	0
Confl. Peds. (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	5%	28%	6%	3%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				11.7	11.7			95.3		95.3	95.3	
Effective Green, g (s)				11.7	11.7			95.3		95.3	95.3	
Actuated g/C Ratio				0.10	0.10			0.79		0.79	0.79	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				135	157			2729		590	2813	
v/s Ratio Prot					0.00			0.19			c0.32	
v/s Ratio Perm				c0.04						0.02		
v/c Ratio				0.45	0.03			0.23		0.03	0.40	
Uniform Delay, d1				51.1	49.0			3.1		2.6	3.7	
Progression Factor				1.00	1.00			1.00		0.77	0.90	
Incremental Delay, d2				2.4	0.1			0.2		0.1	0.3	
Delay (s)				53.5	49.1			3.3		2.1	3.7	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.7			3.3			3.7	
Approach LOS		A			D			A			A	

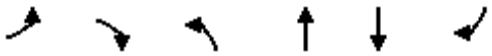
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	17	18	48	0	0	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	20	52	0	0	52

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	38	52	52
Volume Left (vph)	18	52	0
Volume Right (vph)	20	0	52
Hadj (s)	-0.21	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.04	0.06	0.05
Capacity (veh/h)	895	832	1030
Control Delay (s)	7.1	7.5	6.6
Approach Delay (s)	7.1	7.5	6.6
Approach LOS	A	A	A

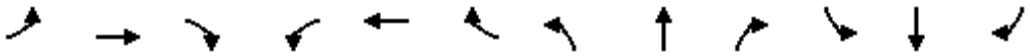
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	21	51	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	97	64	23	55	22

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	118	87	77
Volume Left (vph)	22	64	0
Volume Right (vph)	97	0	22
Hadj (s)	-0.45	0.15	-0.17
Departure Headway (s)	3.8	4.4	4.1
Degree Utilization, x	0.13	0.11	0.09
Capacity (veh/h)	905	793	855
Control Delay (s)	7.3	7.9	7.5
Approach Delay (s)	7.3	7.9	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	79	13	5	1	34	198	5	0	262	46
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)	70	7	86	14	5	1	37	215	5	0	285	50

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	162	21	258	335
Volume Left (vph)	70	14	37	0
Volume Right (vph)	86	1	5	50
Hadj (s)	-0.23	0.11	0.02	-0.09
Departure Headway (s)	5.1	5.7	4.8	4.6
Degree Utilization, x	0.23	0.03	0.34	0.43
Capacity (veh/h)	637	542	713	744
Control Delay (s)	9.6	8.9	10.3	11.1
Approach Delay (s)	9.6	8.9	10.3	11.1
Approach LOS	A	A	B	B

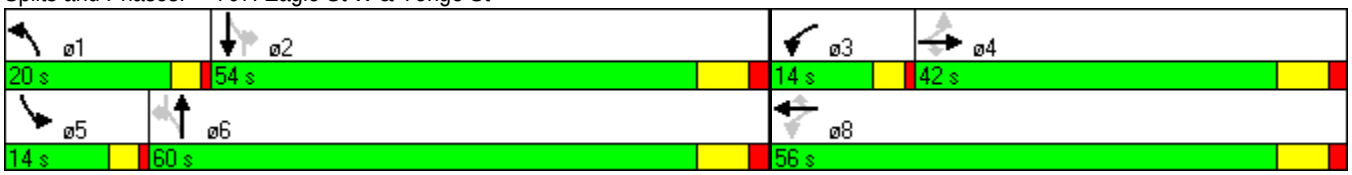
Intersection Summary				
Delay	10.5			
HCM Level of Service	B			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A	
Analysis Period (min)	15			

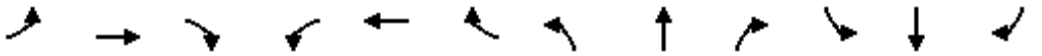
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	904	232	77	1054	116
Lane Group Flow (vph)	43	205	203	213	202	123	247	983	252	84	1146	126
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	14.0	56.0	56.0	20.0	60.0	54.0	14.0	54.0	60.0
Total Split (%)	32.3%	32.3%	32.3%	10.8%	43.1%	43.1%	15.4%	46.2%	41.5%	10.8%	41.5%	46.2%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.23	0.70	0.48	0.78	0.40	0.24	0.49	0.66	0.35	0.17	0.87	0.17
Control Delay	49.2	64.7	9.8	58.6	41.4	6.7	27.8	33.9	7.2	19.6	59.4	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	64.7	9.8	58.6	41.4	6.7	27.8	33.9	7.2	19.6	59.4	19.2
Queue Length 50th (m)	9.9	50.8	0.0	44.7	43.3	0.0	35.9	106.1	6.0	13.4	130.2	10.0
Queue Length 95th (m)	19.8	71.3	19.4	61.5	60.3	13.5	69.1	128.8	24.3	m21.9	157.4	m22.3
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	326	517	588	272	724	692	502	1488	728	487	1320	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.40	0.35	0.78	0.28	0.18	0.49	0.66	0.35	0.17	0.87	0.17

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	904	232	77	1054	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.63	1.00	1.00	0.33	1.00	1.00	0.08	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1212	1921	1633	639	1921	1633	151	3650	1633	345	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	205	203	213	202	123	247	983	252	84	1146	126
RTOR Reduction (vph)	0	0	172	0	0	91	0	0	138	0	0	75
Lane Group Flow (vph)	43	205	31	213	202	32	247	983	114	84	1146	51
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	19.7	19.7	19.7	33.7	33.7	33.7	82.3	53.0	47.0	72.3	47.0	53.0
Effective Green, g (s)	19.7	19.7	19.7	33.7	33.7	33.7	82.3	53.0	47.0	72.3	47.0	53.0
Actuated g/C Ratio	0.15	0.15	0.15	0.26	0.26	0.26	0.63	0.41	0.36	0.56	0.36	0.41
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	184	291	247	257	498	423	499	1488	590	480	1320	666
v/s Ratio Prot		0.11		c0.06	0.11		c0.12	c0.27		0.03	c0.31	
v/s Ratio Perm	0.04		0.02	c0.15		0.02	0.19		0.07	0.06		0.03
v/c Ratio	0.23	0.70	0.12	0.83	0.41	0.08	0.49	0.66	0.19	0.18	0.87	0.08
Uniform Delay, d1	48.5	52.4	47.7	43.2	39.9	36.4	27.3	31.2	28.5	14.9	38.6	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.94	1.37	4.66
Incremental Delay, d2	0.7	7.5	0.2	19.3	0.5	0.1	3.5	2.3	0.7	0.6	6.0	0.2
Delay (s)	49.2	59.9	47.9	62.6	40.4	36.5	30.8	33.5	29.2	29.5	59.1	109.8
Level of Service	D	E	D	E	D	D	C	C	C	C	E	F
Approach Delay (s)		53.5			48.3			32.3			62.0	
Approach LOS		D			D			C			E	

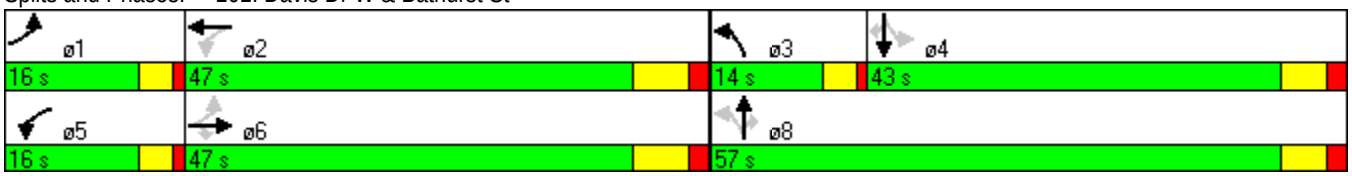
Intersection Summary			
HCM Average Control Delay	47.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

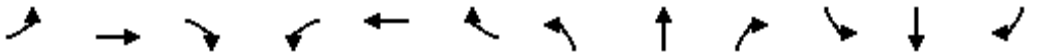
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	940	210	175	883	695	848	299	13	271	255
Lane Group Flow (vph)	405	1022	228	190	999	755	922	325	14	295	277
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	16.0	47.0	47.0	16.0	47.0	14.0	57.0	57.0	43.0	43.0	43.0
Total Split (%)	13.3%	39.2%	39.2%	13.3%	39.2%	11.7%	47.5%	47.5%	35.8%	35.8%	35.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	1.14	0.72	0.30	0.62	0.87	1.99	0.76	0.45	0.18	0.36	0.52
Control Delay	124.0	35.4	4.7	40.4	70.7	473.0	33.0	6.0	38.8	38.5	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.0	35.4	4.7	40.4	70.7	473.0	33.0	6.0	38.8	38.5	11.2
Queue Length 50th (m)	~95.5	107.7	0.0	38.5	132.3	~279.6	100.3	20.0	2.7	30.7	9.2
Queue Length 95th (m)	#190.4	#147.7	16.7	69.9	#155.1	#337.8	109.6	31.0	8.0	39.1	29.9
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	356	1417	764	316	1143	380	1477	820	105	1082	633
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	1.14	0.72	0.30	0.60	0.87	1.99	0.62	0.40	0.13	0.27	0.44

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St

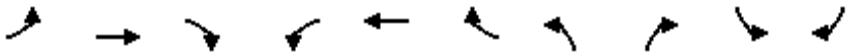




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	940	210	175	883	36	695	848	299	13	271	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	3510	1555	1789	3420		1738	3476	1570	1521	3510	1541
Flt Permitted	0.09	1.00	1.00	0.17	1.00		0.45	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	162	3510	1555	329	3420		828	3476	1570	341	3510	1541
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	405	1022	228	190	960	39	755	922	325	14	295	277
RTOR Reduction (vph)	0	0	136	0	3	0	0	0	172	0	0	175
Lane Group Flow (vph)	405	1022	92	190	996	0	755	922	153	14	295	102
Heavy Vehicles (%)	8%	4%	5%	2%	5%	33%	5%	5%	4%	20%	4%	6%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	64.9	48.4	48.4	52.5	40.0		42.1	42.1	42.1	28.1	28.1	28.1
Effective Green, g (s)	64.9	48.4	48.4	52.5	40.0		42.1	42.1	42.1	28.1	28.1	28.1
Actuated g/C Ratio	0.54	0.40	0.40	0.44	0.33		0.35	0.35	0.35	0.23	0.23	0.23
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	354	1416	627	296	1140		366	1219	551	80	822	361
v/s Ratio Prot	c0.20	0.29		0.07	0.29		c0.17	0.27			0.08	
v/s Ratio Perm	c0.42		0.06	0.21			c0.55		0.10	0.04		0.07
v/c Ratio	1.14	0.72	0.15	0.64	0.87		2.06	0.76	0.28	0.18	0.36	0.28
Uniform Delay, d1	37.4	30.1	22.7	22.7	37.6		37.6	34.4	28.0	36.7	38.4	37.7
Progression Factor	1.00	1.00	1.00	2.12	1.67		0.88	0.88	0.83	1.00	1.00	1.00
Incremental Delay, d2	93.0	3.2	0.5	3.9	7.9		485.0	2.0	0.2	1.0	0.3	0.4
Delay (s)	130.3	33.3	23.2	52.0	70.8		518.3	32.3	23.4	37.7	38.7	38.1
Level of Service	F	C	C	D	E		F	C	C	D	D	D
Approach Delay (s)		55.7			67.8			214.1			38.4	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	114.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	110.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1051	27	42	1051	141	23	66	61	20
Lane Group Flow (vph)	189	1142	29	46	1142	153	25	72	66	22
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	69.0	69.0	69.0	69.0	69.0	69.0	51.0	51.0	51.0	51.0
Total Split (%)	57.5%	57.5%	57.5%	57.5%	57.5%	57.5%	42.5%	42.5%	42.5%	42.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	1.25	0.61	0.04	0.29	0.61	0.17	0.04	0.12	0.10	0.04
Control Delay	181.9	25.0	14.1	24.3	21.0	5.1	24.1	9.5	25.0	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	181.9	25.0	14.1	24.3	21.0	5.1	24.1	9.5	25.0	9.2
Queue Length 50th (m)	~53.0	70.7	0.9	4.8	71.6	0.2	3.7	2.5	10.0	0.0
Queue Length 95th (m)	m#91.4	117.7	m3.7	m14.3	120.2	m13.7	9.5	12.0	19.7	5.4
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	151	1886	774	159	1886	896	652	604	640	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.61	0.04	0.29	0.61	0.17	0.04	0.12	0.10	0.04

Intersection Summary

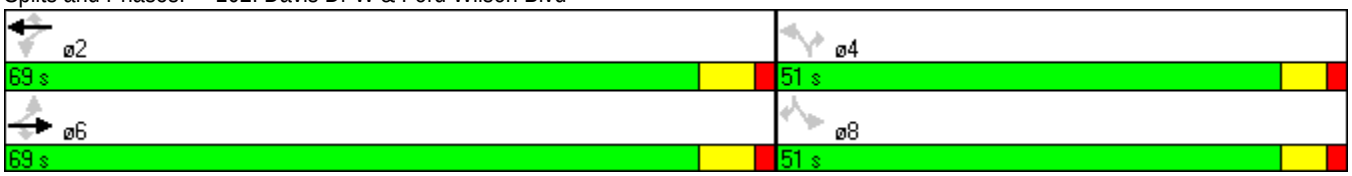
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

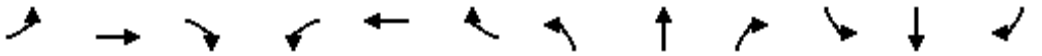
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

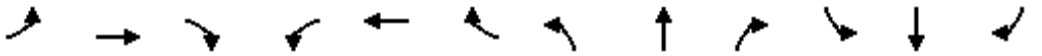
Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1051	27	42	1051	141	23	0	66	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00		0.99	1.00		0.98
Flpb, ped/bikes	1.00	1.00	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	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1738	3650	1473	1825	3650	1592	1738		1520	1706		1572
Flt Permitted	0.16	1.00	1.00	0.16	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	293	3650	1473	308	3650	1592	1738		1520	1706		1572
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	1142	29	46	1142	153	25	0	72	66	0	22
RTOR Reduction (vph)	0	0	13	0	0	74	0	0	34	0	0	14
Lane Group Flow (vph)	189	1142	16	46	1142	79	25	0	38	66	0	8
Confl. Peds. (#/hr)			6			2			1			5
Heavy Vehicles (%)	5%	0%	7%	0%	0%	0%	5%	0%	6%	7%	0%	2%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	62.0	62.0	62.0	62.0	62.0	62.0	45.0		45.0	45.0		45.0
Effective Green, g (s)	62.0	62.0	62.0	62.0	62.0	62.0	45.0		45.0	45.0		45.0
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52	0.52	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	151	1886	761	159	1886	823	652		570	640		590
v/s Ratio Prot		0.31			0.31							
v/s Ratio Perm	c0.64		0.01	0.15		0.05	0.01		0.02	c0.04		0.01
v/c Ratio	1.25	0.61	0.02	0.29	0.61	0.10	0.04		0.07	0.10		0.01
Uniform Delay, d1	29.0	20.4	14.2	16.5	20.4	14.7	23.8		24.0	24.4		23.6
Progression Factor	1.30	1.15	2.55	1.10	0.95	1.99	1.00		1.00	1.00		1.00
Incremental Delay, d2	148.1	1.1	0.0	4.2	1.3	0.2	0.1		0.2	0.1		0.0
Delay (s)	185.7	24.7	36.2	22.4	20.8	29.6	23.9		24.3	24.5		23.6
Level of Service	F	C	D	C	C	C	C		C	C		C
Approach Delay (s)		47.3			21.8			24.2			24.2	
Approach LOS		D			C			C			C	

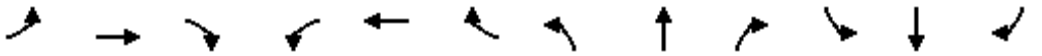
Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	943	6	7	1050	6	5	0	9	0	0	179
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)	249	1025	7	8	1141	7	5	0	10	0	0	195
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.86						0.86	0.86		0.86	0.86	0.86
vC, conflicting volume	1148			1032			2112	2689	516	2177	2686	571
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	842			1032			1965	2638	516	2041	2634	169
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	62			99			68	100	98	100	100	73
cM capacity (veh/h)	661			681			17	13	509	20	13	717

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	249	683	348	8	571	571	7	5	10	195
Volume Left	249	0	0	8	0	0	0	5	0	0
Volume Right	0	0	7	0	0	0	7	0	10	195
cSH	661	1700	1700	681	1700	1700	1700	17	509	717
Volume to Capacity	0.38	0.40	0.20	0.01	0.34	0.34	0.00	0.32	0.02	0.27
Queue Length 95th (m)	13.3	0.0	0.0	0.3	0.0	0.0	0.0	6.7	0.4	8.3
Control Delay (s)	13.7	0.0	0.0	10.3	0.0	0.0	0.0	298.8	12.2	11.9
Lane LOS	B			B				F	B	B
Approach Delay (s)	2.7			0.1				114.5		11.9
Approach LOS								F		B

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	55.0%	ICU Level of Service	B	
Analysis Period (min)	15			



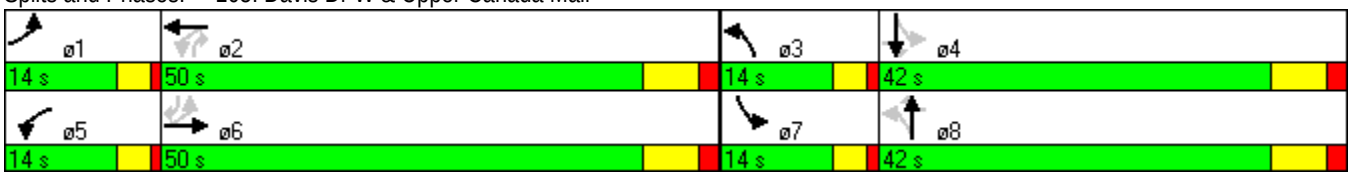
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	722	167	143	785	84	251	178	106	138	148	27
Lane Group Flow (vph)	68	785	182	155	853	91	273	193	115	150	161	29
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.17	0.42	0.47	0.35	0.43	0.29	0.84	0.69	0.12	0.51	0.59	0.03
Control Delay	9.4	21.4	12.6	11.2	18.5	10.8	60.3	61.3	3.5	39.1	55.9	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	21.4	12.6	11.2	18.5	10.8	60.3	61.3	3.5	39.1	55.9	6.6
Queue Length 50th (m)	7.7	65.6	10.1	13.1	62.5	0.0	54.0	43.7	0.0	27.5	35.9	0.0
Queue Length 95th (m)	m16.3	114.5	15.5	24.9	90.4	13.6	#74.9	64.2	9.9	41.6	54.3	5.5
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	448	1862	605	459	1990	541	325	560	943	296	560	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.42	0.30	0.34	0.43	0.17	0.84	0.34	0.12	0.51	0.29	0.03

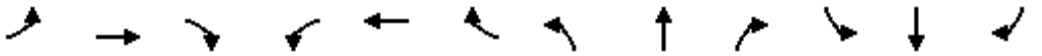
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	722	167	143	785	84	251	178	106	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.29	1.00	1.00	0.28	1.00	1.00	0.53	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	554	3650	1633	534	3650	1633	1020	1921	1633	858	1921	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	785	182	155	853	91	273	193	115	150	161	29
RTOR Reduction (vph)	0	0	156	0	0	78	0	0	53	0	0	14
Lane Group Flow (vph)	68	785	26	155	853	13	273	193	62	150	161	15
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	67.4	61.2	17.2	74.2	64.6	17.4	27.4	17.4	64.6	27.0	17.2	61.2
Effective Green, g (s)	67.4	61.2	17.2	74.2	64.6	17.4	27.4	17.4	64.6	27.0	17.2	61.2
Actuated g/C Ratio	0.56	0.51	0.14	0.62	0.54	0.14	0.23	0.14	0.54	0.22	0.14	0.51
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	377	1862	234	433	1965	237	300	279	879	272	275	833
v/s Ratio Prot	0.01	0.22		c0.03	c0.23		c0.08	0.10		0.05	0.08	
v/s Ratio Perm	0.09		0.02	0.19		0.01	c0.13		0.04	0.08		0.01
v/c Ratio	0.18	0.42	0.11	0.36	0.43	0.06	0.91	0.69	0.07	0.55	0.59	0.02
Uniform Delay, d1	12.3	18.4	44.7	10.6	16.7	44.2	43.9	48.8	13.3	39.4	48.1	14.5
Progression Factor	0.95	1.06	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6	0.2	0.5	0.7	0.1	29.9	7.2	0.2	2.4	3.2	0.0
Delay (s)	11.9	20.0	67.3	11.1	17.4	44.3	73.7	56.0	13.4	41.8	51.2	14.6
Level of Service	B	B	E	B	B	D	E	E	B	D	D	B
Approach Delay (s)		27.8			18.7			55.9			43.9	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	31.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	535	158	270	636	253	205	964	203	290	708	164
Lane Group Flow (vph)	297	582	172	293	691	275	223	1048	221	315	770	178
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	14.0	42.0	42.0	11.0	42.0	42.0	14.0	42.0	42.0	14.0	42.0	42.0
Total Split (s)	17.0	48.0	48.0	17.0	48.0	48.0	22.0	53.0	53.0	22.0	53.0	53.0
Total Split (%)	12.1%	34.3%	34.3%	12.1%	34.3%	34.3%	15.7%	37.9%	37.9%	15.7%	37.9%	37.9%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.16	0.65	0.32	0.98	0.77	0.46	0.58	0.87	0.29	0.84	0.52	0.27
Control Delay	137.0	50.2	6.8	82.4	54.7	7.9	30.7	60.6	19.3	57.9	34.8	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.0	50.2	6.8	82.4	54.7	7.9	30.7	60.6	19.3	57.9	34.8	5.6
Queue Length 50th (m)	~70.7	76.2	0.0	58.2	93.7	2.7	42.1	161.8	22.3	67.5	84.8	0.0
Queue Length 95th (m)	#121.3	90.2	16.7	#88.5	109.1	23.7	m51.9	174.4	m28.8	#139.1	117.1	16.1
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	150.0		150.0	65.0		65.0	90.0			90.0		
Base Capacity (vph)	256	1069	600	298	1069	664	433	1202	758	375	1468	657
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.54	0.29	0.98	0.65	0.41	0.52	0.87	0.29	0.84	0.52	0.27

Intersection Summary

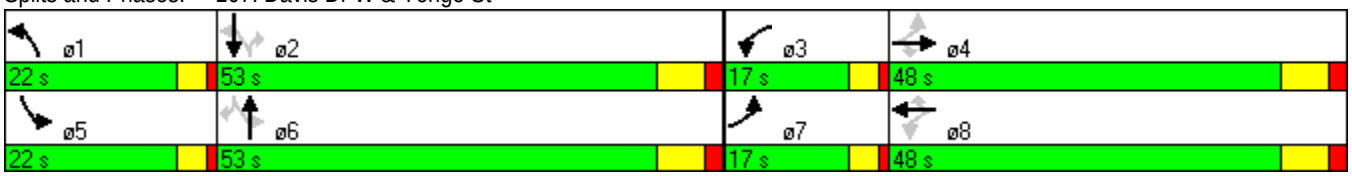
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

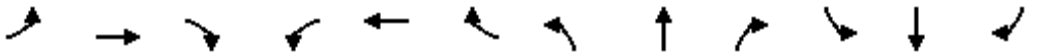
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 107: Davis Dr W & Yonge St

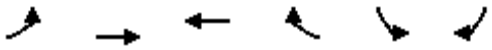




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	535	158	270	636	253	205	964	203	290	708	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.17	1.00	1.00	0.25	1.00	1.00	0.25	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	322	3650	1633	480	3650	1633	479	3650	1633	167	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	582	172	293	691	275	223	1048	221	315	770	178
RTOR Reduction (vph)	0	0	129	0	0	197	0	0	101	0	0	119
Lane Group Flow (vph)	297	582	43	293	691	78	223	1048	120	315	770	59
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt		Perm	D.P+P		custom	D.P+P		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.6	34.6	34.6	47.6	34.6	34.6	70.4	46.1	56.3	70.4	56.3	46.1
Effective Green, g (s)	47.6	34.6	34.6	47.6	34.6	34.6	70.4	46.1	56.3	70.4	56.3	46.1
Actuated g/C Ratio	0.34	0.25	0.25	0.34	0.25	0.25	0.50	0.33	0.40	0.50	0.40	0.33
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	249	902	404	288	902	404	376	1202	657	372	1468	538
v/s Ratio Prot	c0.11	0.16		0.09	0.19		0.06	c0.29		c0.15	0.21	
v/s Ratio Perm	c0.29		0.03	0.25		0.05	0.24		0.07	0.28		0.04
v/c Ratio	1.19	0.65	0.11	1.02	0.77	0.19	0.59	0.87	0.18	0.85	0.52	0.11
Uniform Delay, d1	39.6	47.2	40.7	41.7	48.9	41.7	21.3	44.2	27.0	40.9	31.7	32.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.54	1.22	2.13	1.00	1.00	1.00
Incremental Delay, d2	119.3	1.6	0.1	57.5	3.9	0.2	1.7	6.3	0.4	16.1	1.3	0.4
Delay (s)	158.9	48.8	40.9	99.2	52.9	41.9	34.5	60.3	57.9	57.0	33.1	33.1
Level of Service	F	D	D	F	D	D	C	E	E	E	C	C
Approach Delay (s)		78.6			61.3			56.1			39.0	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	57.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

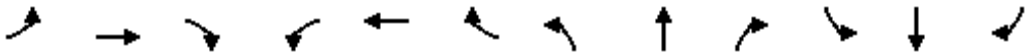
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	7	10	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	8	11	47	48	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	148	96	128	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148	96	128	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	94	99	99	96	97	
cM capacity (veh/h)	763	775	744	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	52	58	48	33
Volume Left	45	0	48	0
Volume Right	0	47	0	33
cSH	765	1003	1636	1700
Volume to Capacity	0.07	0.06	0.03	0.02
Queue Length 95th (m)	1.7	1.4	0.7	0.0
Control Delay (s)	10.0	8.8	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.0	8.8	4.3	
Approach LOS	B	A		

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	92	0	161	0	340	70	81	302	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	100	0	175	0	370	76	88	328	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	100	175	446	416
Volume Left (vph)	0	100	0	0	88
Volume Right (vph)	0	0	175	76	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.04
Departure Headway (s)	7.0	7.2	6.0	5.3	5.4
Degree Utilization, x	0.00	0.20	0.29	0.65	0.63
Capacity (veh/h)	429	459	550	658	641
Control Delay (s)	10.0	10.8	10.2	17.6	17.2
Approach Delay (s)	0.0	10.4		17.6	17.2
Approach LOS	A	B		C	C

Intersection Summary				
Delay	15.7			
HCM Level of Service	C			
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	133	121	53	137	108	1421	96	889	75
Lane Group Flow (vph)	145	271	58	221	117	1605	104	966	82
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	89.0	74.0	74.0	0.0
Total Split (%)	10.0%	36.4%	26.4%	26.4%	10.7%	63.6%	52.9%	52.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.45	0.47	0.25	0.57	0.36	0.74	1.22	0.53	0.05
Control Delay	39.5	36.6	49.7	52.5	13.7	18.3	186.8	17.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	36.6	49.7	52.5	13.7	18.3	186.8	17.0	0.1
Queue Length 50th (m)	29.3	52.0	13.6	51.5	9.7	84.9	~35.2	50.4	0.0
Queue Length 95th (m)	46.7	78.9	27.0	78.6	m15.0	117.4	m#66.3	m60.1	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	321	584	244	404	348	2155	85	1822	1633
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	0.45	0.46	0.24	0.55	0.34	0.74	1.22	0.53	0.05

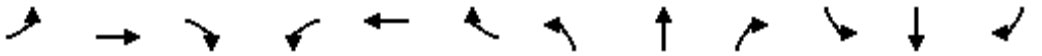
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	121	128	53	137	66	108	1421	55	96	889	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1773		1825	1827		1825	3630		1825	3650	1633
Flt Permitted	0.38	1.00		0.59	1.00		0.20	1.00		0.09	1.00	1.00
Satd. Flow (perm)	739	1773		1138	1827		380	3630		170	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	132	139	58	149	72	117	1545	60	104	966	82
RTOR Reduction (vph)	0	27	0	0	13	0	0	2	0	0	0	0
Lane Group Flow (vph)	145	244	0	58	208	0	117	1603	0	104	966	82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	42.9	42.9		29.0	29.0		83.1	83.1		69.9	69.9	140.0
Effective Green, g (s)	42.9	42.9		29.0	29.0		83.1	83.1		69.9	69.9	140.0
Actuated g/C Ratio	0.31	0.31		0.21	0.21		0.59	0.59		0.50	0.50	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	543		236	378		321	2155		85	1822	1633
v/s Ratio Prot	0.03	c0.14			c0.11		0.02	c0.44			0.26	
v/s Ratio Perm	0.11			0.05			0.19			c0.61		0.05
v/c Ratio	0.48	0.45		0.25	0.55		0.36	0.74		1.22	0.53	0.05
Uniform Delay, d1	37.2	39.0		46.4	49.7		15.1	20.7		35.0	23.9	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.06	0.80		0.68	0.66	1.00
Incremental Delay, d2	1.2	0.6		0.5	1.7		0.4	1.4		159.3	0.9	0.0
Delay (s)	38.4	39.6		46.9	51.4		16.4	18.0		183.2	16.7	0.0
Level of Service	D	D		D	D		B	B		F	B	A
Approach Delay (s)		39.2			50.5			17.9			30.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	11	0	1	1810	37	619	
Lane Group Flow (vph)	12	35	0	2022	40	673	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.10	0.23		0.69	0.31	0.21	
Control Delay	53.2	32.2		5.6	16.4	5.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	53.2	32.2		5.6	16.4	5.1	
Queue Length 50th (m)	2.7	3.1		99.0	5.1	41.7	
Queue Length 95th (m)	8.8	13.2		123.0	m14.5	45.2	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	300	366		2910	130	3137	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.04	0.10		0.69	0.31	0.21	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

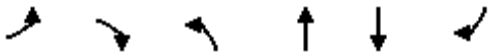
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 401: Sykes Rd & Bathurst St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	11	0	32	1	1810	50	37	619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frpb, ped/bikes				1.00	0.99			1.00		1.00	1.00	
Flpb, ped/bikes				1.00	1.00			1.00		1.00	1.00	
Frt				1.00	0.85			1.00		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1738	1611			3442		1722	3544	
Flt Permitted				0.76	1.00			0.95		0.08	1.00	
Satd. Flow (perm)				1385	1611			3287		147	3544	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	12	0	35	1	1967	54	40	673	0
RTOR Reduction (vph)	0	0	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	12	15	0	0	2021	0	40	673	0
Confl. Peds. (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	5%	28%	6%	3%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				6.0	6.0			101.0		101.0	101.0	
Effective Green, g (s)				6.0	6.0			101.0		101.0	101.0	
Actuated g/C Ratio				0.05	0.05			0.84		0.84	0.84	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				69	81			2767		124	2983	
v/s Ratio Prot					c0.01						0.19	
v/s Ratio Perm				0.01				c0.61		0.27		
v/c Ratio				0.17	0.19			0.73		0.32	0.23	
Uniform Delay, d1				54.6	54.7			3.9		2.1	1.9	
Progression Factor				1.00	1.00			1.00		2.86	2.61	
Incremental Delay, d2				1.2	1.1			1.7		6.4	0.2	
Delay (s)				55.8	55.8			5.6		12.3	5.0	
Level of Service				E	E			A		B	A	
Approach Delay (s)		0.0			55.8			5.6			5.4	
Approach LOS		A			E			A			A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

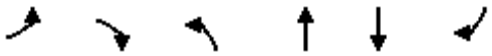
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	43	44	22	0	0	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	47	48	24	0	0	23

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	95	24	23
Volume Left (vph)	47	24	0
Volume Right (vph)	48	0	23
Hadj (s)	-0.20	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.10	0.03	0.02
Capacity (veh/h)	932	806	991
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

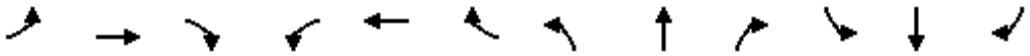
Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	54	86	46	32	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	59	93	50	35	12

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	70	143	47
Volume Left (vph)	11	93	0
Volume Right (vph)	59	0	12
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.17	0.05
Capacity (veh/h)	891	830	868
Control Delay (s)	7.1	8.1	7.3
Approach Delay (s)	7.1	8.1	7.3
Approach LOS	A	A	A

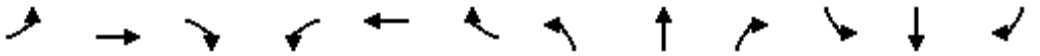
Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	62	10	1	0	106	416	13	3	358	62
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)	36	8	67	11	1	0	115	452	14	3	389	67

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	111	12	582	460
Volume Left (vph)	36	11	115	3
Volume Right (vph)	67	0	14	67
Hadj (s)	-0.30	0.18	0.03	-0.09
Departure Headway (s)	6.1	6.9	4.9	4.9
Degree Utilization, x	0.19	0.02	0.79	0.63
Capacity (veh/h)	539	454	720	711
Control Delay (s)	10.4	10.0	23.9	16.0
Approach Delay (s)	10.4	10.0	23.9	16.0
Approach LOS	B	B	C	C

Intersection Summary				
Delay		19.3		
HCM Level of Service		C		
Intersection Capacity Utilization		66.9%	ICU Level of Service	C
Analysis Period (min)		15		

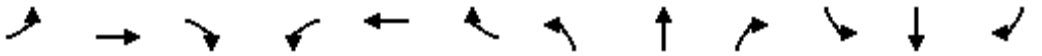


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1365	188	180	1083	43
Lane Group Flow (vph)	85	257	271	200	193	114	291	1484	204	196	1177	47
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	12.0	54.0	54.0	25.0	72.0	61.0	14.0	61.0	72.0
Total Split (%)	30.0%	30.0%	30.0%	8.6%	38.6%	38.6%	17.9%	51.4%	43.6%	10.0%	43.6%	51.4%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.39	0.74	0.53	0.90	0.38	0.22	0.63	0.88	0.29	0.62	0.84	0.06
Control Delay	54.1	67.1	9.6	82.0	43.1	6.8	39.8	41.0	14.2	42.5	47.3	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	67.1	9.6	82.0	43.1	6.8	39.8	41.0	14.2	42.5	47.3	12.8
Queue Length 50th (m)	21.1	68.3	1.6	44.6	44.0	0.0	54.8	191.6	16.5	38.7	131.7	2.2
Queue Length 95th (m)	35.1	91.3	23.9	#71.8	60.6	13.4	#107.1	224.5	35.1	#88.0	147.3	m8.7
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	306	480	606	222	645	624	460	1695	699	317	1408	783
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.54	0.45	0.90	0.30	0.18	0.63	0.88	0.29	0.62	0.84	0.06

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1365	188	180	1083	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.27	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1222	1921	1633	514	1921	1633	132	3650	1633	142	3650	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	257	271	200	193	114	291	1484	204	196	1177	47
RTOR Reduction (vph)	0	0	217	0	0	84	0	0	69	0	0	25
Lane Group Flow (vph)	85	257	54	200	193	30	291	1484	135	196	1177	22
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	25.1	25.1	25.1	37.1	37.1	37.1	88.9	65.0	54.0	73.9	54.0	65.0
Effective Green, g (s)	25.1	25.1	25.1	37.1	37.1	37.1	88.9	65.0	54.0	73.9	54.0	65.0
Actuated g/C Ratio	0.18	0.18	0.18	0.26	0.26	0.26	0.64	0.46	0.39	0.53	0.39	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	219	344	293	211	509	433	457	1695	630	314	1408	758
v/s Ratio Prot		0.13		c0.05	0.10		c0.14	c0.41		0.09	0.32	
v/s Ratio Perm	0.07		0.03	c0.20		0.02	0.26		0.08	0.24		0.01
v/c Ratio	0.39	0.75	0.19	0.95	0.38	0.07	0.64	0.88	0.21	0.62	0.84	0.03
Uniform Delay, d1	50.7	54.4	48.8	49.3	42.0	38.5	36.0	33.8	28.8	33.8	39.0	20.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.06	2.31
Incremental Delay, d2	1.1	8.6	0.3	46.8	0.5	0.1	6.6	6.7	0.8	8.4	5.6	0.1
Delay (s)	51.8	63.0	49.1	96.1	42.5	38.6	42.6	40.5	29.6	43.2	46.8	47.0
Level of Service	D	E	D	F	D	D	D	D	C	D	D	D
Approach Delay (s)		55.3			62.8			39.7			46.4	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E

Growth Rate Calculations

(Based On 2011-2031 EMME/2 Model Output)

Emme Growth Rate Comparison

	Yonge Street			Bathurst Street		
	2011	2021	2031	2011	2021	2031
North of Davis (NB)	500	618	774	322	399	503
	895	945	1042	318	390	510
Average	***697.5***	***781.5***	***908***	***320***	***394.5***	***506.5***
North of Davis (SB)	1144	1522	1821	1182	1776	2196
	1138	1500	1709	1181	1752	2188
Average	***1141***	***1511***	***1765***	***1181.5***	***1764***	***2192***
South of Davis (NB)	679	820	826	551	485	468
	942	1011	989	426	325	343
Average	***810.5***	***915.5***	***907.5***	***488.5***	***405***	***405.5***
South of Davis (SB)	1122	1351	1444	1029	1130	1527
	1028	1289	1423	952	1034	1423
Average	***1075***	***1320***	***1433.5***	***990.5***	***1082***	***1475***

	2011-2021	2021-2031	2011-2021	2021-2031
North of Davis (NB)	1%	2%	2%	3%
North of Davis (SB)	3%	2%	4%	2%
South of Davis (NB)	1%	0%	-2%	0%
South of Davis (SB)	2%	1%	1%	3%
Northbound average by Road	1%	1%	0%	1%
Southbound average by Road	2%	1%	2%	3%

	2011-2021	2021-2031
Northbound average of Arterials	**1%**	**1%**
Southbound average of Arterials	**2%**	**2%**

	Davis Dr			Mulock Drive		
	2011	2021	2031	2011	2021	2031
West of Yonge Street (WB)	677	754	642	990	1006	1045
	565	694	655	1156	861	881
Average	***621***	***724***	***648.5***	***1073***	***933.5***	***963***
West of Yonge Street (EB)	1322	971	1054	1362	977	1160
	1101	784	862	1260	1108	1284
Average	***1211.5***	***877.5***	***958***	***1311***	***1042.5***	***1222***
East of Yonge Street (WB)	710	737	699	947	981	902
	678	732	701			
Average	***694***	***734.5***	***700***	***947***	***981***	***902***
East of Yonge Street (EB)	1045	852	956	1223	1135	1268
	1153	1088	1245			
Average	***1099***	***970***	***1100.5***	***1223***	***1135***	***1268***

	2011-2021	2021-2031	2011-2021	2021-2031
West of Yonge Street (WB)	2%	-1%	-1%	0%
West of Yonge Street (EB)	-3%	1%	-2%	2%
East of Yonge Street (WB)	1%	0%	0%	-1%
East of Yonge Street (EB)	-1%	1%	-1%	1%
Westbound average by Road	1%	-1%	-1%	0%
Eastbound average by Road	-2%	1%	-2%	1%

	2011-2021	2021-2031
Westbound average of Arterials	**0%**	**-1%**
Eastbound average of Arterials	**-2%**	**1%**

APPENDIX F

Future (2016) Background Traffic

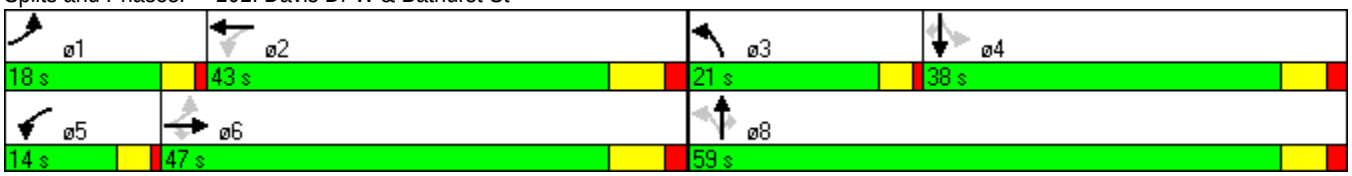
Level Of Service Calculations

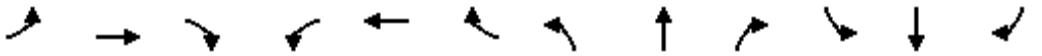
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	874	482	130	649	330	215	99	16	477	714
Lane Group Flow (vph)	278	874	482	130	662	330	215	99	16	477	714
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	47.0	47.0	14.0	43.0	21.0	59.0	59.0	38.0	38.0	38.0
Total Split (%)	15.0%	39.2%	39.2%	11.7%	35.8%	17.5%	49.2%	49.2%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.76	0.70	0.58	0.51	0.60	0.74	0.13	0.13	0.05	0.48	1.13
Control Delay	34.3	38.3	7.7	40.1	58.0	29.7	17.5	2.9	33.4	38.7	103.3
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	34.3	38.3	7.7	40.1	58.0	29.7	17.5	2.9	33.4	38.7	103.3
Queue Length 50th (m)	39.5	94.4	8.7	29.3	85.4	50.2	10.9	0.0	2.8	50.0	~149.3
Queue Length 95th (m)	#62.5	117.3	37.5	46.9	104.4	41.7	15.8	5.8	8.5	66.3	#222.0
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	372	1240	838	268	1105	454	1612	777	323	993	633
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	0.75	0.70	0.58	0.49	0.60	0.73	0.13	0.13	0.05	0.48	1.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

101: Davis Dr W & Bathurst St

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	874	482	130	649	13	330	215	99	16	477	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3639		1825	3650	1633	1825	3650	1633
Flt Permitted	0.23	1.00	1.00	0.18	1.00		0.32	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	444	3650	1633	353	3639		616	3650	1633	1186	3650	1633
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)	278	874	482	130	649	13	330	215	99	16	477	714
RTOR Reduction (vph)	0	0	282	0	1	0	0	0	55	0	0	188
Lane Group Flow (vph)	278	874	200	130	661	0	330	215	44	16	477	526
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	54.0	40.8	40.8	45.6	36.4		53.0	53.0	53.0	32.7	32.7	32.7
Effective Green, g (s)	54.0	40.8	40.8	45.6	36.4		53.0	53.0	53.0	32.7	32.7	32.7
Actuated g/C Ratio	0.45	0.34	0.34	0.38	0.30		0.44	0.44	0.44	0.27	0.27	0.27
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	356	1241	555	247	1104		436	1612	721	323	995	445
v/s Ratio Prot	c0.09	0.24		0.04	0.18		c0.10	0.06			0.13	
v/s Ratio Perm	c0.26		0.12	0.16			0.23		0.03	0.01		c0.32
v/c Ratio	0.78	0.70	0.36	0.53	0.60		0.76	0.13	0.06	0.05	0.48	1.18
Uniform Delay, d1	23.3	34.4	29.8	26.1	35.6		23.8	19.9	19.2	32.2	36.5	43.7
Progression Factor	1.00	1.00	1.00	1.80	1.55		0.86	0.87	0.67	1.00	1.00	1.00
Incremental Delay, d2	10.6	3.4	1.8	2.0	2.3		7.3	0.0	0.0	0.1	0.4	102.5
Delay (s)	33.9	37.7	31.6	48.9	57.5		27.8	17.2	12.9	32.3	36.9	146.1
Level of Service	C	D	C	D	E		C	B	B	C	D	F
Approach Delay (s)		35.3			56.1			22.0			101.4	
Approach LOS		D			E			C			F	

Intersection Summary			
HCM Average Control Delay	55.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

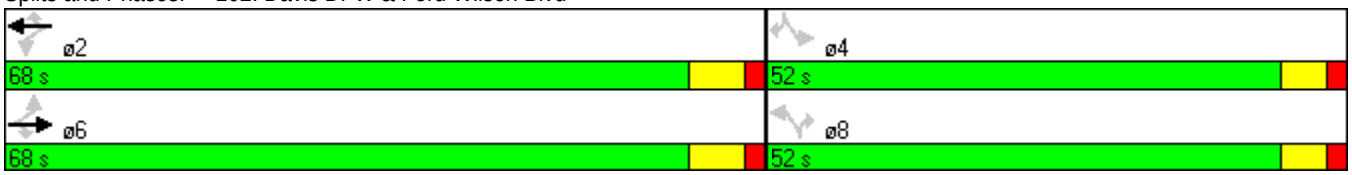
102: Davis Dr W & Ford Wilson Blvd

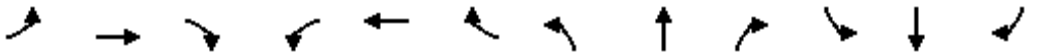
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	953	30	49	658	40	19	32	121	87
Lane Group Flow (vph)	21	953	30	49	658	40	19	32	121	87
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.06	0.51	0.04	0.22	0.35	0.05	0.03	0.05	0.17	0.13
Control Delay	21.3	20.7	11.3	15.6	14.2	2.2	23.4	7.9	25.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	20.7	11.3	15.6	14.2	2.2	23.4	7.9	25.3	5.4
Queue Length 50th (m)	1.9	48.7	0.1	4.4	39.7	0.2	2.8	0.0	18.6	0.0
Queue Length 95th (m)	m4.3	75.9	m3.5	m11.1	46.3	m2.5	7.7	6.4	31.9	10.0
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	347	1855	845	218	1855	850	700	646	700	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.51	0.04	0.22	0.35	0.05	0.03	0.05	0.17	0.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd

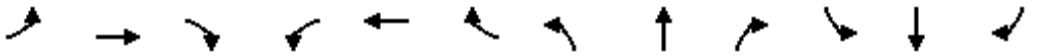




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	953	30	49	658	40	19	0	32	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.36	1.00	1.00	0.22	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	682	3650	1633	428	3650	1633	1825		1633	1825		1633
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)	21	953	30	49	658	40	19	0	32	121	0	87
RTOR Reduction (vph)	0	0	15	0	0	20	0	0	20	0	0	54
Lane Group Flow (vph)	21	953	15	49	658	20	19	0	12	121	0	33
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	347	1855	830	218	1855	830	700		626	700		626
v/s Ratio Prot		c0.26			0.18							
v/s Ratio Perm	0.03		0.01	0.11		0.01	0.01		0.01	c0.07		0.02
v/c Ratio	0.06	0.51	0.02	0.22	0.35	0.02	0.03		0.02	0.17		0.05
Uniform Delay, d1	15.0	19.6	14.6	16.4	17.7	14.7	23.1		23.0	24.4		23.3
Progression Factor	1.37	1.00	2.22	0.76	0.77	0.48	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.8	0.0	2.3	0.5	0.1	0.1		0.1	0.5		0.2
Delay (s)	20.7	20.5	32.5	14.8	14.1	7.0	23.1		23.0	25.0		23.5
Level of Service	C	C	C	B	B	A	C		C	C		C
Approach Delay (s)		20.9			13.8			23.1			24.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	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												
Volume (veh/h)	64	1036	6	5	698	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	1036	6	5	698	8	0	0	3	0	0	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	706			1042			1526	1883	521	1357	1878	349
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	555			1042			1429	1809	521	1249	1804	174
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			100	100	99	100	100	95
cM capacity (veh/h)	962			675			82	69	505	116	70	793

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	64	691	351	5	349	349	8	0	3	39
Volume Left	64	0	0	5	0	0	0	0	0	0
Volume Right	0	0	6	0	0	0	8	0	3	39
cSH	962	1700	1700	675	1700	1700	1700	1700	505	793
Volume to Capacity	0.07	0.41	0.21	0.01	0.21	0.21	0.00	0.00	0.01	0.05
Queue Length 95th (m)	1.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.2
Control Delay (s)	9.0	0.0	0.0	10.4	0.0	0.0	0.0	0.0	12.2	9.8
Lane LOS	A			B				A	B	A
Approach Delay (s)	0.5			0.1				12.2		9.8
Approach LOS								B		A

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			

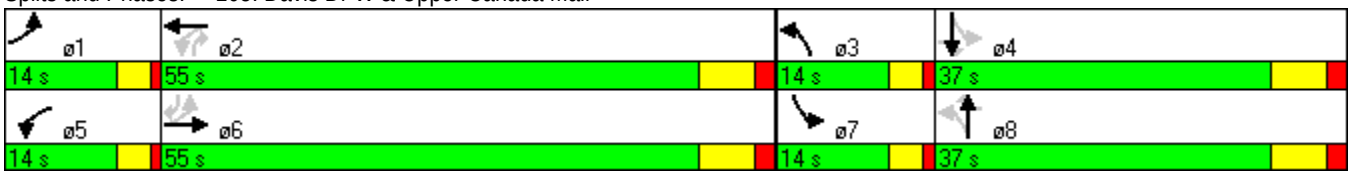
105: Davis Dr W & Upper Canada Mall

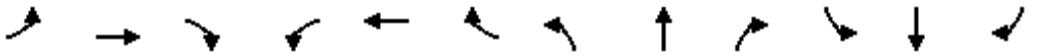
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	757	248	69	546	44	159	59	72	15	19	6
Lane Group Flow (vph)	34	757	248	69	546	44	159	59	72	15	19	6
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.05	0.35	0.66	0.14	0.24	0.14	0.51	0.18	0.07	0.06	0.11	0.01
Control Delay	6.7	12.9	23.0	6.6	11.3	14.6	45.0	46.2	2.9	35.4	50.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	12.9	23.0	6.6	11.3	14.6	45.0	46.2	2.9	35.4	50.5	6.8
Queue Length 50th (m)	3.1	38.2	22.0	4.4	30.7	0.0	32.0	11.6	0.0	2.8	4.2	0.0
Queue Length 95th (m)	m8.0	88.3	26.1	10.0	44.7	10.5	49.3	24.9	6.5	8.0	11.2	2.0
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	671	2191	594	526	2267	441	311	480	1042	313	480	983
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.42	0.13	0.24	0.10	0.51	0.12	0.07	0.05	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	757	248	69	546	44	159	59	72	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.44	1.00	1.00	0.32	1.00	1.00	0.57	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	852	3650	1633	609	3650	1633	1102	1921	1633	1380	1921	1633
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)	34	757	248	69	546	44	159	59	72	15	19	6
RTOR Reduction (vph)	0	0	220	0	0	37	0	0	30	0	0	3
Lane Group Flow (vph)	34	757	28	69	546	7	159	59	42	15	19	3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	73.1	68.9	13.4	76.5	70.6	20.3	27.2	20.3	70.6	16.3	13.4	68.9
Effective Green, g (s)	73.1	68.9	13.4	76.5	70.6	20.3	27.2	20.3	70.6	16.3	13.4	68.9
Actuated g/C Ratio	0.61	0.57	0.11	0.64	0.59	0.17	0.23	0.17	0.59	0.14	0.11	0.57
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	553	2096	182	448	2147	276	309	325	961	198	215	938
v/s Ratio Prot	0.00	c0.21		c0.01	0.15		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.02	0.09		0.00	c0.07		0.03	0.01		0.00
v/c Ratio	0.06	0.36	0.15	0.15	0.25	0.03	0.51	0.18	0.04	0.08	0.09	0.00
Uniform Delay, d1	9.3	13.7	48.2	8.6	12.0	41.6	39.4	42.7	10.4	45.2	47.8	10.9
Progression Factor	1.09	0.96	2.34	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.4	0.4	0.2	0.3	0.0	1.4	0.3	0.1	0.2	0.2	0.0
Delay (s)	10.2	13.7	113.2	8.7	12.2	41.6	40.8	43.0	10.5	45.3	48.0	10.9
Level of Service	B	B	F	A	B	D	D	D	B	D	D	B
Approach Delay (s)		37.3			13.8			33.7			41.4	
Approach LOS		D			B			C			D	

Intersection Summary			
HCM Average Control Delay	29.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

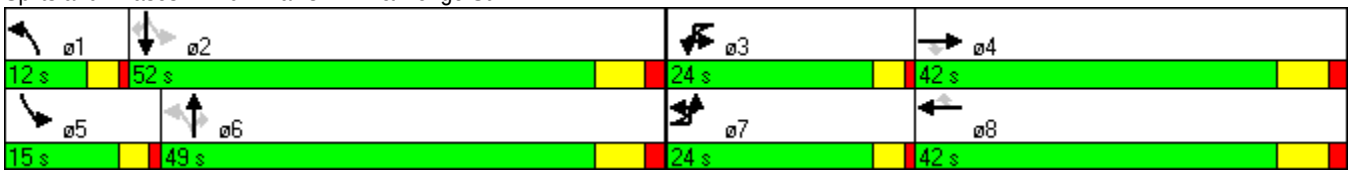
c Critical Lane Group

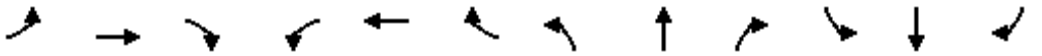
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	589	129	232	452	123	105	462	168	201	997	218
Lane Group Flow (vph)	126	589	129	232	452	123	105	462	168	201	997	218
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	12.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	24.0	42.0	42.0	24.0	42.0	42.0	12.0	49.0	49.0	15.0	52.0	52.0
Total Split (%)	18.5%	32.3%	32.3%	18.5%	32.3%	32.3%	9.2%	37.7%	37.7%	11.5%	40.0%	40.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.63	0.76	0.29	0.87	0.50	0.25	0.42	0.33	0.23	0.40	0.67	0.28
Control Delay	68.7	54.7	8.0	83.5	43.7	7.5	30.6	38.2	17.0	20.4	35.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	54.7	8.0	83.5	43.7	7.5	30.6	38.2	17.0	20.4	35.8	4.6
Queue Length 50th (m)	31.3	75.0	0.0	58.4	51.8	0.0	19.5	48.6	16.6	27.1	111.6	0.0
Queue Length 95th (m)	49.8	89.4	14.9	#99.9	67.4	14.6	28.1	52.6	23.3	46.3	146.1	16.4
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		150.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	281	983	534	281	983	530	252	1386	724	507	1478	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.60	0.24	0.83	0.46	0.23	0.42	0.33	0.23	0.40	0.67	0.28

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

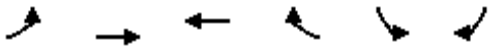




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	589	129	232	452	123	105	462	168	201	997	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	311	3650	1633	776	3650	1633
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)	126	589	129	232	452	123	105	462	168	201	997	218
RTOR Reduction (vph)	0	0	102	0	0	92	0	0	104	0	0	130
Lane Group Flow (vph)	126	589	27	232	452	31	105	462	64	201	997	88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	14.2	27.5	27.5	19.1	32.4	32.4	58.1	49.3	49.3	64.7	52.6	52.6
Effective Green, g (s)	14.2	27.5	27.5	19.1	32.4	32.4	58.1	49.3	49.3	64.7	52.6	52.6
Actuated g/C Ratio	0.11	0.21	0.21	0.15	0.25	0.25	0.45	0.38	0.38	0.50	0.40	0.40
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	199	772	345	268	910	407	241	1384	619	484	1477	661
v/s Ratio Prot	0.07	c0.16		c0.13	0.12		0.03	0.13		c0.04	c0.27	
v/s Ratio Perm			0.02			0.02	0.16		0.04	0.17		0.05
v/c Ratio	0.63	0.76	0.08	0.87	0.50	0.08	0.44	0.33	0.10	0.42	0.68	0.13
Uniform Delay, d1	55.4	48.2	41.1	54.2	41.8	37.3	23.3	28.7	26.1	18.8	31.7	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.45	1.24	3.57	1.00	1.00	1.00
Incremental Delay, d2	6.4	4.5	0.1	24.0	0.4	0.1	1.2	0.6	0.3	0.6	2.5	0.4
Delay (s)	61.8	52.7	41.2	78.2	42.2	37.4	35.0	36.2	93.3	19.4	34.2	24.8
Level of Service	E	D	D	E	D	D	D	D	F	B	C	C
Approach Delay (s)		52.3			51.9			49.1			30.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	43.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	9	7	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	9	7	32	29	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	94	58	90	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	58	90	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	851	822	790	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	26	39	29	32
Volume Left	17	0	29	0
Volume Right	0	32	0	32
cSH	841	1021	1636	1700
Volume to Capacity	0.03	0.04	0.02	0.02
Queue Length 95th (m)	0.7	0.9	0.4	0.0
Control Delay (s)	9.4	8.7	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.4	8.7	3.4	
Approach LOS	A	A		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	71	0	103	0	151	102	114	259	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	71	0	103	0	151	102	114	259	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	792	740	259	689	689	202	259			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	792	740	259	689	689	202	259			253		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	79	100	88	100			91		
cM capacity (veh/h)	254	317	785	339	339	844	1317			1324		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	71	103	253	373
Volume Left	0	71	0	0	114
Volume Right	0	0	103	102	0
cSH	1700	339	844	1317	1324
Volume to Capacity	0.00	0.21	0.12	0.00	0.09
Queue Length 95th (m)	0.0	5.9	3.2	0.0	2.1
Control Delay (s)	0.0	18.4	9.9	0.0	3.0
Lane LOS	A	C	A		A
Approach Delay (s)	0.0	13.4		0.0	3.0
Approach LOS	A	B			

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	50.5%	ICU Level of Service	A	
Analysis Period (min)	15			

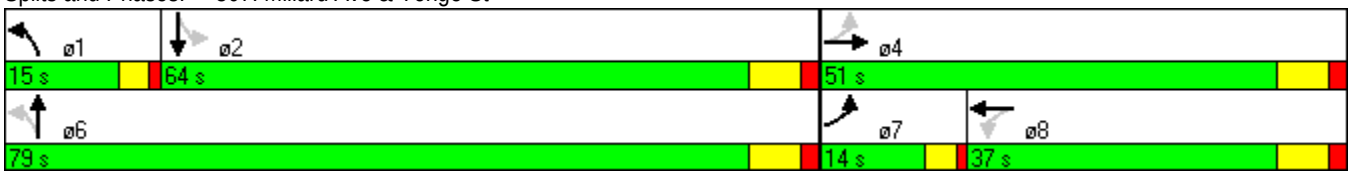
307: Millard Ave & Yonge St

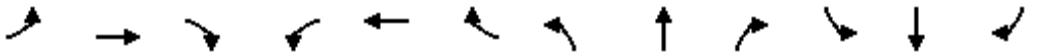
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	45	98	104	112	164	616	63	1268	166
Lane Group Flow (vph)	45	234	104	163	164	661	63	1268	166
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.12	0.41	0.40	0.39	0.65	0.31	0.17	0.73	0.10
Control Delay	29.5	28.4	48.4	41.7	54.4	13.2	18.1	19.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	28.4	48.4	41.7	54.4	13.2	18.1	19.9	0.1
Queue Length 50th (m)	7.8	34.8	22.9	32.2	32.4	26.3	5.3	58.8	0.0
Queue Length 95th (m)	16.2	56.1	40.7	53.3	55.7	48.1	m10.7	87.5	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	383	632	272	435	261	2145	366	1738	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.38	0.37	0.63	0.31	0.17	0.73	0.10

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	98	136	104	112	51	164	616	45	63	1268	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1754		1825	1831		1825	3613		1825	3650	1633
Flt Permitted	0.51	1.00		0.61	1.00		0.09	1.00		0.40	1.00	1.00
Satd. Flow (perm)	987	1754		1177	1831		178	3613		769	3650	1633
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)	45	98	136	104	112	51	164	616	45	63	1268	166
RTOR Reduction (vph)	0	40	0	0	12	0	0	4	0	0	0	0
Lane Group Flow (vph)	45	194	0	104	151	0	164	657	0	63	1268	166
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.8	39.8		29.0	29.0		76.2	76.2		61.1	61.1	130.0
Effective Green, g (s)	39.8	39.8		29.0	29.0		76.2	76.2		61.1	61.1	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	346	537		263	408		245	2118		361	1716	1633
v/s Ratio Prot	0.01	c0.11			0.08		c0.06	0.18			c0.35	
v/s Ratio Perm	0.03			c0.09			0.34			0.08		0.10
v/c Ratio	0.13	0.36		0.40	0.37		0.67	0.31		0.17	0.74	0.10
Uniform Delay, d1	32.3	35.2		43.0	42.8		21.1	13.6		19.9	28.0	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.63	0.94		0.78	0.61	1.00
Incremental Delay, d2	0.2	0.4		1.0	0.6		5.7	0.3		0.8	2.3	0.1
Delay (s)	32.5	35.6		44.0	43.3		61.2	13.1		16.3	19.5	0.1
Level of Service	C	D		D	D		E	B		B	B	A
Approach Delay (s)		35.1			43.6			22.7			17.2	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

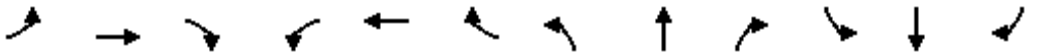
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	78	0	576	23	1063	
Lane Group Flow (vph)	78	68	602	23	1067	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.52	0.14	0.21	0.04	0.37	
Control Delay	62.5	0.6	3.6	2.8	4.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.5	0.6	3.6	2.8	4.2	
Queue Length 50th (m)	17.8	0.0	14.8	0.9	32.8	
Queue Length 95th (m)	32.3	0.0	24.3	m2.1	37.7	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	303	631	2859	642	2872	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.11	0.21	0.04	0.37	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

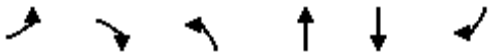
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	78	0	68	0	576	26	23	1063	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3626		1825	3648	
Flt Permitted				0.76	1.00			1.00		0.42	1.00	
Satd. Flow (perm)				1455	1633			3626		815	3648	
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)	0	0	0	78	0	68	0	576	26	23	1063	4
RTOR Reduction (vph)	0	0	0	0	61	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	78	7	0	0	600	0	23	1067	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				12.5	12.5			94.5		94.5	94.5	
Effective Green, g (s)				12.5	12.5			94.5		94.5	94.5	
Actuated g/C Ratio				0.10	0.10			0.79		0.79	0.79	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				152	170			2855		642	2873	
v/s Ratio Prot					0.00			0.17			c0.29	
v/s Ratio Perm				c0.05						0.03		
v/c Ratio				0.51	0.04			0.21		0.04	0.37	
Uniform Delay, d1				50.9	48.4			3.2		2.8	3.8	
Progression Factor				1.00	1.00			1.00		0.81	0.95	
Incremental Delay, d2				2.9	0.1			0.2		0.1	0.3	
Delay (s)				53.8	48.5			3.4		2.3	4.0	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.3			3.4			3.9	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

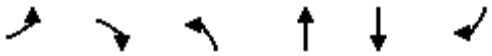
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	17	18	48	0	0	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	18	48	0	0	48

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	35	48	48
Volume Left (vph)	17	48	0
Volume Right (vph)	18	0	48
Hadj (s)	-0.21	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.04	0.06	0.05
Capacity (veh/h)	900	835	1034
Control Delay (s)	7.0	7.5	6.6
Approach Delay (s)	7.0	7.5	6.6
Approach LOS	A	A	A

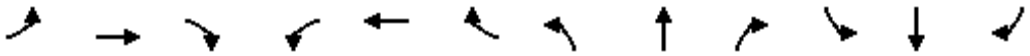
Intersection Summary			
Delay	7.0		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	21	51	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	89	59	21	51	20

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	109	80	71
Volume Left (vph)	20	59	0
Volume Right (vph)	89	0	20
Hadj (s)	-0.45	0.15	-0.17
Departure Headway (s)	3.8	4.3	4.0
Degree Utilization, x	0.11	0.10	0.08
Capacity (veh/h)	915	799	863
Control Delay (s)	7.3	7.8	7.4
Approach Delay (s)	7.3	7.8	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

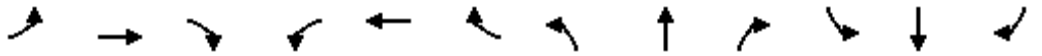


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	79	13	5	1	34	198	5	0	262	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	6	79	13	5	1	34	198	5	0	262	46

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	19	237	308
Volume Left (vph)	64	13	34	0
Volume Right (vph)	79	1	5	46
Hadj (s)	-0.23	0.11	0.02	-0.09
Departure Headway (s)	5.0	5.5	4.7	4.5
Degree Utilization, x	0.21	0.03	0.31	0.39
Capacity (veh/h)	656	565	728	758
Control Delay (s)	9.2	8.7	9.8	10.4
Approach Delay (s)	9.2	8.7	9.8	10.4
Approach LOS	A	A	A	B

Intersection Summary				
Delay	9.9			
HCM Level of Service	A			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A	
Analysis Period (min)	15			

707: Eagle St W & Yonge St



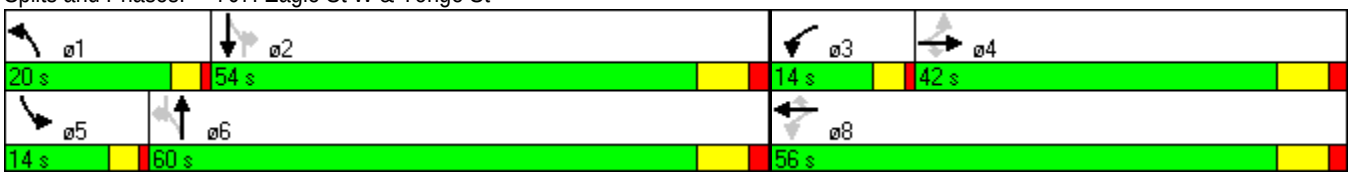
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	943	232	77	1229	116
Lane Group Flow (vph)	40	189	187	196	186	113	227	943	232	77	1229	116
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	14.0	56.0	56.0	20.0	60.0	54.0	14.0	54.0	60.0
Total Split (%)	32.3%	32.3%	32.3%	10.8%	43.1%	43.1%	15.4%	46.2%	41.5%	10.8%	41.5%	46.2%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.23	0.69	0.48	0.72	0.39	0.23	0.44	0.63	0.32	0.15	0.93	0.16
Control Delay	50.4	65.5	10.4	53.7	42.0	7.1	24.6	33.1	6.6	17.4	63.6	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	65.5	10.4	53.7	42.0	7.1	24.6	33.1	6.6	17.4	63.6	17.6
Queue Length 50th (m)	9.2	46.8	0.0	41.2	39.9	0.0	30.4	100.3	4.1	12.0	140.5	8.5
Queue Length 95th (m)	19.3	67.5	19.4	58.3	57.1	13.5	60.1	122.2	21.3	m19.8	#195.0	m19.7
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	331	517	576	273	724	686	518	1488	723	518	1320	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.32	0.72	0.26	0.16	0.44	0.63	0.32	0.15	0.93	0.16

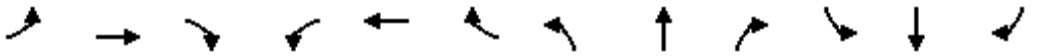
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	943	232	77	1229	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.35	1.00	1.00	0.08	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	1230	1921	1633	677	1921	1633	151	3650	1633	380	3650	1633
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)	40	189	187	196	186	113	227	943	232	77	1229	116
RTOR Reduction (vph)	0	0	160	0	0	85	0	0	132	0	0	69
Lane Group Flow (vph)	40	189	27	196	186	28	227	943	100	77	1229	47
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	18.5	18.5	18.5	32.5	32.5	32.5	83.5	53.0	47.0	73.5	47.0	53.0
Effective Green, g (s)	18.5	18.5	18.5	32.5	32.5	32.5	83.5	53.0	47.0	73.5	47.0	53.0
Actuated g/C Ratio	0.14	0.14	0.14	0.25	0.25	0.25	0.64	0.41	0.36	0.57	0.36	0.41
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	175	273	232	258	480	408	515	1488	590	509	1320	666
v/s Ratio Prot		0.10		c0.06	0.10		c0.11	c0.26		0.03	c0.34	
v/s Ratio Perm	0.03		0.02	c0.13		0.02	0.17		0.06	0.05		0.03
v/c Ratio	0.23	0.69	0.11	0.76	0.39	0.07	0.44	0.63	0.17	0.15	0.93	0.07
Uniform Delay, d1	49.4	53.0	48.6	42.8	40.5	37.2	25.7	30.7	28.2	14.0	39.9	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.85	1.34	4.10
Incremental Delay, d2	0.7	7.4	0.2	12.1	0.5	0.1	2.7	2.1	0.6	0.5	10.1	0.2
Delay (s)	50.1	60.4	48.8	54.9	41.0	37.3	28.4	32.8	28.8	26.3	63.7	96.5
Level of Service	D	E	D	D	D	D	C	C	C	C	E	F
Approach Delay (s)		54.2			45.7			31.4			64.3	
Approach LOS		D			D			C			E	

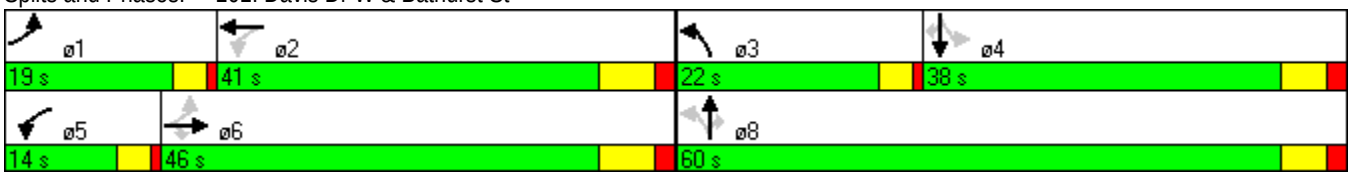
Intersection Summary			
HCM Average Control Delay	48.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

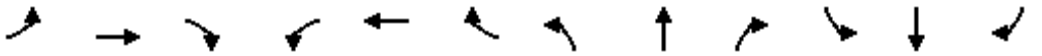
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1036	218	175	949	700	932	299	34	293	255
Lane Group Flow (vph)	373	1036	218	175	990	700	932	299	34	293	255
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	19.0	46.0	46.0	14.0	41.0	22.0	60.0	60.0	38.0	38.0	38.0
Total Split (%)	15.8%	38.3%	38.3%	11.7%	34.2%	18.3%	50.0%	50.0%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.75	0.68	0.27	0.56	0.96	1.63	0.75	0.41	0.40	0.51	0.59
Control Delay	39.7	33.2	4.6	27.1	72.8	318.1	33.2	5.5	56.4	48.2	15.6
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	39.7	33.2	4.6	27.1	72.8	318.1	33.2	5.5	56.4	48.2	15.6
Queue Length 50th (m)	63.2	104.1	0.0	20.2	131.2	~201.1	101.8	16.8	7.3	33.6	9.9
Queue Length 95th (m)	#137.4	#149.1	16.5	38.2	#167.6	#298.3	110.7	24.0	16.5	43.1	32.0
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	495	1517	806	317	1031	429	1643	874	144	973	587
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	0.75	0.68	0.27	0.55	0.96	1.63	0.57	0.34	0.24	0.30	0.43

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1036	218	175	949	41	700	932	299	34	293	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3627		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.22	1.00		0.39	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	202	3650	1633	413	3627		743	3650	1633	540	3650	1633
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)	373	1036	218	175	949	41	700	932	299	34	293	255
RTOR Reduction (vph)	0	0	127	0	3	0	0	0	167	0	0	174
Lane Group Flow (vph)	373	1036	91	175	987	0	700	932	132	34	293	81
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	66.0	49.9	49.9	46.1	34.0		41.0	41.0	41.0	19.0	19.0	19.0
Effective Green, g (s)	66.0	49.9	49.9	46.1	34.0		41.0	41.0	41.0	19.0	19.0	19.0
Actuated g/C Ratio	0.55	0.42	0.42	0.38	0.28		0.34	0.34	0.34	0.16	0.16	0.16
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	490	1518	679	301	1028		416	1247	558	86	578	259
v/s Ratio Prot	c0.18	0.28		0.06	c0.27		c0.25	0.26			0.08	
v/s Ratio Perm	0.24		0.06	0.16			c0.32		0.08	0.06		0.05
v/c Ratio	0.76	0.68	0.13	0.58	0.96		1.68	0.75	0.24	0.40	0.51	0.31
Uniform Delay, d1	30.9	28.6	21.7	25.5	42.3		36.3	34.9	28.3	45.3	46.2	44.7
Progression Factor	1.00	1.00	1.00	1.30	1.29		0.88	0.88	0.84	1.00	1.00	1.00
Incremental Delay, d2	6.9	2.5	0.4	2.6	18.8		315.0	1.9	0.2	3.0	0.7	0.7
Delay (s)	37.8	31.1	22.1	35.8	73.5		346.8	32.4	24.0	48.3	46.9	45.4
Level of Service	D	C	C	D	E		F	C	C	D	D	D
Approach Delay (s)		31.4			67.8			145.1			46.3	
Approach LOS		C			E			F			D	

Intersection Summary			
HCM Average Control Delay	82.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

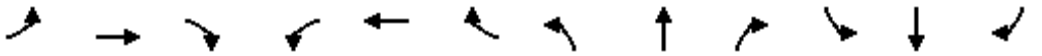
102: Davis Dr W & Ford Wilson Blvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1167	27	74	1103	141	42	85	61	20
Lane Group Flow (vph)	174	1167	27	74	1103	141	42	85	61	20
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	84.0	84.0	84.0	84.0	84.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	0.66	0.50	0.03	0.31	0.47	0.13	0.09	0.18	0.13	0.05
Control Delay	26.5	5.6	1.2	10.6	8.8	0.6	35.4	8.4	36.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	5.6	1.2	10.6	8.8	0.6	35.4	8.4	36.0	13.8
Queue Length 50th (m)	7.7	26.2	0.1	5.8	50.0	0.2	7.6	0.0	11.2	0.0
Queue Length 95th (m)	m34.1	40.3	m0.3	m9.9	51.1	m1.6	16.8	12.2	22.4	6.2
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	262	2342	1058	239	2342	1098	456	472	456	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.50	0.03	0.31	0.47	0.13	0.09	0.18	0.13	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

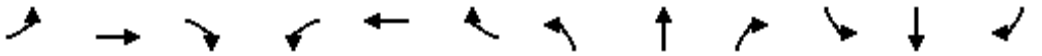
Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1167	27	74	1103	141	42	0	85	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.21	1.00	1.00	0.19	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	410	3650	1633	374	3650	1633	1825		1633	1825		1633
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)	174	1167	27	74	1103	141	42	0	85	61	0	20
RTOR Reduction (vph)	0	0	10	0	0	51	0	0	64	0	0	15
Lane Group Flow (vph)	174	1167	17	74	1103	90	42	0	21	61	0	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	263	2342	1048	240	2342	1048	456		408	456		408
v/s Ratio Prot		0.32			0.30							
v/s Ratio Perm	c0.42		0.01	0.20		0.06	0.02		0.01	c0.03		0.00
v/c Ratio	0.66	0.50	0.02	0.31	0.47	0.09	0.09		0.05	0.13		0.01
Uniform Delay, d1	13.4	11.3	7.8	9.6	11.0	8.2	34.5		34.2	34.9		33.9
Progression Factor	1.02	0.43	0.43	0.71	0.73	0.31	1.00		1.00	1.00		1.00
Incremental Delay, d2	10.1	0.6	0.0	3.1	0.6	0.2	0.4		0.2	0.1		0.0
Delay (s)	23.7	5.5	3.3	9.9	8.7	2.7	34.9		34.4	35.1		33.9
Level of Service	C	A	A	A	A	A	C		C	D		C
Approach Delay (s)		7.8			8.1			34.6			34.8	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.7%	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												
Volume (veh/h)	229	1059	6	7	1102	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	1059	6	7	1102	6	5	0	9	0	0	179
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	1108			1065			2085	2642	532	2112	2639	551
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	816			1065			1944	2587	532	1976	2583	173
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	68			99			74	100	98	100	100	76
cM capacity (veh/h)	711			662			19	15	497	24	15	733

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	229	706	359	7	551	551	6	5	9	179
Volume Left	229	0	0	7	0	0	0	5	0	0
Volume Right	0	0	6	0	0	0	6	0	9	179
cSH	711	1700	1700	662	1700	1700	1700	19	497	733
Volume to Capacity	0.32	0.42	0.21	0.01	0.32	0.32	0.00	0.26	0.02	0.24
Queue Length 95th (m)	10.6	0.0	0.0	0.2	0.0	0.0	0.0	5.6	0.4	7.3
Control Delay (s)	12.5	0.0	0.0	10.5	0.0	0.0	0.0	245.0	12.4	11.5
Lane LOS	B			B				F	B	B
Approach Delay (s)	2.2			0.1				95.4		11.5
Approach LOS								F		B

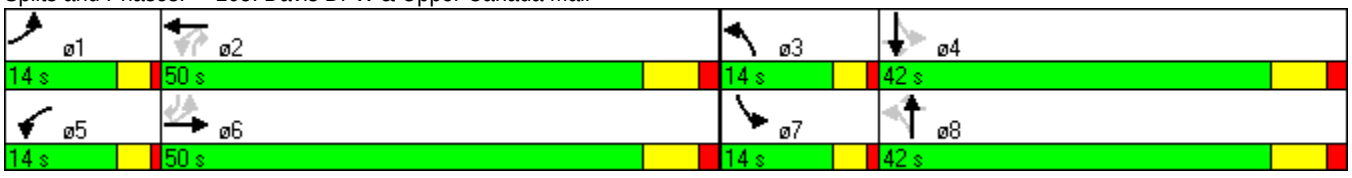
Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	56.5%	ICU Level of Service		B
Analysis Period (min)	15			

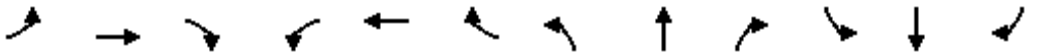
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	821	184	143	828	84	260	178	106	138	148	27
Lane Group Flow (vph)	63	821	184	143	828	84	260	178	106	138	148	27
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.15	0.43	0.48	0.33	0.41	0.28	0.79	0.66	0.11	0.46	0.56	0.03
Control Delay	5.7	11.9	23.7	10.7	17.6	11.3	55.7	60.7	3.4	38.2	56.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	11.9	23.7	10.7	17.6	11.3	55.7	60.7	3.4	38.2	56.0	6.4
Queue Length 50th (m)	3.2	49.4	15.3	11.6	58.9	0.0	51.6	40.4	0.0	25.4	33.0	0.0
Queue Length 95th (m)	8.0	69.3	31.3	22.6	84.9	13.3	71.9	60.2	9.2	39.4	51.1	5.3
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	467	1897	607	447	2018	536	329	560	950	303	560	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.43	0.30	0.32	0.41	0.16	0.79	0.32	0.11	0.46	0.26	0.03

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 105: Davis Dr W & Upper Canada Mall



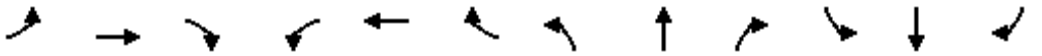


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	821	184	143	828	84	260	178	106	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.30	1.00	1.00	0.27	1.00	1.00	0.56	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	577	3650	1633	513	3650	1633	1077	1921	1633	934	1921	1633
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)	63	821	184	143	828	84	260	178	106	138	148	27
RTOR Reduction (vph)	0	0	159	0	0	72	0	0	48	0	0	13
Lane Group Flow (vph)	63	821	25	143	828	12	260	178	58	138	148	14
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	68.4	62.3	16.4	74.8	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.3
Effective Green, g (s)	68.4	62.3	16.4	74.8	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.3
Actuated g/C Ratio	0.57	0.52	0.14	0.62	0.55	0.14	0.22	0.14	0.55	0.22	0.14	0.52
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	392	1895	223	421	1992	227	302	267	891	275	263	848
v/s Ratio Prot	0.01	c0.22		c0.03	0.23		c0.07	0.09		0.04	0.08	
v/s Ratio Perm	0.08		0.02	0.19		0.01	c0.12		0.04	0.07		0.01
v/c Ratio	0.16	0.43	0.11	0.34	0.42	0.05	0.86	0.67	0.06	0.50	0.56	0.02
Uniform Delay, d1	11.7	17.9	45.4	10.3	16.0	44.8	43.6	49.0	12.8	39.8	48.4	14.0
Progression Factor	0.57	0.59	3.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.7	0.2	0.5	0.6	0.1	21.3	6.2	0.1	1.4	2.7	0.0
Delay (s)	6.9	11.2	144.4	10.8	16.6	44.9	65.0	55.2	13.0	41.3	51.2	14.0
Level of Service	A	B	F	B	B	D	E	E	B	D	D	B
Approach Delay (s)		33.9			18.1			51.6			43.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	32.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

107: Davis Dr W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	279	624	162	295	673	255	207	1114	240	293	766	168
Lane Group Flow (vph)	279	624	162	295	673	255	207	1114	240	293	766	168
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	28.0	42.0	42.0	28.0	42.0	42.0	20.0	47.0	50.0	23.0	50.0	47.0
Total Split (%)	20.0%	30.0%	30.0%	20.0%	30.0%	30.0%	14.3%	33.6%	35.7%	16.4%	35.7%	33.6%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.92	0.75	0.33	0.95	0.80	0.47	0.62	1.00	0.35	0.93	0.60	0.27
Control Delay	91.7	56.5	7.7	96.7	58.5	11.3	40.6	84.9	28.8	73.8	41.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.7	56.5	7.7	96.7	58.5	11.3	40.6	84.9	28.8	73.8	41.4	6.4
Queue Length 50th (m)	76.5	83.6	0.0	81.8	91.7	7.6	49.4	~175.1	31.9	64.5	95.6	0.0
Queue Length 95th (m)	#126.1	103.7	17.4	#136.5	112.6	30.8	m65.6	#225.0	m47.0	#123.2	120.3	16.7
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	313	913	530	313	913	573	363	1113	688	319	1268	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.68	0.31	0.94	0.74	0.45	0.57	1.00	0.35	0.92	0.60	0.27

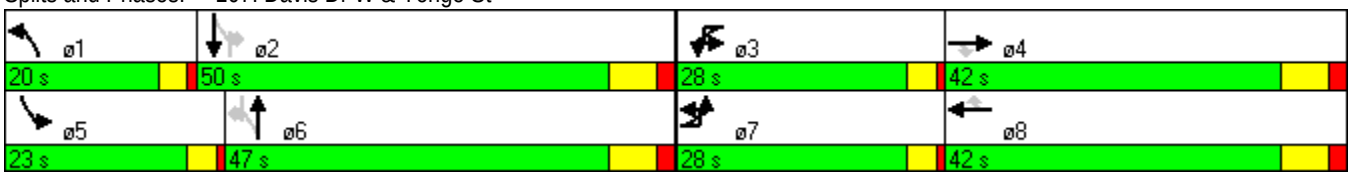
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

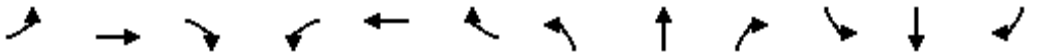
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 107: Davis Dr W & Yonge St

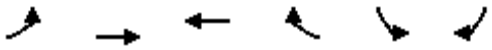




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	279	624	162	295	673	255	207	1114	240	293	766	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.25	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	475	3650	1633	165	3650	1633
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)	279	624	162	295	673	255	207	1114	240	293	766	168
RTOR Reduction (vph)	0	0	125	0	0	169	0	0	121	0	0	117
Lane Group Flow (vph)	279	624	37	295	673	86	207	1114	119	293	766	51
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	23.3	31.8	31.8	23.8	32.3	32.3	56.5	42.7	48.6	66.4	48.6	42.7
Effective Green, g (s)	23.3	31.8	31.8	23.8	32.3	32.3	56.5	42.7	48.6	66.4	48.6	42.7
Actuated g/C Ratio	0.17	0.23	0.23	0.17	0.23	0.23	0.40	0.30	0.35	0.47	0.35	0.30
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	304	829	371	310	842	377	325	1113	567	312	1267	498
v/s Ratio Prot	0.15	0.17		c0.16	c0.18		0.06	c0.31		c0.13	0.21	
v/s Ratio Perm			0.02			0.05	0.19		0.07	0.31		0.03
v/c Ratio	0.92	0.75	0.10	0.95	0.80	0.23	0.64	1.00	0.21	0.94	0.60	0.10
Uniform Delay, d1	57.4	50.4	42.8	57.5	50.8	43.7	29.0	48.6	32.2	43.6	37.8	34.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.64	1.37	2.91	1.00	1.00	1.00
Incremental Delay, d2	30.8	3.9	0.1	38.2	5.4	0.3	2.3	20.5	0.5	34.8	2.1	0.4
Delay (s)	88.3	54.3	42.9	95.7	56.1	44.0	50.0	87.2	94.0	78.4	39.9	35.3
Level of Service	F	D	D	F	E	D	D	F	F	E	D	D
Approach Delay (s)		61.5			63.2			83.3			48.5	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	65.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

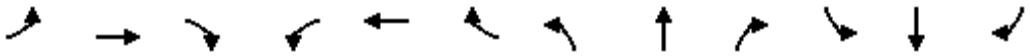
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	7	10	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	7	10	43	44	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	136	88	118	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136	88	118	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	95	99	99	96	97	
cM capacity (veh/h)	782	784	755	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	48	53	44	30
Volume Left	41	0	44	0
Volume Right	0	43	0	30
cSH	782	1006	1636	1700
Volume to Capacity	0.06	0.05	0.03	0.02
Queue Length 95th (m)	1.5	1.3	0.6	0.0
Control Delay (s)	9.9	8.8	7.3	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.9	8.8	4.3	
Approach LOS	A	A		

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	92	0	170	0	340	70	98	302	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	92	0	170	0	340	70	98	302	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	92	170	410	400
Volume Left (vph)	0	92	0	0	98
Volume Right (vph)	0	0	170	70	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.05
Departure Headway (s)	6.7	7.1	5.8	5.2	5.3
Degree Utilization, x	0.00	0.18	0.28	0.59	0.59
Capacity (veh/h)	436	469	564	666	654
Control Delay (s)	9.7	10.4	9.8	15.3	15.7
Approach Delay (s)	0.0	10.0		15.3	15.7
Approach LOS	A	B		C	C

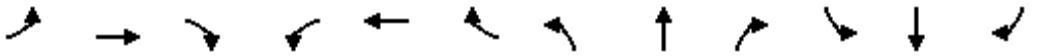
Intersection Summary				
Delay	14.2			
HCM Level of Service	B			
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	133	138	75	146	108	1598	120	950	75
Lane Group Flow (vph)	133	266	75	223	108	1698	120	950	75
Turn Type	pm+pt		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	1	6	5	2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	5	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	7.0	30.0	
Minimum Split (s)	11.0	36.0	36.0	36.0	11.0	37.0	11.0	37.0	
Total Split (s)	11.0	47.0	36.0	36.0	12.0	82.0	11.0	81.0	0.0
Total Split (%)	7.9%	33.6%	25.7%	25.7%	8.6%	58.6%	7.9%	57.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	4.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
v/c Ratio	0.60	0.58	0.43	0.76	0.29	0.83	0.68	0.46	0.05
Control Delay	52.8	45.6	60.0	68.9	3.8	11.1	64.1	10.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	45.6	60.0	68.9	3.8	11.1	64.1	10.1	0.0
Queue Length 50th (m)	29.8	58.1	19.1	55.7	2.3	27.0	20.5	20.8	0.0
Queue Length 95th (m)	44.7	81.4	33.1	79.0	m3.2	m39.5	m#44.9	m29.4	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	223	533	237	391	382	2039	177	2087	1633
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	0.60	0.50	0.32	0.57	0.28	0.83	0.68	0.46	0.05

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	138	128	75	146	77	108	1598	100	120	950	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1782		1825	1822		1825	3618		1825	3650	1633
Flt Permitted	0.28	1.00		0.60	1.00		0.24	1.00		0.05	1.00	1.00
Satd. Flow (perm)	541	1782		1144	1822		469	3618		96	3650	1633
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)	133	138	128	75	146	77	108	1598	100	120	950	75
RTOR Reduction (vph)	0	25	0	0	14	0	0	3	0	0	0	0
Lane Group Flow (vph)	133	241	0	75	209	0	108	1695	0	120	950	75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	34.0	34.0		21.3	21.3		86.8	78.8		89.2	80.0	140.0
Effective Green, g (s)	34.0	34.0		21.3	21.3		86.8	78.8		89.2	80.0	140.0
Actuated g/C Ratio	0.24	0.24		0.15	0.15		0.62	0.56		0.64	0.57	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	211	433		174	277		368	2036		175	2086	1633
v/s Ratio Prot	c0.04	0.14			c0.11		0.02	c0.47		c0.05	0.26	
v/s Ratio Perm	0.11			0.07			0.16			0.39		c0.05
v/c Ratio	0.63	0.56		0.43	0.75		0.29	0.83		0.69	0.46	0.05
Uniform Delay, d1	44.0	46.4		53.9	56.8		11.7	25.2		33.2	17.4	0.0
Progression Factor	1.00	1.00		1.00	1.00		0.32	0.33		2.19	0.53	1.00
Incremental Delay, d2	6.0	1.6		1.7	11.0		0.2	2.2		8.2	0.5	0.0
Delay (s)	50.1	48.0		55.6	67.8		4.0	10.7		80.7	9.8	0.0
Level of Service	D	D		E	E		A	B		F	A	A
Approach Delay (s)		48.7			64.7			10.3			16.6	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

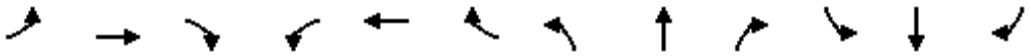
c Critical Lane Group

Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	26	0	1	1880	56	630	
Lane Group Flow (vph)	26	51	0	1956	56	630	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.21	0.31		0.67	0.41	0.20	
Control Delay	55.3	36.2		5.9	25.7	6.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	55.3	36.2		5.9	25.7	6.5	
Queue Length 50th (m)	5.8	5.8		84.6	10.6	41.8	
Queue Length 95th (m)	14.8	18.0		110.1	m25.8	47.0	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	315	373		2928	138	3083	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.08	0.14		0.67	0.41	0.20	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

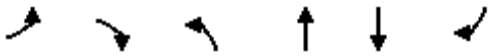
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	26	0	51	1	1880	75	56	630	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3629		1825	3650	
Flt Permitted				0.76	1.00			0.95		0.09	1.00	
Satd. Flow (perm)				1455	1633			3465		164	3650	
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)	0	0	0	26	0	51	1	1880	75	56	630	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	26	28	0	0	1955	0	56	630	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				8.2	8.2			98.8		98.8	98.8	
Effective Green, g (s)				8.2	8.2			98.8		98.8	98.8	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				99	112			2853		135	3005	
v/s Ratio Prot					0.02						0.17	
v/s Ratio Perm				c0.02				c0.56		0.34		
v/c Ratio				0.26	0.25			0.69		0.41	0.21	
Uniform Delay, d1				53.0	53.0			4.3		2.8	2.3	
Progression Factor				1.00	1.00			1.00		3.46	2.66	
Incremental Delay, d2				1.4	1.2			1.4		8.7	0.2	
Delay (s)				54.5	54.1			5.7		18.5	6.2	
Level of Service				D	D			A		B	A	
Approach Delay (s)		0.0			54.2			5.7			7.2	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

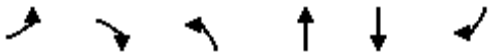
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	43	44	22	0	0	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	43	44	22	0	0	21

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	87	22	21
Volume Left (vph)	43	22	0
Volume Right (vph)	44	0	21
Hadj (s)	-0.20	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.09	0.03	0.02
Capacity (veh/h)	935	810	998
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

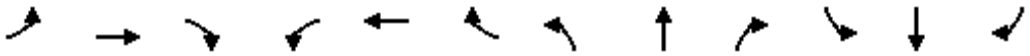
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	54	86	46	32	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	54	86	46	32	11

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	64	132	43
Volume Left (vph)	10	86	0
Volume Right (vph)	54	0	11
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.15	0.05
Capacity (veh/h)	901	834	874
Control Delay (s)	7.1	8.0	7.2
Approach Delay (s)	7.1	8.0	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

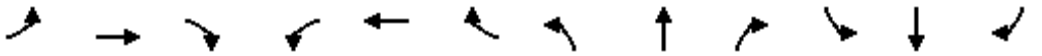


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	62	10	1	0	106	416	13	3	358	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	7	62	10	1	0	106	416	13	3	358	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	102	11	535	423
Volume Left (vph)	33	10	106	3
Volume Right (vph)	62	0	13	62
Hadj (s)	-0.30	0.18	0.03	-0.09
Departure Headway (s)	5.8	6.6	4.8	4.8
Degree Utilization, x	0.17	0.02	0.71	0.57
Capacity (veh/h)	545	466	732	727
Control Delay (s)	10.0	9.7	18.7	13.9
Approach Delay (s)	10.0	9.7	18.7	13.9
Approach LOS	A	A	C	B

Intersection Summary				
Delay		15.9		
HCM Level of Service		C		
Intersection Capacity Utilization		66.9%	ICU Level of Service	C
Analysis Period (min)		15		

707: Eagle St W & Yonge St



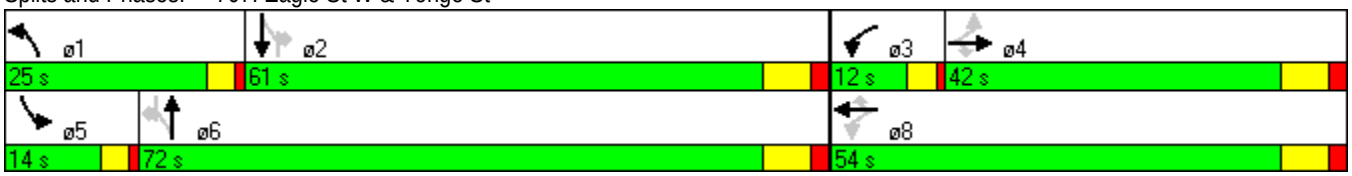
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1578	188	180	1336	43
Lane Group Flow (vph)	78	236	249	184	178	105	268	1578	188	180	1336	43
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	12.0	54.0	54.0	25.0	72.0	61.0	14.0	61.0	72.0
Total Split (%)	30.0%	30.0%	30.0%	8.6%	38.6%	38.6%	17.9%	51.4%	43.6%	10.0%	43.6%	51.4%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.38	0.73	0.52	0.82	0.37	0.21	0.56	0.93	0.27	0.53	0.95	0.06
Control Delay	55.2	68.1	9.2	70.0	44.0	7.3	35.2	46.4	15.0	31.5	65.4	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	68.1	9.2	70.0	44.0	7.3	35.2	46.4	15.0	31.5	65.4	15.5
Queue Length 50th (m)	19.4	62.9	0.0	41.3	40.8	0.0	47.2	213.3	16.3	29.2	182.8	2.1
Queue Length 95th (m)	33.2	85.2	21.6	#60.4	57.2	13.1	84.6	#255.4	34.0	#68.3	#230.5	m10.2
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	310	480	595	224	645	618	482	1695	689	338	1408	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.49	0.42	0.82	0.28	0.17	0.56	0.93	0.27	0.53	0.95	0.06

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1578	188	180	1336	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.29	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1239	1921	1633	552	1921	1633	132	3650	1633	142	3650	1633
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)	78	236	249	184	178	105	268	1578	188	180	1336	43
RTOR Reduction (vph)	0	0	207	0	0	78	0	0	60	0	0	23
Lane Group Flow (vph)	78	236	42	184	178	27	268	1578	128	180	1336	20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Effective Green, g (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Actuated g/C Ratio	0.17	0.17	0.17	0.25	0.25	0.25	0.65	0.46	0.39	0.54	0.39	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	208	322	274	213	487	414	478	1695	630	335	1408	758
v/s Ratio Prot		0.12		c0.05	0.09		c0.13	c0.43		0.08	0.37	
v/s Ratio Perm	0.06		0.03	c0.17		0.02	0.23		0.08	0.21		0.01
v/c Ratio	0.38	0.73	0.15	0.86	0.37	0.06	0.56	0.93	0.20	0.54	0.95	0.03
Uniform Delay, d1	51.7	55.3	49.7	48.7	43.0	39.6	34.4	35.4	28.7	31.5	41.7	20.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	1.24	2.68
Incremental Delay, d2	1.1	8.3	0.3	28.4	0.5	0.1	4.7	10.7	0.7	5.8	14.1	0.1
Delay (s)	52.9	63.6	50.0	77.1	43.5	39.7	39.0	46.0	29.4	31.6	65.7	54.6
Level of Service	D	E	D	E	D	D	D	D	C	C	E	D
Approach Delay (s)		56.1			55.9			43.6			61.4	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX G

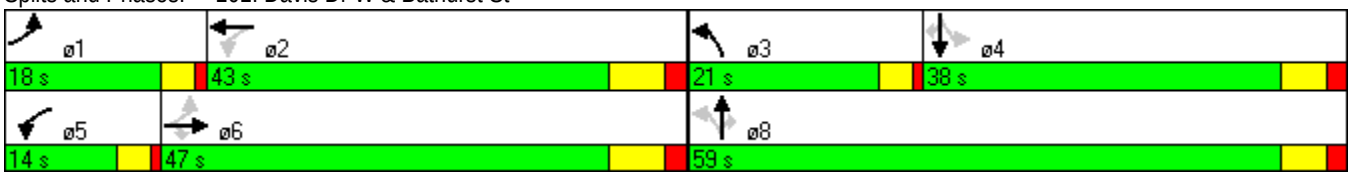
Future (2021) Background Traffic

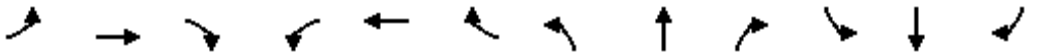
Level Of Service Calculations

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	937	482	132	717	330	224	99	17	523	714
Lane Group Flow (vph)	278	937	482	132	736	330	224	99	17	523	714
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	47.0	47.0	14.0	43.0	21.0	59.0	59.0	38.0	38.0	38.0
Total Split (%)	15.0%	39.2%	39.2%	11.7%	35.8%	17.5%	49.2%	49.2%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.82	0.76	0.58	0.56	0.67	0.77	0.14	0.13	0.05	0.53	1.15
Control Delay	40.9	40.1	8.8	47.0	64.0	32.5	17.5	2.9	33.5	39.7	110.8
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	40.9	40.1	8.8	47.0	64.0	32.5	17.5	2.9	33.5	39.7	110.8
Queue Length 50th (m)	39.5	103.7	11.9	29.8	95.6	50.0	11.3	0.0	3.0	55.6	~154.1
Queue Length 95th (m)	#72.4	128.2	42.5	48.3	115.2	#77.2	16.3	5.8	8.9	72.8	#226.9
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	342	1239	824	246	1101	432	1612	777	320	991	623
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	0.81	0.76	0.58	0.54	0.67	0.76	0.14	0.13	0.05	0.53	1.15

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	937	482	132	717	19	330	224	99	17	523	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3636		1825	3650	1633	1825	3650	1633
Flt Permitted	0.19	1.00	1.00	0.15	1.00		0.29	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	361	3650	1633	287	3636		549	3650	1633	1176	3650	1633
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)	278	937	482	132	717	19	330	224	99	17	523	714
RTOR Reduction (vph)	0	0	270	0	1	0	0	0	55	0	0	179
Lane Group Flow (vph)	278	937	212	132	735	0	330	224	44	17	523	535
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	54.0	40.7	40.7	45.6	36.3		53.0	53.0	53.0	32.6	32.6	32.6
Effective Green, g (s)	54.0	40.7	40.7	45.6	36.3		53.0	53.0	53.0	32.6	32.6	32.6
Actuated g/C Ratio	0.45	0.34	0.34	0.38	0.30		0.44	0.44	0.44	0.27	0.27	0.27
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	330	1238	554	228	1100		417	1612	721	319	992	444
v/s Ratio Prot	c0.10	0.26		0.04	0.20		c0.11	0.06			0.14	
v/s Ratio Perm	c0.28		0.13	0.17			0.24		0.03	0.01		c0.33
v/c Ratio	0.84	0.76	0.38	0.58	0.67		0.79	0.14	0.06	0.05	0.53	1.20
Uniform Delay, d1	24.1	35.3	30.1	26.7	36.6		24.1	19.9	19.2	32.3	37.1	43.7
Progression Factor	1.00	1.00	1.00	2.02	1.65		0.86	0.86	0.66	1.00	1.00	1.00
Incremental Delay, d2	17.4	4.4	2.0	3.4	3.1		9.8	0.0	0.0	0.1	0.5	111.7
Delay (s)	41.5	39.6	32.1	57.4	63.4		30.6	17.3	12.7	32.4	37.7	155.4
Level of Service	D	D	C	E	E		C	B	B	C	D	F
Approach Delay (s)		37.8			62.5			23.3			104.6	
Approach LOS		D			E			C			F	

Intersection Summary			
HCM Average Control Delay	59.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

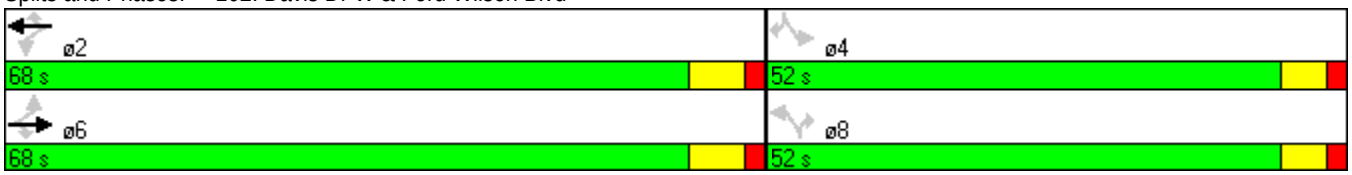
102: Davis Dr W & Ford Wilson Blvd

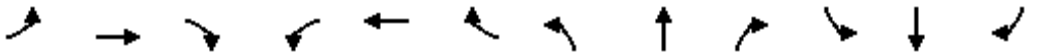
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	1018	30	49	734	40	19	32	121	87
Lane Group Flow (vph)	21	1018	30	49	734	40	19	32	121	87
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.07	0.55	0.04	0.25	0.40	0.05	0.03	0.05	0.17	0.13
Control Delay	23.0	22.8	12.4	21.1	19.0	4.6	23.4	7.9	25.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	22.8	12.4	21.1	19.0	4.6	23.4	7.9	25.3	5.4
Queue Length 50th (m)	2.1	57.4	0.5	6.3	54.1	0.0	2.8	0.0	18.6	0.0
Queue Length 95th (m)	m4.1	84.8	m3.3	15.4	68.3	5.4	7.7	6.4	31.9	10.0
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	310	1855	845	193	1855	850	700	646	700	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.55	0.04	0.25	0.40	0.05	0.03	0.05	0.17	0.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1018	30	49	734	40	19	0	32	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.32	1.00	1.00	0.20	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	609	3650	1633	381	3650	1633	1825		1633	1825		1633
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)	21	1018	30	49	734	40	19	0	32	121	0	87
RTOR Reduction (vph)	0	0	15	0	0	20	0	0	20	0	0	54
Lane Group Flow (vph)	21	1018	15	49	734	20	19	0	12	121	0	33
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	310	1855	830	194	1855	830	700		626	700		626
v/s Ratio Prot		c0.28			0.20							
v/s Ratio Perm	0.03		0.01	0.13		0.01	0.01		0.01	c0.07		0.02
v/c Ratio	0.07	0.55	0.02	0.25	0.40	0.02	0.03		0.02	0.17		0.05
Uniform Delay, d1	15.0	20.1	14.6	16.6	18.2	14.7	23.1		23.0	24.4		23.3
Progression Factor	1.47	1.08	2.44	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.9	0.0	3.1	0.6	0.1	0.1		0.1	0.5		0.2
Delay (s)	22.3	22.6	35.7	19.7	18.8	14.7	23.1		23.0	25.0		23.5
Level of Service	C	C	D	B	B	B	C		C	C		C
Approach Delay (s)		22.9			18.7			23.1			24.3	
Approach LOS		C			B			C			C	

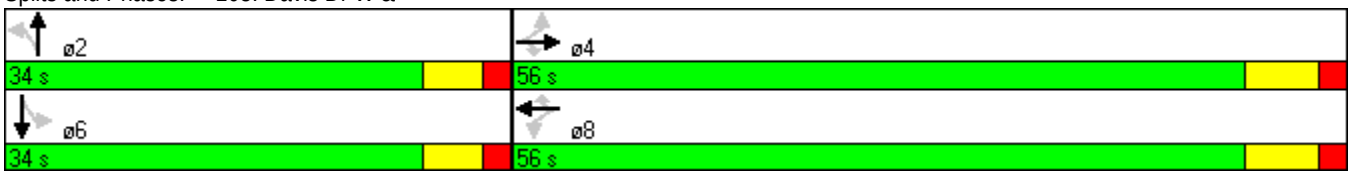
Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

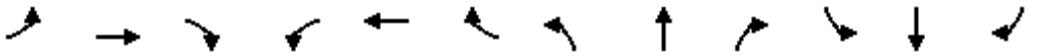
c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBT	ø2
Lane Configurations							
Volume (vph)	5	1166	793	41	181	0	
Lane Group Flow (vph)	5	1166	793	41	181	20	
Turn Type	Perm			Perm	Perm		
Protected Phases		4	8			6	2
Permitted Phases	4			8	6		
Detector Phase	4	4	8	8	6	6	
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	56.0	56.0	56.0	56.0	34.0	34.0	34.0
Total Split (%)	62.2%	62.2%	62.2%	62.2%	37.8%	37.8%	38%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Max	Max	C-Max
v/c Ratio	0.02	0.72	0.49	0.06	0.30	0.03	
Control Delay	11.6	22.9	18.4	3.8	21.4	0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.6	22.9	18.4	3.8	21.4	0.0	
Queue Length 50th (m)	0.5	83.0	49.1	0.0	20.7	0.0	
Queue Length 95th (m)	2.0	88.6	53.8	4.5	41.6	0.0	
Internal Link Dist (m)		422.4	296.2			135.4	
Turn Bay Length (m)							
Base Capacity (vph)	293	1987	1987	908	601	770	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.59	0.40	0.05	0.30	0.03	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 103: Davis Dr W &

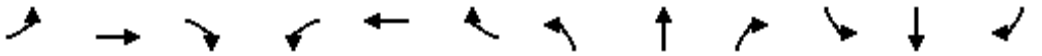




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1166	0	0	793	41	0	0	0	181	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0	7.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1825	3650			3650	1633				1825	1633	
Flt Permitted	0.28	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	537	3650			3650	1633				1455	1633	
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)	5	1166	0	0	793	41	0	0	0	181	0	20
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	12	0
Lane Group Flow (vph)	5	1166	0	0	793	18	0	0	0	181	8	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	39.8	39.8			39.8	39.8				37.2	37.2	
Effective Green, g (s)	39.8	39.8			39.8	39.8				37.2	37.2	
Actuated g/C Ratio	0.44	0.44			0.44	0.44				0.41	0.41	
Clearance Time (s)	7.0	7.0			7.0	7.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	237	1614			1614	722				601	675	
v/s Ratio Prot		c0.32			0.22						0.01	
v/s Ratio Perm	0.01					0.01				c0.12		
v/c Ratio	0.02	0.72			0.49	0.03				0.30	0.01	
Uniform Delay, d1	14.1	20.6			17.9	14.2				17.7	15.6	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	1.6			0.2	0.0				1.3	0.0	
Delay (s)	14.2	22.2			18.1	14.2				19.0	15.6	
Level of Service	B	C			B	B				B	B	
Approach Delay (s)		22.2			17.9			0.0			18.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1277	6	5	795	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	1277	6	5	795	8	0	0	3	0	0	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		320			205							
pX, platoon unblocked	0.92			0.73			0.77	0.77	0.73	0.77	0.77	0.92
vC, conflicting volume	803			1283			1816	2221	642	1574	2216	398
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	601			656			981	1505	0	670	1498	158
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			100	100	100	100	100	95
cM capacity (veh/h)	903			689			143	87	799	252	88	793

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	64	851	432	5	398	398	8	0	3	39
Volume Left	64	0	0	5	0	0	0	0	0	0
Volume Right	0	0	6	0	0	0	8	0	3	39
cSH	903	1700	1700	689	1700	1700	1700	1700	799	793
Volume to Capacity	0.07	0.50	0.25	0.01	0.23	0.23	0.00	0.00	0.00	0.05
Queue Length 95th (m)	1.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.2
Control Delay (s)	9.3	0.0	0.0	10.3	0.0	0.0	0.0	0.0	9.5	9.8
Lane LOS	A			B				A	A	A
Approach Delay (s)	0.4			0.1				9.5		9.8
Approach LOS								A		A

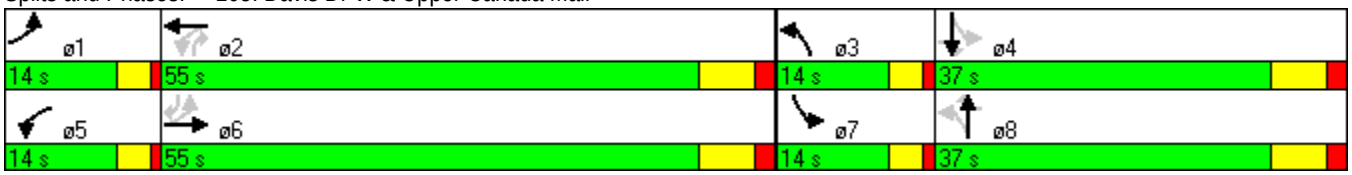
Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	45.5%	ICU Level of Service		A
Analysis Period (min)	15			

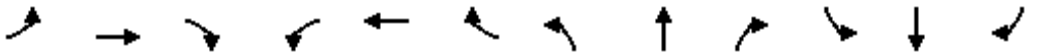
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	998	248	69	643	44	159	59	72	15	19	6
Lane Group Flow (vph)	34	998	248	69	643	44	159	59	72	15	19	6
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.06	0.46	0.71	0.19	0.29	0.13	0.49	0.17	0.07	0.05	0.10	0.01
Control Delay	7.0	15.9	22.9	7.8	12.6	13.6	42.7	44.2	3.3	33.5	48.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	15.9	22.9	7.8	12.6	13.6	42.7	44.2	3.3	33.5	48.1	7.8
Queue Length 50th (m)	2.1	65.6	9.7	4.4	37.2	0.0	32.0	11.6	0.0	2.8	4.2	0.0
Queue Length 95th (m)	6.4	99.6	34.3	11.0	57.2	10.1	47.2	24.0	6.9	7.7	10.8	2.2
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	599	2151	562	406	2230	441	326	480	1026	327	480	965
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.46	0.44	0.17	0.29	0.10	0.49	0.12	0.07	0.05	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	998	248	69	643	44	159	59	72	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.39	1.00	1.00	0.22	1.00	1.00	0.59	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	748	3650	1633	421	3650	1633	1125	1921	1633	1380	1921	1633
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)	34	998	248	69	643	44	159	59	72	15	19	6
RTOR Reduction (vph)	0	0	180	0	0	36	0	0	30	0	0	3
Lane Group Flow (vph)	34	998	68	69	643	8	159	59	42	15	19	3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	71.8	67.5	14.7	75.2	69.2	21.6	28.5	21.6	69.2	17.6	14.7	67.5
Effective Green, g (s)	71.8	67.5	14.7	75.2	69.2	21.6	28.5	21.6	69.2	17.6	14.7	67.5
Actuated g/C Ratio	0.60	0.56	0.12	0.63	0.58	0.18	0.24	0.18	0.58	0.15	0.12	0.56
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	486	2053	200	334	2105	294	324	346	942	213	235	919
v/s Ratio Prot	0.00	c0.27		c0.01	0.18		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.04	0.12		0.00	c0.08		0.03	0.01		0.00
v/c Ratio	0.07	0.49	0.34	0.21	0.31	0.03	0.49	0.17	0.04	0.07	0.08	0.00
Uniform Delay, d1	9.9	15.8	48.2	10.0	13.1	40.5	38.3	41.6	11.0	44.1	46.7	11.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.8	1.0	0.3	0.4	0.0	1.2	0.2	0.1	0.1	0.1	0.0
Delay (s)	10.0	16.6	49.2	10.3	13.4	40.6	39.5	41.9	11.1	44.2	46.8	11.5
Level of Service	A	B	D	B	B	D	D	D	B	D	D	B
Approach Delay (s)		22.8			14.7			32.9			40.5	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM Average Control Delay	21.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

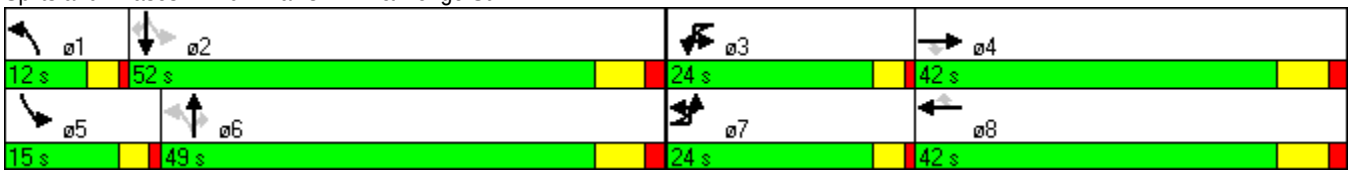
c Critical Lane Group

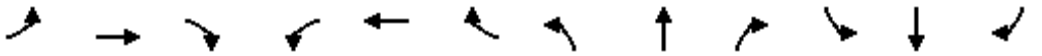
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	725	193	270	511	123	120	517	178	201	1130	242
Lane Group Flow (vph)	166	725	193	270	511	123	120	517	178	201	1130	242
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Detector Phase	7	4	4	3	8	8	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	12.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	24.0	42.0	42.0	24.0	42.0	42.0	12.0	49.0	49.0	15.0	52.0	52.0
Total Split (%)	18.5%	32.3%	32.3%	18.5%	32.3%	32.3%	9.2%	37.7%	37.7%	11.5%	40.0%	40.0%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.72	0.81	0.37	0.96	0.52	0.23	0.66	0.41	0.26	0.47	0.84	0.32
Control Delay	71.8	54.2	10.6	99.2	42.3	7.2	52.0	40.2	15.8	24.2	45.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.8	54.2	10.6	99.2	42.3	7.2	52.0	40.2	15.8	24.2	45.2	4.8
Queue Length 50th (m)	41.3	91.2	5.9	69.6	57.9	0.0	22.0	51.8	16.1	29.7	143.6	0.0
Queue Length 95th (m)	63.6	111.6	24.6	#122.7	76.1	14.6	#43.5	55.1	22.9	47.0	#176.2	17.2
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		150.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	281	983	559	281	995	535	183	1267	683	430	1342	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.74	0.35	0.96	0.51	0.23	0.66	0.41	0.26	0.47	0.84	0.32

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

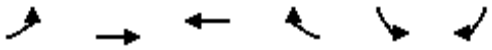




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	725	193	270	511	123	120	517	178	201	1130	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	170	3650	1633	687	3650	1633
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)	166	725	193	270	511	123	120	517	178	201	1130	242
RTOR Reduction (vph)	0	0	123	0	0	90	0	0	116	0	0	153
Lane Group Flow (vph)	166	725	70	270	511	33	120	517	62	201	1130	89
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		6	2		2
Actuated Green, G (s)	16.4	31.7	31.7	20.0	35.3	35.3	53.7	45.2	45.2	58.9	47.8	47.8
Effective Green, g (s)	16.4	31.7	31.7	20.0	35.3	35.3	53.7	45.2	45.2	58.9	47.8	47.8
Actuated g/C Ratio	0.13	0.24	0.24	0.15	0.27	0.27	0.41	0.35	0.35	0.45	0.37	0.37
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	230	890	398	281	991	443	178	1269	568	408	1342	600
v/s Ratio Prot	0.09	c0.20		c0.15	c0.14		c0.04	0.14		c0.04	c0.31	
v/s Ratio Perm			0.04			0.02	0.23		0.04	0.18		0.05
v/c Ratio	0.72	0.81	0.18	0.96	0.52	0.08	0.67	0.41	0.11	0.49	0.84	0.15
Uniform Delay, d1	54.6	46.4	38.8	54.6	40.1	35.2	28.7	32.2	28.7	22.4	37.6	27.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.54	1.18	3.34	1.00	1.00	1.00
Incremental Delay, d2	10.6	5.8	0.2	42.9	0.5	0.1	9.3	0.9	0.4	0.9	6.5	0.5
Delay (s)	65.2	52.2	39.0	97.5	40.6	35.3	53.4	39.0	96.3	23.4	44.2	28.0
Level of Service	E	D	D	F	D	D	D	D	F	C	D	C
Approach Delay (s)		51.8			56.8			53.6			39.0	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	48.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

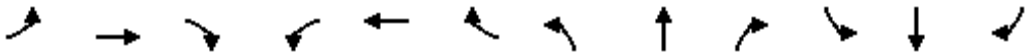
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	9	7	32	29	32
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	9	7	32	29	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	94	58	90	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94	58	90	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	98	99	99	97	98	
cM capacity (veh/h)	851	822	790	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	26	39	29	32
Volume Left	17	0	29	0
Volume Right	0	32	0	32
cSH	841	1021	1636	1700
Volume to Capacity	0.03	0.04	0.02	0.02
Queue Length 95th (m)	0.7	0.9	0.4	0.0
Control Delay (s)	9.4	8.7	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.4	8.7	3.4	
Approach LOS	A	A		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	71	0	103	0	151	102	114	259	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	71	0	103	0	151	102	114	259	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	792	740	259	689	689	202	259			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	792	740	259	689	689	202	259			253		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	79	100	88	100			91		
cM capacity (veh/h)	254	317	785	339	339	844	1317			1324		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	71	103	253	373
Volume Left	0	71	0	0	114
Volume Right	0	0	103	102	0
cSH	1700	339	844	1317	1324
Volume to Capacity	0.00	0.21	0.12	0.00	0.09
Queue Length 95th (m)	0.0	5.9	3.2	0.0	2.1
Control Delay (s)	0.0	18.4	9.9	0.0	3.0
Lane LOS	A	C	A		A
Approach Delay (s)	0.0	13.4		0.0	3.0
Approach LOS	A	B			

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	50.5%	ICU Level of Service	A	
Analysis Period (min)	15			

307: Millard Ave & Yonge St

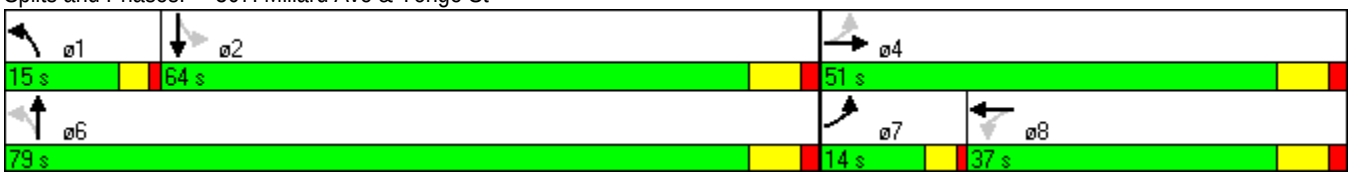
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	45	98	104	112	164	686	63	1503	166
Lane Group Flow (vph)	45	234	104	163	164	731	63	1503	166
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.12	0.41	0.40	0.39	0.75	0.34	0.18	0.86	0.10
Control Delay	29.5	28.4	48.4	41.7	66.5	15.0	21.4	26.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	28.4	48.4	41.7	66.5	15.0	21.4	26.5	0.1
Queue Length 50th (m)	7.8	34.8	22.9	32.2	36.3	34.0	6.4	84.6	0.0
Queue Length 95th (m)	16.2	56.1	40.7	53.3	m#62.1	56.8	m10.0	m#116.8	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	383	632	272	435	229	2146	342	1738	1633
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.38	0.37	0.72	0.34	0.18	0.86	0.10

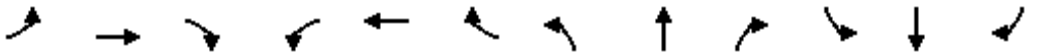
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	98	136	104	112	51	164	686	45	63	1503	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1754		1825	1831		1825	3616		1825	3650	1633
Flt Permitted	0.51	1.00		0.61	1.00		0.06	1.00		0.37	1.00	1.00
Satd. Flow (perm)	987	1754		1177	1831		118	3616		718	3650	1633
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)	45	98	136	104	112	51	164	686	45	63	1503	166
RTOR Reduction (vph)	0	40	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	45	194	0	104	151	0	164	728	0	63	1503	166
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.8	39.8		29.0	29.0		76.2	76.2		61.1	61.1	130.0
Effective Green, g (s)	39.8	39.8		29.0	29.0		76.2	76.2		61.1	61.1	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	346	537		263	408		215	2120		337	1716	1633
v/s Ratio Prot	0.01	c0.11			0.08		c0.07	0.20			c0.41	
v/s Ratio Perm	0.03			c0.09			0.38			0.09		0.10
v/c Ratio	0.13	0.36		0.40	0.37		0.76	0.34		0.19	0.88	0.10
Uniform Delay, d1	32.3	35.2		43.0	42.8		34.4	13.9		20.0	31.0	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.88	1.05		0.92	0.69	1.00
Incremental Delay, d2	0.2	0.4		1.0	0.6		12.0	0.4		0.8	4.5	0.1
Delay (s)	32.5	35.6		44.0	43.3		76.7	15.0		19.2	26.0	0.1
Level of Service	C	D		D	D		E	B		B	C	A
Approach Delay (s)		35.1			43.6			26.3			23.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

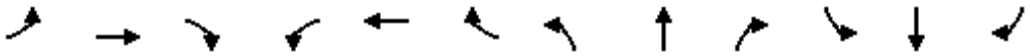
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	78	0	585	23	1109	
Lane Group Flow (vph)	78	68	611	23	1113	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.52	0.14	0.21	0.04	0.39	
Control Delay	62.5	0.6	3.6	2.7	4.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.5	0.6	3.6	2.7	4.1	
Queue Length 50th (m)	17.8	0.0	15.1	0.9	33.2	
Queue Length 95th (m)	32.3	0.0	24.7	m1.8	37.5	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	303	625	2859	637	2872	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.11	0.21	0.04	0.39	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

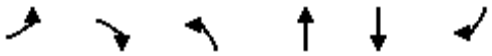
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	78	0	68	0	585	26	23	1109	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3627		1825	3648	
Flt Permitted				0.76	1.00			1.00		0.42	1.00	
Satd. Flow (perm)				1455	1633			3627		808	3648	
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)	0	0	0	78	0	68	0	585	26	23	1109	4
RTOR Reduction (vph)	0	0	0	0	61	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	78	7	0	0	609	0	23	1113	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				12.5	12.5			94.5		94.5	94.5	
Effective Green, g (s)				12.5	12.5			94.5		94.5	94.5	
Actuated g/C Ratio				0.10	0.10			0.79		0.79	0.79	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				152	170			2856		636	2873	
v/s Ratio Prot					0.00			0.17			c0.31	
v/s Ratio Perm				c0.05						0.03		
v/c Ratio				0.51	0.04			0.21		0.04	0.39	
Uniform Delay, d1				50.9	48.4			3.3		2.8	3.9	
Progression Factor				1.00	1.00			1.00		0.79	0.92	
Incremental Delay, d2				2.9	0.1			0.2		0.1	0.3	
Delay (s)				53.8	48.5			3.4		2.3	3.9	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.3			3.4			3.9	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

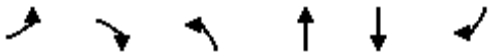
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	17	18	48	0	0	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	18	48	0	0	48

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	35	48	48
Volume Left (vph)	17	48	0
Volume Right (vph)	18	0	48
Hadj (s)	-0.21	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.04	0.06	0.05
Capacity (veh/h)	900	835	1034
Control Delay (s)	7.0	7.5	6.6
Approach Delay (s)	7.0	7.5	6.6
Approach LOS	A	A	A

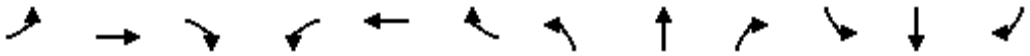
Intersection Summary			
Delay	7.0		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	89	59	21	51	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	89	59	21	51	20

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	109	80	71
Volume Left (vph)	20	59	0
Volume Right (vph)	89	0	20
Hadj (s)	-0.45	0.15	-0.17
Departure Headway (s)	3.8	4.3	4.0
Degree Utilization, x	0.11	0.10	0.08
Capacity (veh/h)	915	799	863
Control Delay (s)	7.3	7.8	7.4
Approach Delay (s)	7.3	7.8	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

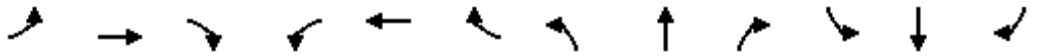


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	79	13	5	1	34	198	5	0	262	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	6	79	13	5	1	34	198	5	0	262	46

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	19	237	308
Volume Left (vph)	64	13	34	0
Volume Right (vph)	79	1	5	46
Hadj (s)	-0.23	0.11	0.02	-0.09
Departure Headway (s)	5.0	5.5	4.7	4.5
Degree Utilization, x	0.21	0.03	0.31	0.39
Capacity (veh/h)	656	565	728	758
Control Delay (s)	9.2	8.7	9.8	10.4
Approach Delay (s)	9.2	8.7	9.8	10.4
Approach LOS	A	A	A	B

Intersection Summary				
Delay	9.9			
HCM Level of Service	A			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A	
Analysis Period (min)	15			

707: Eagle St W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	1013	232	77	1464	116
Lane Group Flow (vph)	40	189	187	196	186	113	227	1013	232	77	1464	116
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	14.0	56.0	56.0	20.0	60.0	54.0	14.0	54.0	60.0
Total Split (%)	32.3%	32.3%	32.3%	10.8%	43.1%	43.1%	15.4%	46.2%	41.5%	10.8%	41.5%	46.2%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.23	0.69	0.48	0.72	0.39	0.23	0.44	0.68	0.32	0.16	1.11	0.16
Control Delay	50.4	65.5	10.4	53.7	42.0	7.1	24.6	34.4	7.7	17.8	108.0	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	65.5	10.4	53.7	42.0	7.1	24.6	34.4	7.7	17.8	108.0	18.7
Queue Length 50th (m)	9.2	46.8	0.0	41.2	39.9	0.0	30.4	110.5	6.5	12.3	~218.7	9.4
Queue Length 95th (m)	19.3	67.5	19.4	58.3	57.1	13.5	60.1	134.2	24.4	m17.8	#262.0	m16.1
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	331	517	576	273	724	686	518	1488	714	494	1320	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.32	0.72	0.26	0.16	0.44	0.68	0.32	0.16	1.11	0.16

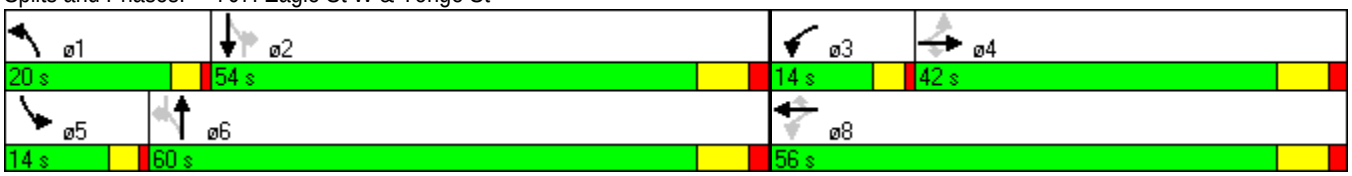
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

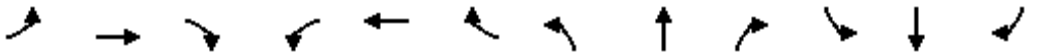
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	187	196	186	113	227	1013	232	77	1464	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.35	1.00	1.00	0.08	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1230	1921	1633	677	1921	1633	151	3650	1633	319	3650	1633
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)	40	189	187	196	186	113	227	1013	232	77	1464	116
RTOR Reduction (vph)	0	0	160	0	0	85	0	0	123	0	0	69
Lane Group Flow (vph)	40	189	27	196	186	28	227	1013	109	77	1464	47
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	18.5	18.5	18.5	32.5	32.5	32.5	83.5	53.0	47.0	73.5	47.0	53.0
Effective Green, g (s)	18.5	18.5	18.5	32.5	32.5	32.5	83.5	53.0	47.0	73.5	47.0	53.0
Actuated g/C Ratio	0.14	0.14	0.14	0.25	0.25	0.25	0.64	0.41	0.36	0.57	0.36	0.41
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	175	273	232	258	480	408	515	1488	590	487	1320	666
v/s Ratio Prot		0.10		c0.06	0.10		c0.11	c0.28		0.03	c0.40	
v/s Ratio Perm	0.03		0.02	c0.13		0.02	0.17		0.07	0.06		0.03
v/c Ratio	0.23	0.69	0.11	0.76	0.39	0.07	0.44	0.68	0.18	0.16	1.11	0.07
Uniform Delay, d1	49.4	53.0	48.6	42.8	40.5	37.2	26.1	31.6	28.4	14.5	41.5	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.88	1.39	4.36
Incremental Delay, d2	0.7	7.4	0.2	12.1	0.5	0.1	2.7	2.5	0.7	0.4	56.1	0.1
Delay (s)	50.1	60.4	48.8	54.9	41.0	37.3	28.9	34.1	29.1	27.7	113.9	102.6
Level of Service	D	E	D	D	D	D	C	C	C	C	F	F
Approach Delay (s)		54.2			45.7			32.5			109.1	
Approach LOS		D			D			C			F	

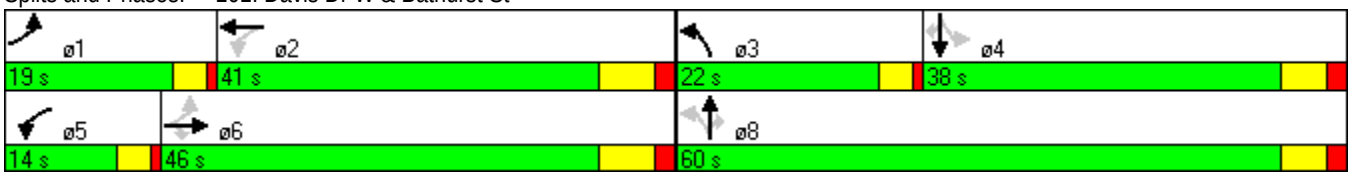
Intersection Summary			
HCM Average Control Delay	67.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

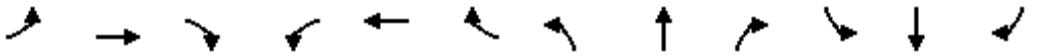
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1116	218	176	1021	700	1020	301	40	307	255
Lane Group Flow (vph)	373	1116	218	176	1065	700	1020	301	40	307	255
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	19.0	46.0	46.0	14.0	41.0	22.0	60.0	60.0	38.0	38.0	38.0
Total Split (%)	15.8%	38.3%	38.3%	11.7%	34.2%	18.3%	50.0%	50.0%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.84	0.78	0.28	0.68	1.03	1.54	0.76	0.40	0.49	0.45	0.54
Control Delay	48.4	38.0	4.8	41.5	92.5	276.8	31.0	5.0	61.9	44.5	13.7
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	48.4	38.0	4.8	41.5	92.5	276.8	31.0	5.0	61.9	44.5	13.7
Queue Length 50th (m)	67.0	122.9	0.0	32.4	~145.7	~232.7	109.4	15.7	8.5	34.0	9.7
Queue Length 95th (m)	#150.1	#175.8	16.5	#62.6	#188.1	#290.4	118.1	21.8	18.9	43.4	30.9
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	446	1438	775	265	1031	454	1643	872	117	973	587
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	0.84	0.78	0.28	0.66	1.03	1.54	0.62	0.35	0.34	0.32	0.43

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1116	218	176	1021	44	700	1020	301	40	307	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3627		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.14	1.00		0.40	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	202	3650	1633	275	3627		769	3650	1633	437	3650	1633
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)	373	1116	218	176	1021	44	700	1020	301	40	307	255
RTOR Reduction (vph)	0	0	132	0	3	0	0	0	158	0	0	168
Lane Group Flow (vph)	373	1116	86	176	1062	0	700	1020	143	40	307	87
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	62.8	47.3	47.3	45.5	34.0		44.2	44.2	44.2	22.2	22.2	22.2
Effective Green, g (s)	62.8	47.3	47.3	45.5	34.0		44.2	44.2	44.2	22.2	22.2	22.2
Actuated g/C Ratio	0.52	0.39	0.39	0.38	0.28		0.37	0.37	0.37	0.18	0.18	0.18
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	441	1439	644	253	1028		442	1344	601	81	675	302
v/s Ratio Prot	c0.17	0.31		0.07	c0.29		c0.24	0.28			0.08	
v/s Ratio Perm	0.27		0.05	0.20			c0.35		0.09	0.09		0.05
v/c Ratio	0.85	0.78	0.13	0.70	1.03		1.58	0.76	0.24	0.49	0.45	0.29
Uniform Delay, d1	33.6	31.7	23.2	27.0	43.0		34.7	33.2	26.2	43.9	43.5	42.1
Progression Factor	1.00	1.00	1.00	1.54	1.40		0.86	0.86	0.81	1.00	1.00	1.00
Incremental Delay, d2	13.9	4.2	0.4	7.2	35.4		270.4	1.8	0.1	4.7	0.5	0.5
Delay (s)	47.4	35.9	23.7	48.8	95.7		300.2	30.4	21.3	48.5	44.0	42.6
Level of Service	D	D	C	D	F		F	C	C	D	D	D
Approach Delay (s)		36.8			89.0			122.5			43.7	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM Average Control Delay	80.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	115.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

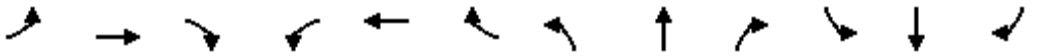
102: Davis Dr W & Ford Wilson Blvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1255	27	74	1179	141	42	85	61	20
Lane Group Flow (vph)	174	1255	27	74	1179	141	42	85	61	20
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	84.0	84.0	84.0	84.0	84.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	0.74	0.54	0.03	0.35	0.50	0.13	0.09	0.18	0.13	0.05
Control Delay	34.2	6.1	1.4	15.8	12.3	1.6	35.4	9.4	36.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	6.1	1.4	15.8	12.3	1.6	35.4	9.4	36.0	13.8
Queue Length 50th (m)	9.8	27.6	0.0	7.5	71.7	0.0	7.6	0.7	11.2	0.0
Queue Length 95th (m)	m31.4	41.1	m0.2	18.4	86.9	6.8	16.8	13.0	22.4	6.2
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	235	2342	1058	210	2342	1098	456	469	456	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.54	0.03	0.35	0.50	0.13	0.09	0.18	0.13	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1255	27	74	1179	141	42	0	85	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.19	1.00	1.00	0.17	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	367	3650	1633	327	3650	1633	1825		1633	1825		1633
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)	174	1255	27	74	1179	141	42	0	85	61	0	20
RTOR Reduction (vph)	0	0	10	0	0	51	0	0	61	0	0	15
Lane Group Flow (vph)	174	1255	17	74	1179	90	42	0	24	61	0	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	235	2342	1048	210	2342	1048	456		408	456		408
v/s Ratio Prot		0.34			0.32							
v/s Ratio Perm	c0.47		0.01	0.23		0.06	0.02		0.01	c0.03		0.00
v/c Ratio	0.74	0.54	0.02	0.35	0.50	0.09	0.09		0.06	0.13		0.01
Uniform Delay, d1	14.7	11.7	7.8	10.0	11.4	8.2	34.5		34.3	34.9		33.9
Progression Factor	1.11	0.46	0.48	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	14.2	0.6	0.0	4.6	0.8	0.2	0.4		0.3	0.1		0.0
Delay (s)	30.5	6.0	3.8	14.5	12.2	8.3	34.9		34.5	35.1		33.9
Level of Service	C	A	A	B	B	A	C		C	D		C
Approach Delay (s)		8.9			11.9			34.7			34.8	
Approach LOS		A			B			C			C	

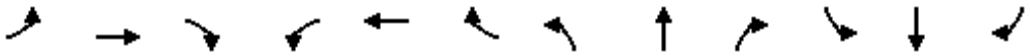
Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBT	ø2
Lane Configurations							
Volume (vph)	20	1362	1352	177	90	0	
Lane Group Flow (vph)	20	1362	1352	177	90	10	
Turn Type	Perm			Perm	Perm		
Protected Phases		4	8			6	2
Permitted Phases	4			8	6		
Detector Phase	4	4	8	8	6	6	
Switch Phase							
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	65.0	65.0	62.0	62.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	68.9%	68.9%	27.8%	27.8%	28%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Max	Max	C-Max
v/c Ratio	0.16	0.69	0.69	0.18	0.20	0.02	
Control Delay	11.5	16.9	16.7	1.6	27.2	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.5	16.9	16.7	1.6	27.2	0.1	
Queue Length 50th (m)	1.6	84.5	83.6	0.0	11.3	0.0	
Queue Length 95th (m)	4.5	79.6	79.0	6.3	26.4	0.0	
Internal Link Dist (m)		427.9	290.8			107.7	
Turn Bay Length (m)							
Base Capacity (vph)	146	2352	2352	1115	461	563	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.58	0.57	0.16	0.20	0.02	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

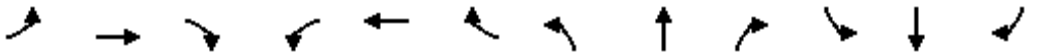
Splits and Phases: 103: Davis Dr W & Street 'B'



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	1362	0	0	1352	177	0	0	0	90	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0	7.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1825	3650			3650	1633				1825	1633	
Flt Permitted	0.12	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	226	3650			3650	1633				1455	1633	
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)	20	1362	0	0	1352	177	0	0	0	90	0	10
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	0	0	7	0
Lane Group Flow (vph)	20	1362	0	0	1352	95	0	0	0	90	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	48.5	48.5			48.5	48.5				28.5	28.5	
Effective Green, g (s)	48.5	48.5			48.5	48.5				28.5	28.5	
Actuated g/C Ratio	0.54	0.54			0.54	0.54				0.32	0.32	
Clearance Time (s)	7.0	7.0			7.0	7.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	122	1967			1967	880				461	517	
v/s Ratio Prot		c0.37			0.37						0.00	
v/s Ratio Perm	0.09					0.06				c0.06		
v/c Ratio	0.16	0.69			0.69	0.11				0.20	0.01	
Uniform Delay, d1	10.5	15.3			15.2	10.2				22.4	21.1	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.6	1.1			1.0	0.1				0.9	0.0	
Delay (s)	11.1	16.3			16.2	10.2				23.3	21.1	
Level of Service	B	B			B	B				C	C	
Approach Delay (s)		16.3			15.5			0.0			23.1	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1217	6	7	1345	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	1217	6	7	1345	6	5	0	9	0	0	179
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		315			205							
pX, platoon unblocked	0.80			0.75			0.84	0.84	0.75	0.84	0.84	0.80
vC, conflicting volume	1351			1223			2364	3043	612	2434	3040	672
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	950			620			1205	2008	0	1288	2005	106
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	61			99			92	100	99	100	100	76
cM capacity (veh/h)	588			725			63	31	814	71	31	751

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	229	811	412	7	672	672	6	5	9	179
Volume Left	229	0	0	7	0	0	0	5	0	0
Volume Right	0	0	6	0	0	0	6	0	9	179
cSH	588	1700	1700	725	1700	1700	1700	63	814	751
Volume to Capacity	0.39	0.48	0.24	0.01	0.40	0.40	0.00	0.08	0.01	0.24
Queue Length 95th (m)	14.0	0.0	0.0	0.2	0.0	0.0	0.0	1.9	0.3	7.0
Control Delay (s)	15.0	0.0	0.0	10.0	0.0	0.0	0.0	66.8	9.5	11.3
Lane LOS	B			B				F	A	B
Approach Delay (s)	2.4			0.1				30.0		11.3
Approach LOS								D		B

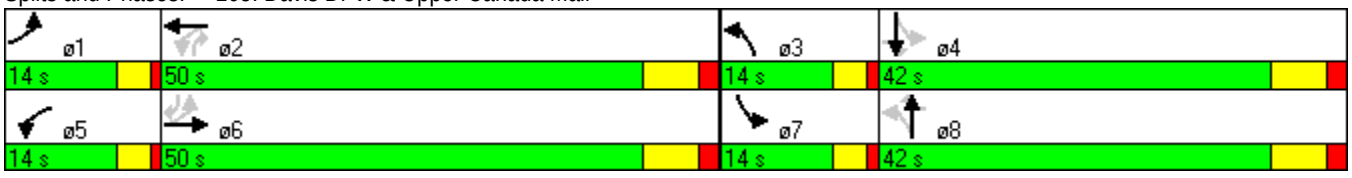
Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			

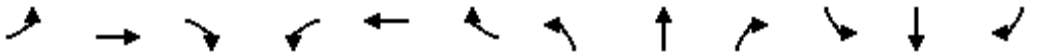
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	979	184	143	1071	84	260	178	106	138	148	27
Lane Group Flow (vph)	63	979	184	143	1071	84	260	178	106	138	148	27
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.19	0.52	0.51	0.39	0.53	0.28	0.79	0.66	0.11	0.46	0.56	0.03
Control Delay	10.0	21.2	14.1	11.8	19.6	11.3	55.7	60.7	3.4	38.2	56.0	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	21.2	14.1	11.8	19.6	11.3	55.7	60.7	3.4	38.2	56.0	6.4
Queue Length 50th (m)	4.9	76.5	4.2	11.6	83.3	0.0	51.6	40.4	0.0	25.4	33.0	0.0
Queue Length 95th (m)	11.4	110.9	23.3	22.6	117.7	13.3	71.9	60.2	9.2	39.4	51.1	5.3
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	365	1897	592	382	2018	536	329	560	950	303	560	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.52	0.31	0.37	0.53	0.16	0.79	0.32	0.11	0.46	0.26	0.03

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 105: Davis Dr W & Upper Canada Mall



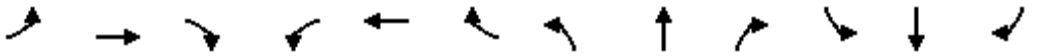


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	979	184	143	1071	84	260	178	106	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.20	1.00	1.00	0.21	1.00	1.00	0.56	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	392	3650	1633	396	3650	1633	1077	1921	1633	934	1921	1633
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)	63	979	184	143	1071	84	260	178	106	138	148	27
RTOR Reduction (vph)	0	0	142	0	0	72	0	0	48	0	0	13
Lane Group Flow (vph)	63	979	42	143	1071	12	260	178	58	138	148	14
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	68.4	62.3	16.4	74.8	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.3
Effective Green, g (s)	68.4	62.3	16.4	74.8	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.3
Actuated g/C Ratio	0.57	0.52	0.14	0.62	0.55	0.14	0.22	0.14	0.55	0.22	0.14	0.52
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	296	1895	223	358	1992	227	302	267	891	275	263	848
v/s Ratio Prot	0.01	0.27		c0.03	c0.29		c0.07	0.09		0.04	0.08	
v/s Ratio Perm	0.11		0.03	0.22		0.01	c0.12		0.04	0.07		0.01
v/c Ratio	0.21	0.52	0.19	0.40	0.54	0.05	0.86	0.67	0.06	0.50	0.56	0.02
Uniform Delay, d1	12.5	19.0	45.9	11.3	17.5	44.8	43.6	49.0	12.8	39.8	48.4	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.0	0.4	0.7	1.0	0.1	21.3	6.2	0.1	1.4	2.7	0.0
Delay (s)	12.9	20.0	46.3	12.1	18.6	44.9	65.0	55.2	13.0	41.3	51.2	14.0
Level of Service	B	B	D	B	B	D	E	E	B	D	D	B
Approach Delay (s)		23.6			19.5			51.6			43.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

107: Davis Dr W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	308	721	194	323	810	255	270	1227	254	293	833	211
Lane Group Flow (vph)	308	721	194	323	810	255	270	1227	254	293	833	211
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	28.0	42.0	42.0	28.0	42.0	42.0	20.0	47.0	50.0	23.0	50.0	47.0
Total Split (%)	20.0%	30.0%	30.0%	20.0%	30.0%	30.0%	14.3%	33.6%	35.7%	16.4%	35.7%	33.6%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.98	0.81	0.35	1.03	0.91	0.47	0.89	1.15	0.40	0.96	0.73	0.34
Control Delay	104.3	57.6	7.3	115.1	65.7	16.3	59.3	133.0	32.5	80.8	47.4	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.3	57.6	7.3	115.1	65.7	16.3	59.3	133.0	32.5	80.8	47.4	6.2
Queue Length 50th (m)	86.1	98.8	0.0	~95.7	114.5	15.7	70.0	~210.1	34.7	64.5	109.1	0.0
Queue Length 95th (m)	#145.1	122.1	18.8	#154.9	#146.8	41.2	m80.6	m#255.3	m47.2	#121.3	133.0	18.5
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	313	913	554	313	913	546	308	1063	635	306	1146	625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.79	0.35	1.03	0.89	0.47	0.88	1.15	0.40	0.96	0.73	0.34

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

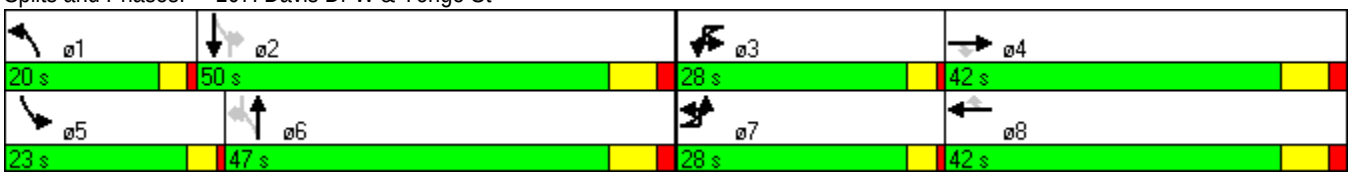
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

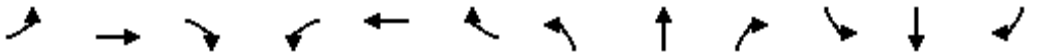
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

107: Davis Dr W & Yonge St

Splits and Phases: 107: Davis Dr W & Yonge St

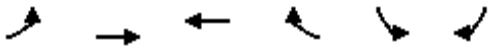




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	308	721	194	323	810	255	270	1227	254	293	833	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.17	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	318	3650	1633	175	3650	1633
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)	308	721	194	323	810	255	270	1227	254	293	833	211
RTOR Reduction (vph)	0	0	146	0	0	138	0	0	122	0	0	150
Lane Group Flow (vph)	308	721	48	323	810	117	270	1227	132	293	833	61
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	24.0	34.3	34.3	24.0	34.3	34.3	56.6	40.8	43.9	62.8	43.9	40.8
Effective Green, g (s)	24.0	34.3	34.3	24.0	34.3	34.3	56.6	40.8	43.9	62.8	43.9	40.8
Actuated g/C Ratio	0.17	0.24	0.24	0.17	0.24	0.24	0.40	0.29	0.31	0.45	0.31	0.29
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	313	894	400	313	894	400	299	1064	512	301	1145	476
v/s Ratio Prot	0.17	0.20		c0.18	c0.22		0.10	c0.34		c0.13	0.23	
v/s Ratio Perm			0.03			0.07	0.26		0.08	0.30		0.04
v/c Ratio	0.98	0.81	0.12	1.03	0.91	0.29	0.90	1.15	0.26	0.97	0.73	0.13
Uniform Delay, d1	57.8	49.7	41.1	58.0	51.3	43.0	31.8	49.6	35.9	43.7	42.7	36.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.65	1.40	2.67	1.00	1.00	1.00
Incremental Delay, d2	46.2	5.4	0.1	59.4	12.6	0.4	15.6	74.2	0.5	44.3	4.1	0.6
Delay (s)	104.0	55.1	41.2	117.4	63.9	43.4	68.0	143.8	96.3	88.0	46.8	37.1
Level of Service	F	E	D	F	E	D	E	F	F	F	D	D
Approach Delay (s)		65.2			72.5			125.2			54.3	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	82.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		

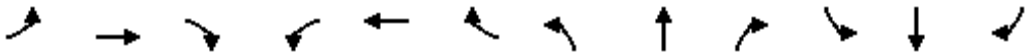
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	7	10	43	44	30
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	7	10	43	44	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	136	88	118	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136	88	118	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	95	99	99	96	97	
cM capacity (veh/h)	782	784	755	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	48	53	44	30
Volume Left	41	0	44	0
Volume Right	0	43	0	30
cSH	782	1006	1636	1700
Volume to Capacity	0.06	0.05	0.03	0.02
Queue Length 95th (m)	1.5	1.3	0.6	0.0
Control Delay (s)	9.9	8.8	7.3	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.9	8.8	4.3	
Approach LOS	A	A		

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	92	0	170	0	340	70	98	302	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	92	0	170	0	340	70	98	302	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	92	170	410	400
Volume Left (vph)	0	92	0	0	98
Volume Right (vph)	0	0	170	70	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.05
Departure Headway (s)	6.7	7.1	5.8	5.2	5.3
Degree Utilization, x	0.00	0.18	0.28	0.59	0.59
Capacity (veh/h)	436	469	564	666	654
Control Delay (s)	9.7	10.4	9.8	15.3	15.7
Approach Delay (s)	0.0	10.0		15.3	15.7
Approach LOS	A	B		C	C

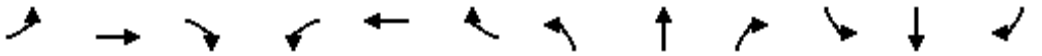
Intersection Summary				
Delay	14.2			
HCM Level of Service	B			
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	133	138	75	146	108	1788	120	1077	75
Lane Group Flow (vph)	133	266	75	223	108	1888	120	1077	75
Turn Type	pm+pt		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	1	6	5	2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	5	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	7.0	30.0	
Minimum Split (s)	11.0	36.0	36.0	36.0	11.0	37.0	11.0	37.0	
Total Split (s)	11.0	47.0	36.0	36.0	12.0	82.0	11.0	81.0	0.0
Total Split (%)	7.9%	33.6%	25.7%	25.7%	8.6%	58.6%	7.9%	57.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	4.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
v/c Ratio	0.64	0.60	0.43	0.76	0.32	0.91	0.68	0.51	0.05
Control Delay	56.6	46.9	60.1	68.9	2.7	12.7	61.8	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	46.9	60.1	68.9	2.7	12.7	61.8	8.7	0.0
Queue Length 50th (m)	29.9	58.4	19.1	55.7	2.0	43.4	20.8	25.1	0.0
Queue Length 95th (m)	44.7	81.4	33.1	79.0	m2.6	m36.6	m#35.1	m33.4	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	207	533	236	391	339	2073	176	2118	1633
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	0.64	0.50	0.32	0.57	0.32	0.91	0.68	0.51	0.05

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	138	128	75	146	77	108	1788	100	120	1077	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1782		1825	1822		1825	3621		1825	3650	1633
Flt Permitted	0.28	1.00		0.59	1.00		0.20	1.00		0.05	1.00	1.00
Satd. Flow (perm)	541	1782		1139	1822		391	3621		95	3650	1633
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)	133	138	128	75	146	77	108	1788	100	120	1077	75
RTOR Reduction (vph)	0	25	0	0	14	0	0	3	0	0	0	0
Lane Group Flow (vph)	133	241	0	75	209	0	108	1885	0	120	1077	75
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	32.8	32.8		21.3	21.3		87.9	80.0		90.5	81.3	140.0
Effective Green, g (s)	32.8	32.8		21.3	21.3		87.9	80.0		90.5	81.3	140.0
Actuated g/C Ratio	0.23	0.23		0.15	0.15		0.63	0.57		0.65	0.58	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	196	417		173	277		326	2069		175	2120	1633
v/s Ratio Prot	c0.04	0.14			0.11		0.02	c0.52		c0.05	0.30	
v/s Ratio Perm	c0.12			0.07			0.19			0.40		c0.05
v/c Ratio	0.68	0.58		0.43	0.75		0.33	0.91		0.69	0.51	0.05
Uniform Delay, d1	46.4	47.5		53.9	56.8		11.9	26.8		36.6	17.5	0.0
Progression Factor	1.00	1.00		1.00	1.00		0.23	0.32		2.13	0.44	1.00
Incremental Delay, d2	9.0	1.9		1.7	11.0		0.2	2.7		7.0	0.6	0.0
Delay (s)	55.3	49.4		55.6	67.8		3.0	11.2		85.1	8.3	0.0
Level of Service	E	D		E	E		A	B		F	A	A
Approach Delay (s)		51.4			64.8			10.7			15.1	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		

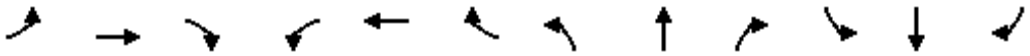
c Critical Lane Group

Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	26	0	1	1970	56	645	
Lane Group Flow (vph)	26	51	0	2046	56	645	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.21	0.32		0.70	0.47	0.21	
Control Delay	55.3	39.8		6.4	32.0	6.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	55.3	39.8		6.4	32.0	6.5	
Queue Length 50th (m)	5.8	6.7		94.0	11.1	42.8	
Queue Length 95th (m)	14.8	19.0		123.6	m25.9	48.0	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	315	370		2930	120	3082	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.08	0.14		0.70	0.47	0.21	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

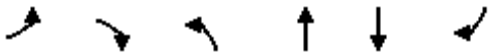
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	26	0	51	1	1970	75	56	645	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3630		1825	3650	
Flt Permitted				0.76	1.00			0.95		0.07	1.00	
Satd. Flow (perm)				1455	1633			3466		143	3650	
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)	0	0	0	26	0	51	1	1970	75	56	645	0
RTOR Reduction (vph)	0	0	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	26	31	0	0	2045	0	56	645	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				8.3	8.3			98.7		98.7	98.7	
Effective Green, g (s)				8.3	8.3			98.7		98.7	98.7	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				101	113			2851		118	3002	
v/s Ratio Prot					c0.02						0.18	
v/s Ratio Perm				0.02				c0.59		0.39		
v/c Ratio				0.26	0.28			0.72		0.47	0.21	
Uniform Delay, d1				52.9	53.0			4.6		3.1	2.3	
Progression Factor				1.00	1.00			1.00		3.10	2.61	
Incremental Delay, d2				1.4	1.3			1.6		12.3	0.2	
Delay (s)				54.3	54.4			6.2		21.9	6.2	
Level of Service				D	D			A		C	A	
Approach Delay (s)		0.0			54.3			6.2			7.4	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

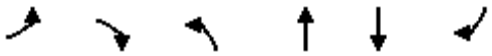
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	43	44	22	0	0	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	43	44	22	0	0	21

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	87	22	21
Volume Left (vph)	43	22	0
Volume Right (vph)	44	0	21
Hadj (s)	-0.20	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.09	0.03	0.02
Capacity (veh/h)	935	810	998
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

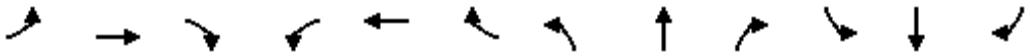
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	54	86	46	32	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	54	86	46	32	11

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	64	132	43
Volume Left (vph)	10	86	0
Volume Right (vph)	54	0	11
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.15	0.05
Capacity (veh/h)	901	834	874
Control Delay (s)	7.1	8.0	7.2
Approach Delay (s)	7.1	8.0	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

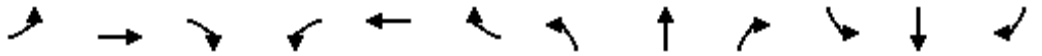


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	62	10	1	0	106	416	13	3	358	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	7	62	10	1	0	106	416	13	3	358	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	102	11	535	423
Volume Left (vph)	33	10	106	3
Volume Right (vph)	62	0	13	62
Hadj (s)	-0.30	0.18	0.03	-0.09
Departure Headway (s)	5.8	6.6	4.8	4.8
Degree Utilization, x	0.17	0.02	0.71	0.57
Capacity (veh/h)	545	466	732	727
Control Delay (s)	10.0	9.7	18.7	13.9
Approach Delay (s)	10.0	9.7	18.7	13.9
Approach LOS	A	A	C	B

Intersection Summary				
Delay		15.9		
HCM Level of Service		C		
Intersection Capacity Utilization		66.9%	ICU Level of Service	C
Analysis Period (min)		15		

707: Eagle St W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1777	188	180	1293	43
Lane Group Flow (vph)	78	236	249	184	178	105	268	1777	188	180	1293	43
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	12.0	54.0	54.0	25.0	72.0	61.0	14.0	61.0	72.0
Total Split (%)	30.0%	30.0%	30.0%	8.6%	38.6%	38.6%	17.9%	51.4%	43.6%	10.0%	43.6%	51.4%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.38	0.73	0.52	0.82	0.37	0.21	0.56	1.05	0.28	0.53	0.92	0.06
Control Delay	55.2	68.1	9.2	70.0	44.0	7.3	35.2	72.4	16.7	30.5	67.6	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	68.1	9.2	70.0	44.0	7.3	35.2	72.4	16.7	30.5	67.6	17.3
Queue Length 50th (m)	19.4	62.9	0.0	41.3	40.8	0.0	47.2	~281.0	18.4	31.3	174.4	2.5
Queue Length 95th (m)	33.2	85.2	21.6	#60.4	57.2	13.1	84.6	#323.1	36.4	#68.5	#216.9	m10.8
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	310	480	595	224	645	618	482	1695	683	338	1408	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.49	0.42	0.82	0.28	0.17	0.56	1.05	0.28	0.53	0.92	0.06

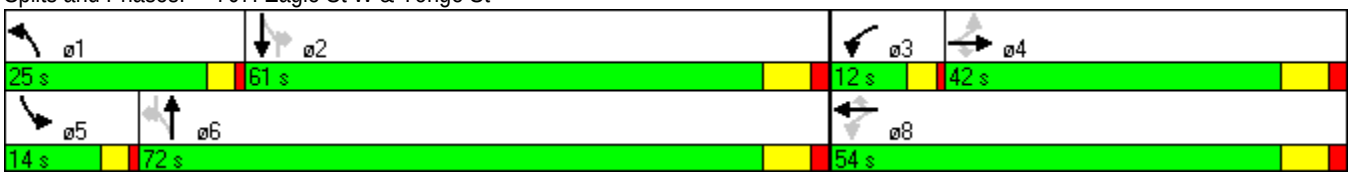
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

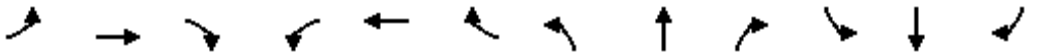
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	249	184	178	105	268	1777	188	180	1293	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.29	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1239	1921	1633	552	1921	1633	132	3650	1633	142	3650	1633
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)	78	236	249	184	178	105	268	1777	188	180	1293	43
RTOR Reduction (vph)	0	0	207	0	0	78	0	0	53	0	0	23
Lane Group Flow (vph)	78	236	42	184	178	27	268	1777	135	180	1293	20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Effective Green, g (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Actuated g/C Ratio	0.17	0.17	0.17	0.25	0.25	0.25	0.65	0.46	0.39	0.54	0.39	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	208	322	274	213	487	414	478	1695	630	335	1408	758
v/s Ratio Prot		0.12		c0.05	0.09		c0.13	c0.49		0.08	0.35	
v/s Ratio Perm	0.06		0.03	c0.17		0.02	0.23		0.08	0.21		0.01
v/c Ratio	0.38	0.73	0.15	0.86	0.37	0.06	0.56	1.05	0.21	0.54	0.92	0.03
Uniform Delay, d1	51.7	55.3	49.7	48.7	43.0	39.6	34.1	37.5	28.8	32.1	40.9	20.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	1.40	2.99
Incremental Delay, d2	1.1	8.3	0.3	28.4	0.5	0.1	4.7	35.8	0.8	5.6	10.4	0.1
Delay (s)	52.9	63.6	50.0	77.1	43.5	39.7	38.8	73.3	29.6	31.0	67.6	60.9
Level of Service	D	E	D	E	D	D	D	E	C	C	E	E
Approach Delay (s)		56.1			55.9			65.5			63.1	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM Average Control Delay	62.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX H
Trip Generation Calculations

ST1

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 9 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL
Gross	4	12	16
Gross Rate	0.00	0.00	0.00
Modal Split	0	0	0
Passby	0	0	0
	4	12	16
New Rate	0.44	1.33	1.78

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	0	3	3
South		40%	40%	2	5	7
East		20%	20%	1	2	3
West		20%	20%	1	2	3
Total		100%	100%	4	12	16

Check	ok	ok
Difference	-1	1
	0	0
	0	0
	0	0
	0	0

ST2

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 62 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL
Gross	13	40	53
Gross Rate	0.00	0.00	0.00
Modal Split	0	0	0
Passby	0	0	0
	13	40	53
0	1.44	4.44	5.89

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	8	10
South		40%	40%	5	16	21
East		20%	20%	3	8	11
West		20%	20%	3	8	11
Total		0%	0%	13	40	53

Check	ok	ok
Difference	-1	0
	0	0
	0	0
	0	0
	0	0

ST3

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 44 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL
Gross	10	31	41
Gross Rate	0.00	0.00	0.00
Modal Split	0	0	0
Passby	0	0	0
	10	31	41
0	1.11	3.44	4.56

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	7	9
South		40%	40%	4	12	16
East		20%	20%	2	6	8
West		20%	20%	2	6	8
Total		200%	700%	10	31	41

Check	ok	ok
Difference	0	1
	0	0
	0	0
	0	0
	0	0

ST4

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 39 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL
Gross	9	28	37
Gross Rate	0.00	0.00	0.00
Modal Split	0	0	0
Passby	0	0	0
	9	28	37
0	1.00	3.11	4.11

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	5	6
South		40%	40%	4	11	15
East		20%	20%	2	6	8
West		20%	20%	2	6	8
Total		0%	100%	9	28	37

Check	ok	ok
Difference	-1	-1
	0	0
	0	0
	0	0
	0	0

TOTAL 154
This is Block 161 - 12 Live work units assumed as condo units for traffic analysis

Average Trip Rate Estimation
Land Use Residential Condo/ townhouse
Total 12 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation Ln(T)=0.8Ln(X)+.26 Avg. Rate 0.44
In 17%
Out 83%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	2	7	9	5	9
Gross Rate	0.00	0.00	0.00		
Modal Split	0	0	0		
Passby	0	0	0		
	2	7	9		
0	0.22	0.78	1.00		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	2	3
South		40%	40%	1	3	4
East		20%	20%	0	1	1
West		20%	20%	0	1	1
Total		100%	100%	2	7	9

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0
	0	0

ST1

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 9 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg292
In 63% Avg. Rate 1
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	8	4	12	9	12
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	8	4	12		
New Rate	0.89	0.44	1.33		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	0	1
South		40%	40%	3	2	5
East		20%	20%	2	1	3
West		20%	20%	2	1	3
Total		100%	100%	8	4	12

Check	ok	ok
Difference	-1	-1
	0	0
	0	0
	0	0

ST2

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 62 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg292
In 63% Avg. Rate 1
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	43	25	68	62	68
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	43	25	68		
0	4.78	2.78	7.56		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	8	5	13
South		40%	40%	17	10	27
East		20%	20%	9	5	14
West		20%	20%	9	5	14
Total		0%	0%	43	25	68

Check	ok	ok
Difference	-1	0
	0	0
	0	0
	0	0

ST3

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 44 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg292
In 63% Avg. Rate 1
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	32	18	50	44	50
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	32	18	50		
0	3.56	2.00	5.56		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	7	3	10
South		40%	40%	13	7	20
East		20%	20%	6	4	10
West		20%	20%	6	4	10
Total		200%	700%	32	18	50

Check	ok	ok
Difference	1	-1
	0	0
	0	0
	0	0

TOTAL 154

ST4

Average Trip Rate Estimation
Land Use Single-Family Detached housing
Total 39 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg292
In 63% Avg. Rate 1.01
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	28	17	45	39	45
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	28	17	45		
0	3.11	1.89	5.00		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	5	4	9
South		40%	40%	11	7	18
East		20%	20%	6	3	9
West		20%	20%	6	3	9
Total		0%	100%	28	17	45

Check	ok	ok
Difference	-1	1
	0	0
	0	0
	0	0

This is Block 161 - 12 Live work units assumed as condo units for traffic analysis

Average Trip Rate Estimation
Land Use Residential Condo/ townhouse
Total 12 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation Ln(T)=0.82Ln(X)+.32 Avg. Rate 0.52
In 67%
Out 33%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	11	5	16	6	16
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	2	7	9		
0	0.33	1.17	1.50		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	2	3
South		40%	40%	1	3	4
East		20%	20%	0	1	1
West		20%	20%	0	1	1
Total		100%	100%	2	7	9

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0

Average Trip Rate Estimation

Land Use Single-Family Detached housing
Total 28 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%

0

Source ITE	IN	OUT	TOTAL
Gross	7	22	29
Gross Rat	0.00	0.00	0.00
Modal Spli	0	0	0
Passby	0	0	0
	7	22	29
New Rate	**0.25**	**0.79**	**1.04**

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	5	7
South		40%	40%	3	9	12
East		20%	20%	1	4	5
West		20%	20%	1	4	5
Total		100%	100%	7	22	29

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0
	0	0

Average Trip Rate Estimation

Land Use Single-Family Detached housing
Total 27 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation T=0.70(x) +9.74
In 25%
Out 75%
Modal Split 0%
Pass-by 0%

0

Source ITE	IN	OUT	TOTAL
Gross	7	22	29
Gross Rat	0.00	0.00	0.00
Modal Spli	0	0	0
Passby	0	0	0
	7	22	29
0	**0.25**	**0.79**	**1.04**

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	5	7
South		40%	40%	3	9	12
East		20%	20%	1	4	5
West		20%	20%	1	4	5
Total		0%	0%	7	22	29

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0
	0	0

ST5

Average Trip Rate Estimation

Land Use Single-Family Detached housing
Total 28 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg298
In 63% Avg. Rate 1
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	21	12	33	28	33
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	21	12	33		
New Rate	0.75	0.43	1.18		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	5	3	8
South		40%	40%	8	5	13
East		20%	20%	4	2	6
West		20%	20%	4	2	6
Total		100%	100%	21	12	33

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0
	0	0

ST6

Average Trip Rate Estimation

Land Use Single-Family Detached housing
Total 27 Dwelling Units

Land Use Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=exp(0.9 Ln(X)+0.51) ITE8 pg298
In 63% Avg. Rate 1
Out 37%
Modal Split 0%
Pass-by 0%
0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	20	12	32	27	32
Gross Rat	0.00	0.00	0.00		
Modal Spli	0	0	0		
Passby	0	0	0		
	20	12	32		
0	0.71	0.43	1.14		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	4	3	7
South		40%	40%	8	5	13
East		20%	20%	4	2	6
West		20%	20%	4	2	6
Total		0%	0%	20	12	32

Check	ok	ok
Difference	0	1
	0	0
	0	0
	0	0
	0	0

Average Trip Rate Estimatior

Land Use Residential Condo/ townhouse
Total 109 Dwelling Units

Land Use 230 Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation Ln(T)=0.8Ln(X)+.26 ITE8 pg395
In 17% Avg. Rate 0.44
Out 83%
Modal Split 0%
Pass-by 0%

0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	9	46	55	48	55
Gross Rat	0.09	0.41	0.50		
Modal Spli	0	0	0		
Passby	0	0	0		
	9	46	55		
New Rate	0.08	0.42	0.50		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	10	11
South		40%	40%	4	18	22
East		20%	20%	2	9	11
West		20%	20%	2	9	11
	Total	100%	100%	9	46	55

Check	ok	ok
Difference	-1	1
	0 0	0
	0	0 0
	0	0

Average Trip Rate Estimatior

Land Use Residential Condo/ townhouse
Total 108 Dwelling Units

Land Use 230 Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation Ln(T)=0.8Ln(X)+.26 ITE8 pg395
In 17% Avg. Rate 0.44
Out 83%
Modal Split 0%
Pass-by 0%

0

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	9	46	55	48	55
Gross Rat	0.09	0.42	0.51		
Modal Spli	0	0	0		
Passby	0	0	0		
	9	46	55		
0	0.08	0.43	0.51		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	1	10	11
South		40%	40%	4	18	22
East		20%	20%	2	9	11
West		20%	20%	2	9	11
	Total	0%	0%	9	46	55

Check	ok	ok
Difference	-1	1
	0 0	0
	0	0 0
	0	0

ST7

Average Trip Rate Estimation

Land Use Residential Condo/ townhouse
Total 109 Dwelling Units

Land Use 230 Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=0.82Ln(X)+.32 ITE8 pg396
In 67% Avg. Rate 0.52
Out 33%
Modal Split 0%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	44	21	65	57	65
Gross Rat	0.40	0.20	0.60		
Modal Spli	0	0	0		
Passby	0	0	0		
	44	21	65		
New Rate	0.40	0.20	0.60		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	8	5	13
South		40%	40%	18	8	26
East		20%	20%	9	4	13
West		20%	20%	9	4	13
Total		100%	100%	44	21	65

Check	ok	ok
Difference	-1	1
	0	0
	0	0
	0	0

ST8

Average Trip Rate Estimation

Land Use Residential Condo/ townhouse
Total 108 Dwelling Units

Land Use 230 Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=0.82Ln(X)+.32 ITE8 pg396
In 67% Avg. Rate 0.52
Out 33%
Modal Split 0%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	43	21	64	56	64
Gross Rat	0.40	0.19	0.59		
Modal Spli	0	0	0		
Passby	0	0	0		
	43	21	64		
0	0.40	0.19	0.59		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	8	5	13
South		40%	40%	17	8	25
East		20%	20%	9	4	13
West		20%	20%	9	4	13
Total		0%	0%	43	21	64

Check	ok	ok
Difference	-1	1
	0	0
	0	0
	0	0

Land Use Golf course
Total 9 Holes

Land Use 430 Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation NG ITE8 pg782
In 68% Avg. Rate 1.01
Out 32%
Modal Split 0%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	6	3	9	9	
Gross Rat	0.69	0.32	1.01		
Modal Spli	0	0	0		
Passby	0	0	0		
New	6	3	9		
New Rate	0.67	0.33	1.00		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	1	3
South		40%	40%	2	0	2
East	Davis Dr	20%	20%	1	1	2
West	Davis Dr	20%	20%	1	1	2
Total		100%	100%	6	3	9

Check	ok	ok
Difference	1	0
	0	-1
	0	0
	0	0

Land Use Golf course
Total 9 Holes

Land Use 430 Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation NG ITE8 pg783
In 48% Avg. Rate 1.48
Out 52%
Modal Split 0%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	6	7	13	13	
Gross Rat	0.71	0.77	1.48		
Modal Spli	0	0	0		
Passby	0	0	0		
New	6	7	13		
New Rate	0.67	0.77	1.44		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	2	2	4
South		40%	40%	2	3	5
East	Davis Dr	20%	20%	1	1	2
West	Davis Dr	20%	20%	1	1	2
Total		100%	100%	6	7	13

Check	ok	ok
Difference	1	1
	0	0
	0	0
	0	0

Land Use Shopping Center
Total 20 000 sq.ft. Gfa

Land Use 820 Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation Ln(T)=0.67Ln(X)+3.37 ITE8 pg1502
In 49% Avg. Rate 3.73
Out 51%
Modal Split 0%
Pass-by 50%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	106	110	216	75	216
Gross Rat	5.29	5.51	10.80		
Modal Spl	0	0	0		
Passby	54	54	108		
New	52	56	108		
New Rate	2.60	2.80	5.40		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	10	11	21
South		30%	30%	16	17	33
East	Davis Dr	25%	25%	13	14	27
West	Davis Dr	25%	25%	13	14	27
Total		100%	100%	52	56	108

Check	ok	ok
Difference	0	0
	0	0
	0	0
	0	0

Land Use Shopping Center
Total 20 000 sq.ft. Gfa

Land Use 820 Peak Hour of Adjacent Street Traffic, One Hour between 7-9
Equation Ln(T)=0.59Ln(X)+2.32 ITE8 pg389
In 61% Avg. Rate 1
Out 39%
Modal Split 0%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	37	23	60	20	60
Gross Rat	1.83	1.17	3.00		
Modal Spli	0	0	0		
Passby	0	0	0		
New	37	23	60		
New Rate	1.85	1.15	3.00		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		35%	35%	13	8	21
South		15%	15%	6	3	9
East	Davis Dr	30%	30%	11	7	18
West	Davis Dr	20%	20%	7	5	12
Total		100%	100%	37	23	60

Check	ok	ok
Difference	0	0
	0	0
	0	0
	0	0

Average Trip Rate Estimation

Land Use Appartment

Total 292 Dwelling Units

Land Use 220 Peak Hour of Adjacent Street Traffic, One Hour between 7-9

Equation T=0.49(X)+3.73 ITE8 pg328

In 20% Avg. Rate 0.51

Out 80%

Modal Split 10%

Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	30	119	149	149	147
Gross Rat	0.10	0.41	0.51		
Modal Spli	3	12	15		
Passby	0	0	0		
New	27	107	134		
New Rate	0.09	0.37	0.46		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	**6**	**22**	28
South		40%	40%	**11**	**43**	54
East		20%	20%	**5**	**21**	26
West		20%	20%	**5**	**21**	26
Total		100%	100%	27	107	134

Check	ok	ok
Difference	**1**	**1**
	0 0	**0**
	0	**0** 0
	0	**0**

ST9

Average Trip Rate Estimation

Land Use Appartment
Total 292 Dwelling Units

Land Use 220 Peak Hour of Adjacent Street Traffic, One Hour between 4-6
Equation T=0.55(X)+17.65 ITE8 pg329
In 65% Avg. Rate 0.62
Out 35%
Modal Spli 10%
Pass-by 0%

Source ITE	IN	OUT	TOTAL	Avg	Eqn
Gross	118	63	181	181	147
Gross Rat	0.40	0.22	0.62		
Modal Spli	12	6	18		
Passby	0	0	0		
New	106	57	163		
New Rate	0.36	0.20	0.56		

To/From		Proportions		Trips		
		Inbound	Outbound	In	Out	Total
North		20%	20%	22	12	34
South		40%	40%	42	23	65
East		20%	20%	21	11	32
West		20%	20%	21	11	32
Total		100%	100%	106	57	163

Check	ok	ok
Difference	1	1
	0 0	0
	0	0 0
	0	0

APPENDIX I

Future (2016) Total Traffic

Level Of Service Calculations

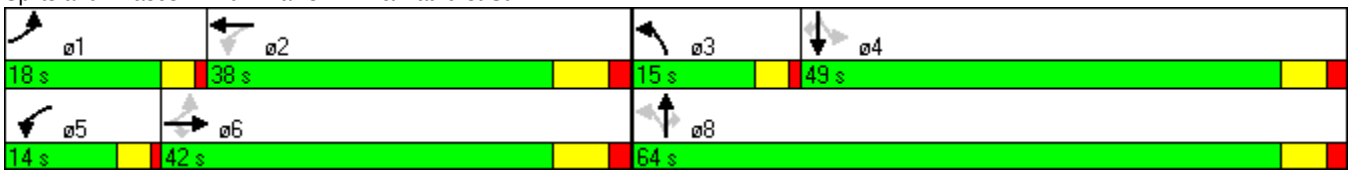
101: Davis Dr W & Bathurst St

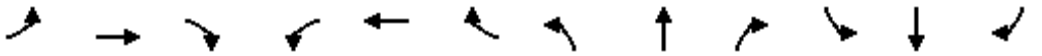
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	889	483	158	701	331	215	110	23	478	714
Lane Group Flow (vph)	278	889	483	158	747	331	215	110	23	478	714
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	42.0	42.0	14.0	38.0	15.0	64.0	64.0	49.0	49.0	49.0
Total Split (%)	15.0%	35.0%	35.0%	11.7%	31.7%	12.5%	53.3%	53.3%	40.8%	40.8%	40.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.90	0.79	0.65	0.69	0.77	0.74	0.12	0.13	0.06	0.38	0.96
Control Delay	56.6	44.9	14.8	50.1	61.0	28.5	15.8	2.6	25.8	30.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	44.9	14.8	50.1	61.0	28.5	15.8	2.6	25.8	30.2	49.9
Queue Length 50th (m)	43.0	103.1	25.7	35.0	97.0	30.4	10.7	0.0	3.5	43.4	113.0
Queue Length 95th (m)	#92.0	128.0	63.8	#56.5	117.1	41.2	15.5	6.1	9.3	57.5	#193.5
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	310	1119	742	233	974	446	1764	846	425	1308	756
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	0.90	0.79	0.65	0.68	0.77	0.74	0.12	0.13	0.05	0.37	0.94

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	889	483	158	701	46	331	215	110	23	478	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3616		1825	3650	1633	1825	3650	1633
Flt Permitted	0.15	1.00	1.00	0.14	1.00		0.37	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	286	3650	1633	276	3616		703	3650	1633	1186	3650	1633
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)	278	889	483	158	701	46	331	215	110	23	478	714
RTOR Reduction (vph)	0	0	242	0	4	0	0	0	58	0	0	174
Lane Group Flow (vph)	278	889	241	158	743	0	331	215	52	23	478	540
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	50.4	36.7	36.7	41.9	32.2		56.6	56.6	56.6	41.6	41.6	41.6
Effective Green, g (s)	50.4	36.7	36.7	41.9	32.2		56.6	56.6	56.6	41.6	41.6	41.6
Actuated g/C Ratio	0.42	0.31	0.31	0.35	0.27		0.47	0.47	0.47	0.35	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	302	1116	499	222	970		434	1722	770	411	1265	566
v/s Ratio Prot	c0.11	0.24		0.06	0.21		c0.07	0.06			0.13	
v/s Ratio Perm	c0.28		0.15	0.19			0.29		0.03	0.02		c0.33
v/c Ratio	0.92	0.80	0.48	0.71	0.77		0.76	0.12	0.07	0.06	0.38	0.95
Uniform Delay, d1	27.0	38.2	33.9	29.6	40.4		23.4	17.8	17.3	26.1	29.5	38.3
Progression Factor	1.00	1.00	1.00	1.54	1.36		0.85	0.89	0.72	1.00	1.00	1.00
Incremental Delay, d2	31.8	5.9	3.3	9.9	5.6		7.7	0.0	0.0	0.1	0.2	26.4
Delay (s)	58.8	44.2	37.3	55.3	60.3		27.7	15.9	12.5	26.2	29.7	64.7
Level of Service	E	D	D	E	E		C	B	B	C	C	E
Approach Delay (s)		44.6			59.5			21.3			50.2	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	45.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

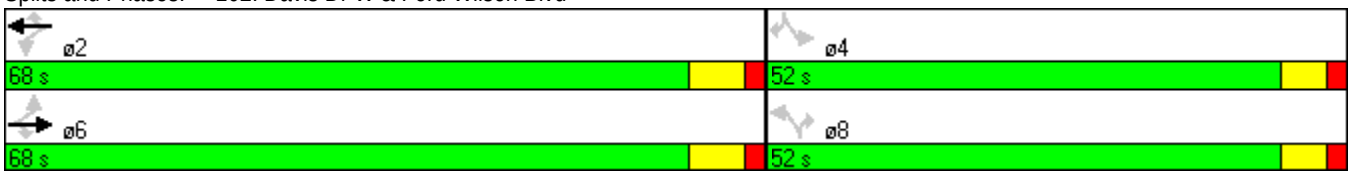
102: Davis Dr W & Ford Wilson Blvd

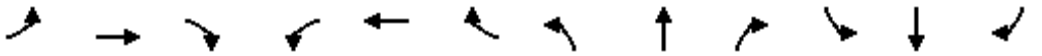
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	970	30	42	724	40	56	65	121	87
Lane Group Flow (vph)	21	970	30	42	724	40	56	65	121	87
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.07	0.52	0.04	0.20	0.39	0.05	0.08	0.10	0.17	0.13
Control Delay	22.0	21.5	11.4	15.3	14.7	2.3	24.1	6.1	25.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	21.5	11.4	15.3	14.7	2.3	24.1	6.1	25.3	5.4
Queue Length 50th (m)	2.0	51.2	0.5	3.7	46.5	0.2	8.3	0.0	18.6	0.0
Queue Length 95th (m)	m3.7	76.3	m2.4	m9.7	52.4	m2.7	17.0	8.8	31.9	10.0
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	315	1855	845	211	1855	850	700	666	700	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.04	0.20	0.39	0.05	0.08	0.10	0.17	0.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	970	30	42	724	40	56	0	65	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.32	1.00	1.00	0.22	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	618	3650	1633	415	3650	1633	1825		1633	1825		1633
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)	21	970	30	42	724	40	56	0	65	121	0	87
RTOR Reduction (vph)	0	0	15	0	0	20	0	0	40	0	0	54
Lane Group Flow (vph)	21	970	15	42	724	20	56	0	25	121	0	33
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	314	1855	830	211	1855	830	700		626	700		626
v/s Ratio Prot		c0.27			0.20							
v/s Ratio Perm	0.03		0.01	0.10		0.01	0.03		0.02	c0.07		0.02
v/c Ratio	0.07	0.52	0.02	0.20	0.39	0.02	0.08		0.04	0.17		0.05
Uniform Delay, d1	15.0	19.8	14.6	16.1	18.1	14.7	23.5		23.2	24.4		23.3
Progression Factor	1.40	1.04	2.25	0.77	0.77	0.50	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.3	0.7	0.0	2.1	0.6	0.1	0.2		0.1	0.5		0.2
Delay (s)	21.3	21.2	33.0	14.5	14.6	7.3	23.8		23.3	25.0		23.5
Level of Service	C	C	C	B	B	A	C		C	C		C
Approach Delay (s)		21.6			14.3			23.5			24.3	
Approach LOS		C			B			C			C	

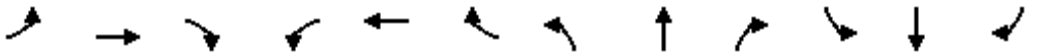
Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1156	13	17	761	56	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1156	13	17	761	56	57
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1169		1570	578
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1169		1570	578
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		44	88
cM capacity (veh/h)			605		100	464

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	578	578	13	17	380	380	56	57
Volume Left	0	0	0	17	0	0	56	0
Volume Right	0	0	13	0	0	0	0	57
cSH	1700	1700	1700	605	1700	1700	100	464
Volume to Capacity	0.34	0.34	0.01	0.03	0.22	0.22	0.56	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0	0.0	19.6	3.2
Control Delay (s)	0.0	0.0	0.0	11.1	0.0	0.0	78.9	13.8
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			46.1	
Approach LOS							E	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1143	6	5	739	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	1143	6	5	739	8	0	0	3	0	0	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.93						0.93	0.93		0.93	0.93	0.93
vC, conflicting volume	747			1149			1654	2031	574	1452	2026	370
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	581			1149			1555	1960	574	1338	1954	176
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			100	100	99	100	100	95
cM capacity (veh/h)	934			615			65	55	467	99	56	785

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	64	762	387	5	370	370	8	0	3	39
Volume Left	64	0	0	5	0	0	0	0	0	0
Volume Right	0	0	6	0	0	0	8	0	3	39
cSH	934	1700	1700	615	1700	1700	1700	1700	467	785
Volume to Capacity	0.07	0.45	0.23	0.01	0.22	0.22	0.00	0.00	0.01	0.05
Queue Length 95th (m)	1.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.2
Control Delay (s)	9.1	0.0	0.0	10.9	0.0	0.0	0.0	0.0	12.8	9.8
Lane LOS	A			B				A	B	A
Approach Delay (s)	0.5			0.1				12.8		9.8
Approach LOS								B		A

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	41.8%	ICU Level of Service		A
Analysis Period (min)	15			

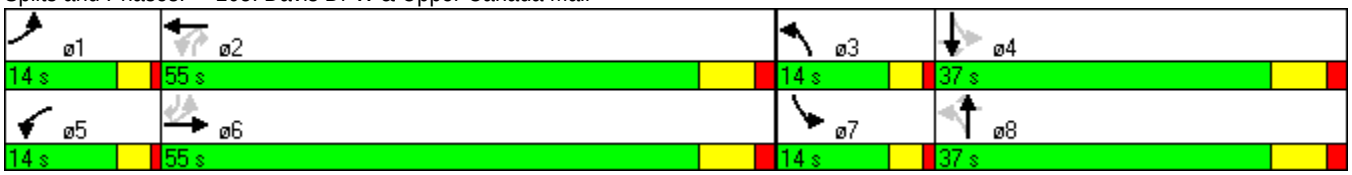
105: Davis Dr W & Upper Canada Mall

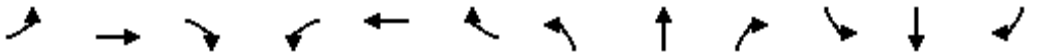
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	854	258	72	576	44	170	59	82	15	19	6
Lane Group Flow (vph)	34	854	258	72	576	44	170	59	82	15	19	6
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.06	0.39	0.68	0.16	0.25	0.14	0.54	0.18	0.08	0.06	0.11	0.01
Control Delay	6.9	13.9	23.1	6.9	11.6	14.4	45.7	45.9	2.8	35.1	50.1	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	13.9	23.1	6.9	11.6	14.4	45.7	45.9	2.8	35.1	50.1	7.2
Queue Length 50th (m)	3.1	45.0	20.8	4.6	32.6	0.0	34.4	11.6	0.0	2.8	4.2	0.0
Queue Length 95th (m)	m7.7	115.0	26.4	10.6	48.2	10.4	51.5	24.7	7.1	7.9	11.1	2.1
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	649	2181	596	474	2259	441	315	480	1042	315	480	978
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.39	0.43	0.15	0.25	0.10	0.54	0.12	0.08	0.05	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	854	258	72	576	44	170	59	82	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.43	1.00	1.00	0.27	1.00	1.00	0.58	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	821	3650	1633	528	3650	1633	1106	1921	1633	1380	1921	1633
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)	34	854	258	72	576	44	170	59	82	15	19	6
RTOR Reduction (vph)	0	0	222	0	0	36	0	0	34	0	0	3
Lane Group Flow (vph)	34	854	36	72	576	8	170	59	48	15	19	3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	72.7	68.5	13.6	76.3	70.3	20.6	27.5	20.6	70.3	16.5	13.6	68.5
Effective Green, g (s)	72.7	68.5	13.6	76.3	70.3	20.6	27.5	20.6	70.3	16.5	13.6	68.5
Actuated g/C Ratio	0.61	0.57	0.11	0.64	0.59	0.17	0.23	0.17	0.59	0.14	0.11	0.57
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	533	2084	185	401	2138	280	313	330	957	201	218	932
v/s Ratio Prot	0.00	c0.23		c0.01	0.16		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.02	0.11		0.00	c0.08		0.03	0.01		0.00
v/c Ratio	0.06	0.41	0.20	0.18	0.27	0.03	0.54	0.18	0.05	0.07	0.09	0.00
Uniform Delay, d1	9.5	14.4	48.2	9.0	12.2	41.4	39.4	42.5	10.6	45.0	47.6	11.1
Progression Factor	1.09	0.99	1.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.5	0.5	0.2	0.3	0.0	1.9	0.3	0.1	0.2	0.2	0.0
Delay (s)	10.4	14.8	96.6	9.2	12.5	41.4	41.3	42.7	10.7	45.2	47.8	11.1
Level of Service	B	B	F	A	B	D	D	D	B	D	D	B
Approach Delay (s)		33.1			14.0			33.5			41.3	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

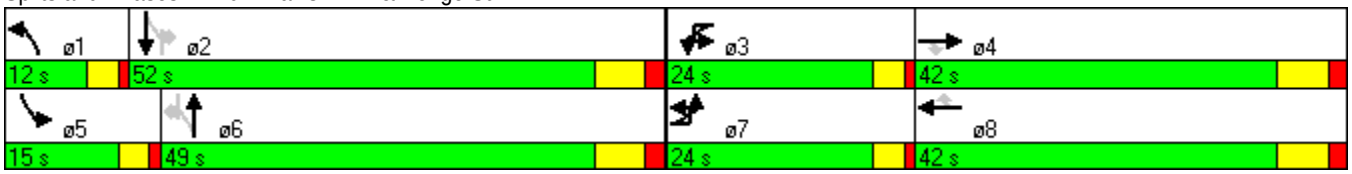
c Critical Lane Group

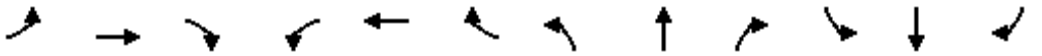
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	644	157	232	472	123	108	467	168	201	999	228
Lane Group Flow (vph)	150	644	157	232	472	123	108	467	168	201	999	228
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	12.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	24.0	42.0	42.0	24.0	42.0	42.0	12.0	49.0	52.0	15.0	52.0	49.0
Total Split (%)	18.5%	32.3%	32.3%	18.5%	32.3%	32.3%	9.2%	37.7%	40.0%	11.5%	40.0%	37.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.68	0.78	0.32	0.87	0.51	0.24	0.46	0.35	0.23	0.42	0.70	0.31
Control Delay	70.4	53.9	7.4	83.5	43.5	7.4	33.6	39.7	16.6	21.8	37.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.4	53.9	7.4	83.5	43.5	7.4	33.6	39.7	16.6	21.8	37.6	5.1
Queue Length 50th (m)	37.3	81.8	0.0	58.4	54.2	0.0	20.0	48.5	15.5	28.1	115.1	0.0
Queue Length 95th (m)	57.8	97.7	16.2	#99.9	70.2	14.6	29.9	54.6	24.0	47.0	146.7	17.5
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	281	983	554	281	983	530	237	1345	741	486	1428	746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.66	0.28	0.83	0.48	0.23	0.46	0.35	0.23	0.41	0.70	0.31

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

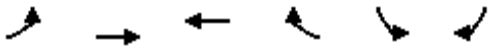




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	644	157	232	472	123	108	467	168	201	999	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.15	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	290	3650	1633	765	3650	1633
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)	150	644	157	232	472	123	108	467	168	201	999	228
RTOR Reduction (vph)	0	0	121	0	0	92	0	0	102	0	0	144
Lane Group Flow (vph)	150	644	36	232	472	31	108	467	66	201	999	84
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	15.6	29.5	29.5	19.1	33.0	33.0	56.4	47.8	50.8	62.4	50.8	47.8
Effective Green, g (s)	15.6	29.5	29.5	19.1	33.0	33.0	56.4	47.8	50.8	62.4	50.8	47.8
Actuated g/C Ratio	0.12	0.23	0.23	0.15	0.25	0.25	0.43	0.37	0.39	0.48	0.39	0.37
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	219	828	371	268	927	415	227	1342	638	462	1426	600
v/s Ratio Prot	0.08	c0.18		c0.13	c0.13		0.03	0.13		c0.04	c0.27	
v/s Ratio Perm			0.02			0.02	0.17		0.04	0.17		0.05
v/c Ratio	0.68	0.78	0.10	0.87	0.51	0.08	0.48	0.35	0.10	0.44	0.70	0.14
Uniform Delay, d1	54.8	47.2	39.7	54.2	41.6	36.9	24.6	29.8	25.1	20.1	33.2	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.47	1.25	3.72	1.00	1.00	1.00
Incremental Delay, d2	8.6	4.6	0.1	24.0	0.4	0.1	1.5	0.7	0.3	0.7	2.9	0.5
Delay (s)	63.4	51.8	39.8	78.2	42.0	37.0	37.8	37.9	93.8	20.8	36.1	27.9
Level of Service	E	D	D	E	D	D	D	D	F	C	D	C
Approach Delay (s)		51.7			51.4			50.5			32.6	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM Average Control Delay	44.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

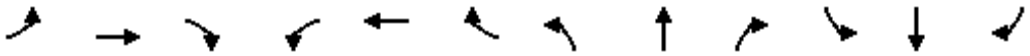
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	13	16	102	46	8
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	13	16	102	46	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	202	92	100	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	92	100	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	97	98	98	91	97	
cM capacity (veh/h)	664	779	772	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	30	118	46	8
Volume Left	17	0	46	0
Volume Right	0	102	0	8
cSH	710	1033	1636	1700
Volume to Capacity	0.04	0.11	0.03	0.00
Queue Length 95th (m)	1.0	2.9	0.7	0.0
Control Delay (s)	10.3	8.9	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.3	8.9	6.2	
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	72	0	117	0	158	104	118	268	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	72	0	117	0	158	104	118	268	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	831	766	268	714	714	210	268			262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	831	766	268	714	714	210	268			262		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	100	86	100			91		
cM capacity (veh/h)	233	305	776	325	327	835	1307			1314		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	72	117	262	386
Volume Left	0	72	0	0	118
Volume Right	0	0	117	104	0
cSH	1700	325	835	1307	1314
Volume to Capacity	0.00	0.22	0.14	0.00	0.09
Queue Length 95th (m)	0.0	6.3	3.7	0.0	2.2
Control Delay (s)	0.0	19.2	10.0	0.0	3.0
Lane LOS	A	C	B		A
Approach Delay (s)	0.0	13.5		0.0	3.0
Approach LOS	A	B			

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	52.5%	ICU Level of Service		A
Analysis Period (min)	15			

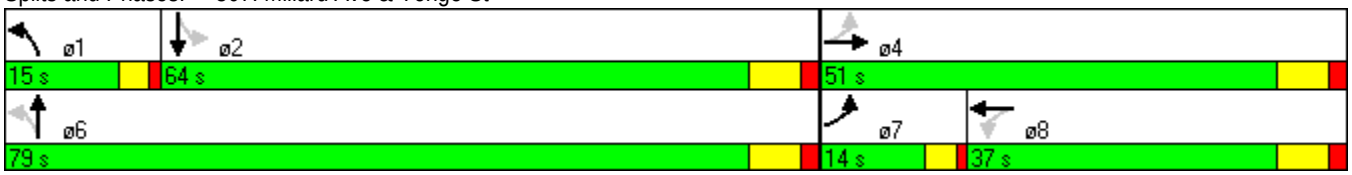
307: Millard Ave & Yonge St

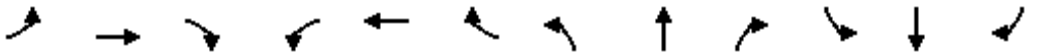
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	50	98	104	112	164	619	63	1296	168
Lane Group Flow (vph)	50	234	104	163	164	664	63	1296	168
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.13	0.41	0.40	0.39	0.68	0.31	0.17	0.75	0.10
Control Delay	29.6	28.3	48.4	41.7	57.2	12.3	18.8	20.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	28.3	48.4	41.7	57.2	12.3	18.8	20.8	0.1
Queue Length 50th (m)	8.7	34.7	22.9	32.2	33.1	28.1	5.3	61.3	0.0
Queue Length 95th (m)	17.4	56.1	40.7	53.3	55.9	45.5	m10.8	91.0	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	384	632	272	435	252	2140	365	1737	1633
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	0.13	0.37	0.38	0.37	0.65	0.31	0.17	0.75	0.10

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	98	136	104	112	51	164	619	45	63	1296	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1754		1825	1831		1825	3613		1825	3650	1633
Flt Permitted	0.51	1.00		0.61	1.00		0.09	1.00		0.40	1.00	1.00
Satd. Flow (perm)	987	1754		1177	1831		164	3613		767	3650	1633
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)	50	98	136	104	112	51	164	619	45	63	1296	168
RTOR Reduction (vph)	0	40	0	0	12	0	0	4	0	0	0	0
Lane Group Flow (vph)	50	194	0	104	151	0	164	660	0	63	1296	168
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.1	61.1	130.0
Effective Green, g (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.1	61.1	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	538		263	408		237	2115		360	1716	1633
v/s Ratio Prot	0.01	c0.11			0.08		c0.06	0.18			c0.36	
v/s Ratio Perm	0.04			c0.09			0.35			0.08		0.10
v/c Ratio	0.14	0.36		0.40	0.37		0.69	0.31		0.18	0.76	0.10
Uniform Delay, d1	32.3	35.1		43.0	42.8		22.1	13.7		19.9	28.3	0.0
Progression Factor	1.00	1.00		1.00	1.00		2.38	0.87		0.81	0.63	1.00
Incremental Delay, d2	0.2	0.4		1.0	0.6		7.4	0.3		0.8	2.5	0.1
Delay (s)	32.5	35.5		44.0	43.3		60.1	12.2		16.9	20.3	0.1
Level of Service	C	D		D	D		E	B		B	C	A
Approach Delay (s)		35.0			43.6			21.7			18.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

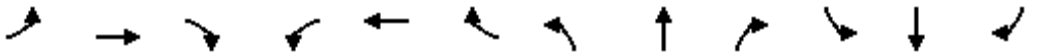
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	88	0	585	27	1089	
Lane Group Flow (vph)	88	71	610	27	1093	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.55	0.14	0.21	0.04	0.38	
Control Delay	63.2	0.6	3.8	2.8	4.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	63.2	0.6	3.8	2.8	4.2	
Queue Length 50th (m)	20.1	0.0	15.7	1.1	33.5	
Queue Length 95th (m)	35.5	0.0	25.8	m2.4	39.5	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	303	625	2839	633	2852	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.11	0.21	0.04	0.38	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

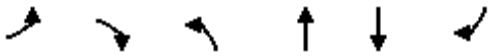
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	88	0	71	0	585	25	27	1089	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3628		1825	3648	
Flt Permitted				0.76	1.00			1.00		0.42	1.00	
Satd. Flow (perm)				1455	1633			3628		809	3648	
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)	0	0	0	88	0	71	0	585	25	27	1089	4
RTOR Reduction (vph)	0	0	0	0	63	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	8	0	0	608	0	27	1093	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				13.1	13.1			93.9		93.9	93.9	
Effective Green, g (s)				13.1	13.1			93.9		93.9	93.9	
Actuated g/C Ratio				0.11	0.11			0.78		0.78	0.78	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				159	178			2839		633	2855	
v/s Ratio Prot					0.00			0.17			c0.30	
v/s Ratio Perm				c0.06						0.03		
v/c Ratio				0.55	0.04			0.21		0.04	0.38	
Uniform Delay, d1				50.7	47.8			3.4		2.9	4.1	
Progression Factor				1.00	1.00			1.00		0.75	0.88	
Incremental Delay, d2				4.1	0.1			0.2		0.1	0.3	
Delay (s)				54.8	47.9			3.6		2.3	3.9	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.7			3.6			3.9	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

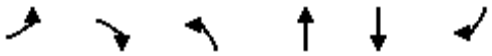
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	18	48	0	0	58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	18	48	0	0	58

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	32	48	58
Volume Left (vph)	14	48	0
Volume Right (vph)	18	0	58
Hadj (s)	-0.25	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.03	0.06	0.05
Capacity (veh/h)	903	835	1037
Control Delay (s)	7.0	7.5	6.6
Approach Delay (s)	7.0	7.5	6.6
Approach LOS	A	A	A

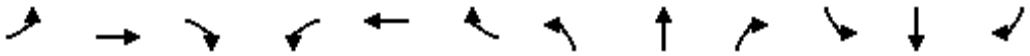
Intersection Summary			
Delay	7.0		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	97	65	22	53	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	97	65	22	53	20

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	117	87	73
Volume Left (vph)	20	65	0
Volume Right (vph)	97	0	20
Hadj (s)	-0.46	0.15	-0.16
Departure Headway (s)	3.8	4.4	4.1
Degree Utilization, x	0.12	0.11	0.08
Capacity (veh/h)	910	794	855
Control Delay (s)	7.3	7.9	7.4
Approach Delay (s)	7.3	7.9	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

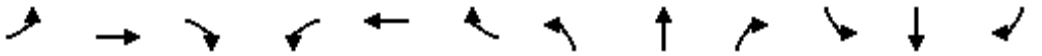


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	89	13	5	1	38	208	5	0	290	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	6	89	13	5	1	38	208	5	0	290	46

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	159	19	251	336
Volume Left (vph)	64	13	38	0
Volume Right (vph)	89	1	5	46
Hadj (s)	-0.26	0.11	0.02	-0.08
Departure Headway (s)	5.1	5.7	4.8	4.6
Degree Utilization, x	0.22	0.03	0.33	0.43
Capacity (veh/h)	643	545	716	748
Control Delay (s)	9.5	8.8	10.2	11.0
Approach Delay (s)	9.5	8.8	10.2	11.0
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.4		
HCM Level of Service	B		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

707: Eagle St W & Yonge St



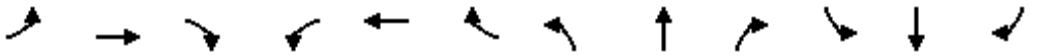
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	946	232	77	1257	116
Lane Group Flow (vph)	40	189	225	196	186	113	241	946	232	77	1257	116
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	52.0	18.0	67.0	60.0	11.0	60.0	67.0
Total Split (%)	31.5%	31.5%	31.5%	8.5%	40.0%	40.0%	13.8%	51.5%	46.2%	8.5%	46.2%	51.5%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.23	0.69	0.56	0.84	0.42	0.25	0.51	0.56	0.29	0.15	0.84	0.14
Control Delay	50.1	65.1	15.6	72.3	45.0	7.6	29.5	27.1	4.6	15.2	49.2	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	65.1	15.6	72.3	45.0	7.6	29.5	27.1	4.6	15.2	49.2	14.0
Queue Length 50th (m)	9.3	46.9	7.3	42.6	41.3	0.0	35.6	90.7	1.5	11.7	129.0	8.0
Queue Length 95th (m)	19.2	67.0	29.7	#64.2	58.7	13.8	68.5	110.7	17.0	m16.8	154.0	m16.2
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	322	502	570	232	665	639	474	1685	797	504	1488	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.38	0.39	0.84	0.28	0.18	0.51	0.56	0.29	0.15	0.84	0.14

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	946	232	77	1257	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.35	1.00	1.00	0.07	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	1230	1921	1633	680	1921	1633	135	3650	1633	441	3650	1633
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)	40	189	225	196	186	113	241	946	232	77	1257	116
RTOR Reduction (vph)	0	0	165	0	0	87	0	0	131	0	0	62
Lane Group Flow (vph)	40	189	60	196	186	26	241	946	101	77	1257	54
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	60.0	53.0	75.4	53.0	60.0
Effective Green, g (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	60.0	53.0	75.4	53.0	60.0
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.66	0.46	0.41	0.58	0.41	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	176	275	234	216	437	372	472	1685	666	494	1488	754
v/s Ratio Prot		0.10		c0.05	0.10		c0.12	0.26		0.03	c0.34	
v/s Ratio Perm	0.03		0.04	c0.16		0.02	0.22		0.06	0.06		0.03
v/c Ratio	0.23	0.69	0.25	0.91	0.43	0.07	0.51	0.56	0.15	0.16	0.84	0.07
Uniform Delay, d1	49.3	52.9	49.5	48.3	42.9	39.4	29.1	25.4	24.3	12.7	34.8	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.78	1.27	3.95
Incremental Delay, d2	0.7	7.0	0.6	36.5	0.7	0.1	3.9	1.4	0.5	0.5	4.4	0.1
Delay (s)	50.0	59.9	50.1	84.8	43.6	39.5	33.0	26.8	24.8	23.1	48.7	77.1
Level of Service	D	E	D	F	D	D	C	C	C	C	D	E
Approach Delay (s)		54.2			59.0			27.5			49.6	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	43.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

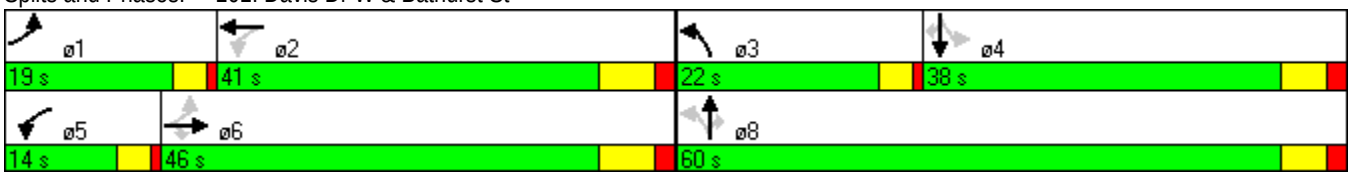
c Critical Lane Group

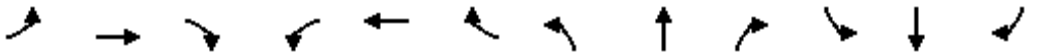
101: Davis Dr W & Bathurst St

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1093	219	198	984	701	932	333	62	294	255
Lane Group Flow (vph)	373	1093	219	198	1042	701	932	333	62	294	255
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	19.0	46.0	46.0	14.0	41.0	22.0	60.0	60.0	38.0	38.0	38.0
Total Split (%)	15.8%	38.3%	38.3%	11.7%	34.2%	18.3%	50.0%	50.0%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.77	0.75	0.28	0.66	1.01	1.61	0.73	0.45	0.68	0.49	0.58
Control Delay	41.3	36.8	4.8	32.7	82.6	306.3	32.1	6.3	80.2	47.1	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	36.8	4.8	32.7	82.6	306.3	32.1	6.3	80.2	47.1	15.1
Queue Length 50th (m)	63.0	116.7	0.0	22.4	~139.8	~200.7	102.3	20.7	14.1	33.8	10.2
Queue Length 95th (m)	#146.3	#169.9	16.5	#51.2	#181.6	#294.2	107.1	28.4	27.1	42.1	31.3
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	483	1450	781	300	1030	436	1643	873	147	973	587
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	0.77	0.75	0.28	0.66	1.01	1.61	0.57	0.38	0.42	0.30	0.43

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1093	219	198	984	58	701	932	333	62	294	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3620		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.16	1.00		0.39	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	202	3650	1633	304	3620		756	3650	1633	551	3650	1633
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)	373	1093	219	198	984	58	701	932	333	62	294	255
RTOR Reduction (vph)	0	0	132	0	4	0	0	0	164	0	0	172
Lane Group Flow (vph)	373	1093	87	198	1038	0	701	932	169	62	294	83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	65.2	47.6	47.6	47.6	34.0		41.8	41.8	41.8	19.8	19.8	19.8
Effective Green, g (s)	65.2	47.6	47.6	47.6	34.0		41.8	41.8	41.8	19.8	19.8	19.8
Actuated g/C Ratio	0.54	0.40	0.40	0.40	0.28		0.35	0.35	0.35	0.16	0.16	0.16
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	478	1448	648	293	1026		424	1271	569	91	602	269
v/s Ratio Prot	c0.18	0.30		0.08	c0.29		c0.25	0.26			0.08	
v/s Ratio Perm	0.25		0.05	0.19			c0.33		0.10	0.11		0.05
v/c Ratio	0.78	0.75	0.13	0.68	1.01		1.65	0.73	0.30	0.68	0.49	0.31
Uniform Delay, d1	31.7	31.2	23.1	25.7	43.0		35.9	34.2	28.4	47.1	45.5	44.1
Progression Factor	1.00	1.00	1.00	1.21	1.27		0.87	0.87	0.71	1.00	1.00	1.00
Incremental Delay, d2	8.1	3.7	0.4	5.5	29.8		301.7	1.6	0.2	19.0	0.6	0.7
Delay (s)	39.8	34.9	23.5	36.8	84.2		333.0	31.4	20.3	66.1	46.1	44.7
Level of Service	D	C	C	D	F		F	C	C	E	D	D
Approach Delay (s)		34.5			76.6			137.1			47.6	
Approach LOS		C			E			F			D	

Intersection Summary			
HCM Average Control Delay	82.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	114.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

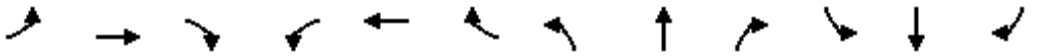
102: Davis Dr W & Ford Wilson Blvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1229	58	99	1140	141	53	91	61	20
Lane Group Flow (vph)	174	1229	58	99	1140	141	53	91	61	20
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	84.0	84.0	84.0	84.0	84.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	0.70	0.52	0.05	0.45	0.49	0.13	0.12	0.19	0.13	0.05
Control Delay	28.8	6.1	0.8	15.9	8.9	0.8	35.7	9.3	36.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	6.1	0.8	15.9	8.9	0.8	35.7	9.3	36.0	13.8
Queue Length 50th (m)	8.8	31.3	0.1	8.2	49.8	0.1	9.7	0.9	11.2	0.0
Queue Length 95th (m)	m31.1	43.9	m0.4	m14.9	54.5	m2.1	20.2	13.6	22.4	6.2
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	249	2342	1069	218	2342	1098	456	473	456	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	0.05	0.45	0.49	0.13	0.12	0.19	0.13	0.05

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1229	58	99	1140	141	53	0	91	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.20	1.00	1.00	0.18	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	389	3650	1633	341	3650	1633	1825		1633	1825		1633
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)	174	1229	58	99	1140	141	53	0	91	61	0	20
RTOR Reduction (vph)	0	0	21	0	0	51	0	0	65	0	0	15
Lane Group Flow (vph)	174	1229	37	99	1140	90	53	0	27	61	0	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	250	2342	1048	219	2342	1048	456		408	456		408
v/s Ratio Prot		0.34			0.31							
v/s Ratio Perm	c0.45		0.02	0.29		0.06	0.03		0.02	c0.03		0.00
v/c Ratio	0.70	0.52	0.04	0.45	0.49	0.09	0.12		0.06	0.13		0.01
Uniform Delay, d1	13.9	11.6	7.9	10.9	11.2	8.2	34.8		34.3	34.9		33.9
Progression Factor	1.01	0.46	0.38	0.79	0.73	0.40	1.00		1.00	1.00		1.00
Incremental Delay, d2	11.4	0.6	0.0	6.0	0.7	0.1	0.5		0.3	0.1		0.0
Delay (s)	25.4	6.0	3.0	14.6	8.8	3.4	35.3		34.6	35.1		33.9
Level of Service	C	A	A	B	A	A	D		C	D		C
Approach Delay (s)		8.2			8.7			34.9			34.8	
Approach LOS		A			A			C			C	

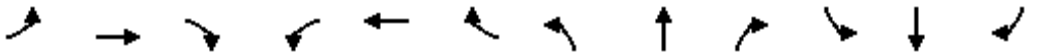
Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1339	52	53	1344	30	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1339	52	53	1344	30	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1391		2117	670
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1391		2117	670
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		25	92
cM capacity (veh/h)			498		40	405

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	670	670	52	53	672	672	30	32
Volume Left	0	0	0	53	0	0	30	0
Volume Right	0	0	52	0	0	0	0	32
cSH	1700	1700	1700	498	1700	1700	40	405
Volume to Capacity	0.39	0.39	0.03	0.11	0.40	0.40	0.75	0.08
Queue Length 95th (m)	0.0	0.0	0.0	2.7	0.0	0.0	21.3	1.9
Control Delay (s)	0.0	0.0	0.0	13.1	0.0	0.0	224.0	14.7
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.5			116.0	
Approach LOS							F	

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

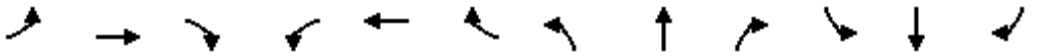


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1136	6	7	1213	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	1136	6	7	1213	6	5	0	9	0	0	179
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					205							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	1219			1142			2218	2830	571	2262	2827	606
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	889			1142			2072	2798	571	2125	2795	163
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	65			99			66	100	98	100	100	75
cM capacity (veh/h)	650			619			15	10	469	17	10	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	229	757	385	7	606	606	6	5	9	179
Volume Left	229	0	0	7	0	0	0	5	0	0
Volume Right	0	0	6	0	0	0	6	0	9	179
cSH	650	1700	1700	619	1700	1700	1700	15	469	725
Volume to Capacity	0.35	0.45	0.23	0.01	0.36	0.36	0.00	0.34	0.02	0.25
Queue Length 95th (m)	12.0	0.0	0.0	0.3	0.0	0.0	0.0	6.8	0.4	7.4
Control Delay (s)	13.5	0.0	0.0	10.9	0.0	0.0	0.0	348.5	12.8	11.6
Lane LOS	B			B				F	B	B
Approach Delay (s)	2.3			0.1				132.7		11.6
Approach LOS								F		B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	59.6%	ICU Level of Service		B
Analysis Period (min)	15			

105: Davis Dr W & Upper Canada Mall



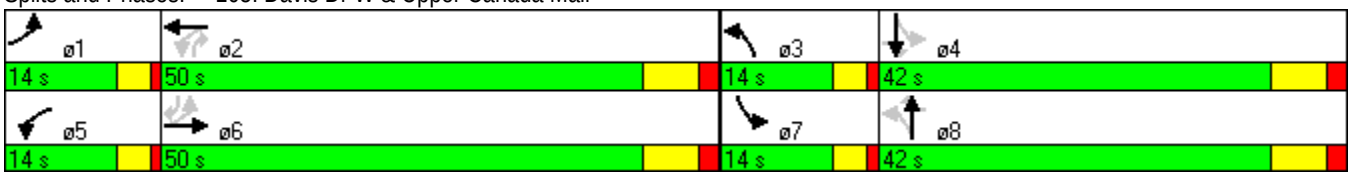
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	885	197	153	927	84	286	178	111	138	148	27
Lane Group Flow (vph)	63	885	197	153	927	84	286	178	111	138	148	27
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.16	0.47	0.50	0.38	0.46	0.28	0.87	0.66	0.12	0.46	0.56	0.03
Control Delay	6.3	12.9	22.0	11.3	18.4	11.3	65.1	60.7	3.4	38.2	56.0	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.3	12.9	22.0	11.3	18.4	11.3	65.1	60.7	3.4	38.2	56.0	6.5
Queue Length 50th (m)	3.6	49.0	16.3	12.5	68.3	0.0	57.6	40.4	0.0	25.4	33.0	0.0
Queue Length 95th (m)	m8.6	88.8	30.9	23.9	97.5	13.3	#83.4	60.2	9.4	39.4	51.1	5.3
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	422	1890	614	420	2018	536	329	560	952	303	560	859
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.47	0.32	0.36	0.46	0.16	0.87	0.32	0.12	0.46	0.26	0.03

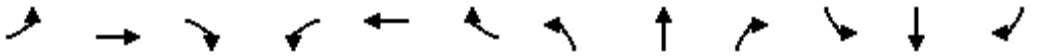
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall



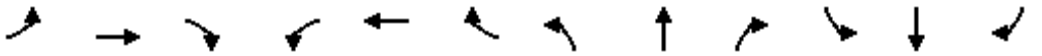


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	885	197	153	927	84	286	178	111	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.26	1.00	1.00	0.24	1.00	1.00	0.56	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	498	3650	1633	461	3650	1633	1077	1921	1633	934	1921	1633
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)	63	885	197	153	927	84	286	178	111	138	148	27
RTOR Reduction (vph)	0	0	168	0	0	72	0	0	50	0	0	13
Lane Group Flow (vph)	63	885	29	153	927	12	286	178	61	138	148	14
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	68.2	62.1	16.4	75.0	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.1
Effective Green, g (s)	68.2	62.1	16.4	75.0	65.5	16.7	26.7	16.7	65.5	26.1	16.4	62.1
Actuated g/C Ratio	0.57	0.52	0.14	0.62	0.55	0.14	0.22	0.14	0.55	0.22	0.14	0.52
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	350	1889	223	396	1992	227	302	267	891	275	263	845
v/s Ratio Prot	0.01	0.24		c0.03	c0.25		c0.08	0.09		0.04	0.08	
v/s Ratio Perm	0.09		0.02	0.21		0.01	c0.13		0.04	0.07		0.01
v/c Ratio	0.18	0.47	0.13	0.39	0.47	0.05	0.95	0.67	0.07	0.50	0.56	0.02
Uniform Delay, d1	12.0	18.4	45.5	10.7	16.6	44.8	44.8	49.0	12.9	39.8	48.4	14.1
Progression Factor	0.62	0.62	2.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.8	0.2	0.6	0.8	0.1	37.5	6.2	0.1	1.4	2.7	0.0
Delay (s)	7.7	12.2	129.0	11.4	17.4	44.9	82.3	55.2	13.0	41.3	51.2	14.1
Level of Service	A	B	F	B	B	D	F	E	B	D	D	B
Approach Delay (s)		32.0			18.6			60.5			43.6	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

107: Davis Dr W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	660	178	295	731	255	236	1071	240	293	761	190
Lane Group Flow (vph)	296	660	178	295	731	255	236	1071	240	293	761	190
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	28.0	42.0	42.0	28.0	42.0	42.0	20.0	47.0	50.0	23.0	50.0	47.0
Total Split (%)	20.0%	30.0%	30.0%	20.0%	30.0%	30.0%	14.3%	33.6%	35.7%	16.4%	35.7%	33.6%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.95	0.76	0.34	0.95	0.84	0.47	0.71	0.99	0.36	0.95	0.63	0.31
Control Delay	97.0	55.9	7.5	96.7	60.8	13.6	45.9	82.7	28.0	78.3	43.3	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.0	55.9	7.5	96.7	60.8	13.6	45.9	82.7	28.0	78.3	43.3	6.3
Queue Length 50th (m)	82.1	88.6	0.0	81.8	100.5	11.5	58.3	~160.0	30.8	65.2	97.2	0.0
Queue Length 95th (m)	#137.6	110.4	18.1	#136.5	124.0	35.9	m74.8	#212.0	m45.8	#122.4	119.3	17.8
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	313	913	542	313	913	560	350	1087	669	311	1206	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.72	0.33	0.94	0.80	0.46	0.67	0.99	0.36	0.94	0.63	0.31

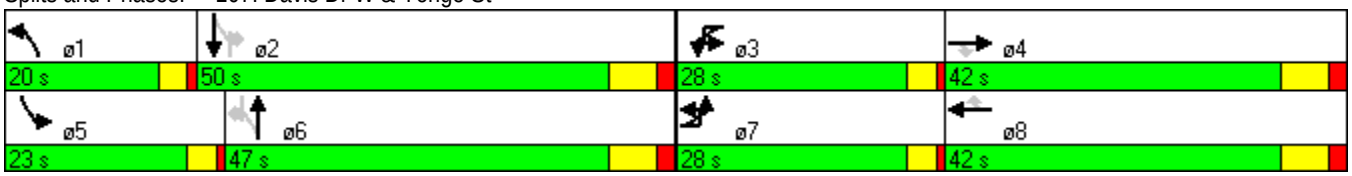
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

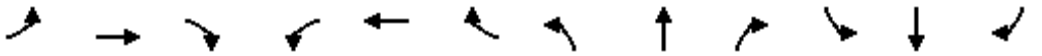
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 107: Davis Dr W & Yonge St

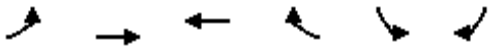




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	660	178	295	731	255	236	1071	240	293	761	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.23	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	443	3650	1633	168	3650	1633
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)	296	660	178	295	731	255	236	1071	240	293	761	190
RTOR Reduction (vph)	0	0	136	0	0	154	0	0	129	0	0	133
Lane Group Flow (vph)	296	660	42	295	731	101	236	1071	111	293	761	57
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	23.9	33.3	33.3	23.8	33.2	33.2	56.3	41.7	46.3	64.9	46.3	41.7
Effective Green, g (s)	23.9	33.3	33.3	23.8	33.2	33.2	56.3	41.7	46.3	64.9	46.3	41.7
Actuated g/C Ratio	0.17	0.24	0.24	0.17	0.24	0.24	0.40	0.30	0.33	0.46	0.33	0.30
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	312	868	388	310	866	387	322	1087	540	305	1207	486
v/s Ratio Prot	c0.16	0.18		0.16	c0.20		0.08	0.29		c0.13	0.21	
v/s Ratio Perm			0.03			0.06	0.22		0.07	c0.31		0.03
v/c Ratio	0.95	0.76	0.11	0.95	0.84	0.26	0.73	0.99	0.21	0.96	0.63	0.12
Uniform Delay, d1	57.4	49.6	41.7	57.5	50.9	43.4	30.0	48.8	33.7	43.8	39.6	35.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.69	1.37	3.06	1.00	1.00	1.00
Incremental Delay, d2	37.0	4.0	0.1	38.2	7.6	0.4	4.9	17.4	0.5	40.8	2.5	0.5
Delay (s)	94.5	53.6	41.9	95.7	58.5	43.8	55.6	84.3	103.4	84.6	42.1	36.2
Level of Service	F	D	D	F	E	D	E	F	F	F	D	D
Approach Delay (s)		62.4			64.1			82.9			51.2	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	66.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

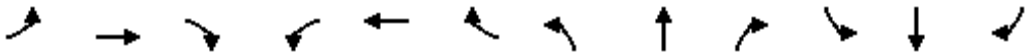
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	16	17	79	114	16
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	16	17	79	114	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	316	228	244	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316	228	244	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	96	97	97	93	93	
cM capacity (veh/h)	551	628	615	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	38	96	114	16
Volume Left	22	0	114	0
Volume Right	0	79	0	16
cSH	581	960	1636	1700
Volume to Capacity	0.07	0.10	0.07	0.01
Queue Length 95th (m)	1.6	2.5	1.7	0.0
Control Delay (s)	11.6	9.2	7.4	0.0
Lane LOS	B	A	A	
Approach Delay (s)	11.6	9.2	6.5	
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	94	0	178	0	349	71	112	311	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	94	0	178	0	349	71	112	311	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	94	178	420	423
Volume Left (vph)	0	94	0	0	112
Volume Right (vph)	0	0	178	71	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.05
Departure Headway (s)	6.9	7.2	5.9	5.3	5.4
Degree Utilization, x	0.00	0.19	0.29	0.61	0.63
Capacity (veh/h)	421	462	555	657	647
Control Delay (s)	9.9	10.6	10.2	16.2	17.2
Approach Delay (s)	0.0	10.3		16.2	17.2
Approach LOS	A	B		C	C

Intersection Summary				
Delay	15.2			
HCM Level of Service	C			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

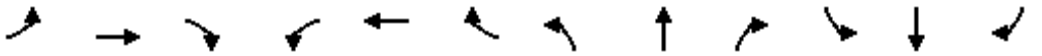
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	136	138	75	146	108	1581	120	956	80
Lane Group Flow (vph)	136	266	75	223	108	1681	120	956	80
Turn Type	pm+pt		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	1	6	5	2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	5	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	7.0	30.0	
Minimum Split (s)	11.0	36.0	36.0	36.0	11.0	37.0	11.0	37.0	
Total Split (s)	11.0	47.0	36.0	36.0	12.0	82.0	11.0	81.0	0.0
Total Split (%)	7.9%	33.6%	25.7%	25.7%	8.6%	58.6%	7.9%	57.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	4.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
v/c Ratio	0.59	0.57	0.43	0.76	0.29	0.83	0.68	0.46	0.05
Control Delay	52.0	44.9	60.0	68.9	4.0	11.6	63.7	11.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	44.9	60.0	68.9	4.0	11.6	63.7	11.0	0.0
Queue Length 50th (m)	29.8	56.8	19.1	55.7	2.7	30.8	21.1	26.0	0.0
Queue Length 95th (m)	45.6	81.4	33.1	79.0	m3.1	m38.9	m#44.6	m30.7	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	230	533	237	391	377	2024	177	2071	1633
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	0.59	0.50	0.32	0.57	0.29	0.83	0.68	0.46	0.05

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	138	128	75	146	77	108	1581	100	120	956	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1782		1825	1822		1825	3618		1825	3650	1633
Flt Permitted	0.28	1.00		0.60	1.00		0.24	1.00		0.05	1.00	1.00
Satd. Flow (perm)	541	1782		1144	1822		464	3618		97	3650	1633
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)	136	138	128	75	146	77	108	1581	100	120	956	80
RTOR Reduction (vph)	0	25	0	0	14	0	0	3	0	0	0	0
Lane Group Flow (vph)	136	241	0	75	209	0	108	1678	0	120	956	80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	34.5	34.5		21.3	21.3		86.2	78.2		88.8	79.5	140.0
Effective Green, g (s)	34.5	34.5		21.3	21.3		86.2	78.2		88.8	79.5	140.0
Actuated g/C Ratio	0.25	0.25		0.15	0.15		0.62	0.56		0.63	0.57	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	218	439		174	277		363	2021		176	2073	1633
v/s Ratio Prot	c0.04	0.14			c0.11		0.02	c0.46		c0.05	0.26	
v/s Ratio Perm	0.11			0.07			0.17			0.39		c0.05
v/c Ratio	0.62	0.55		0.43	0.75		0.30	0.83		0.68	0.46	0.05
Uniform Delay, d1	43.7	46.0		53.9	56.8		12.0	25.4		32.9	17.7	0.0
Progression Factor	1.00	1.00		1.00	1.00		0.34	0.35		2.17	0.56	1.00
Incremental Delay, d2	5.5	1.4		1.7	11.0		0.2	2.2		7.8	0.6	0.0
Delay (s)	49.2	47.4		55.6	67.8		4.4	11.2		79.1	10.5	0.0
Level of Service	D	D		E	E		A	B		E	B	A
Approach Delay (s)		48.0			64.7			10.7			16.9	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

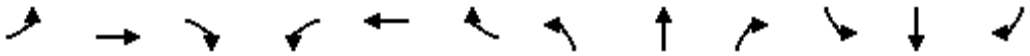
c Critical Lane Group

Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	30	0	1	1912	60	651	
Lane Group Flow (vph)	30	54	0	1995	60	651	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.24	0.34		0.68	0.46	0.21	
Control Delay	56.1	39.2		6.2	29.4	6.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	56.1	39.2		6.2	29.4	6.3	
Queue Length 50th (m)	6.7	7.0		88.3	11.5	42.0	
Queue Length 95th (m)	16.2	19.4		117.3	m26.6	46.1	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	315	372		2926	130	3081	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.10	0.15		0.68	0.46	0.21	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

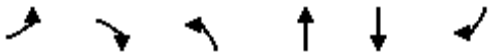
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	30	0	54	1	1912	82	60	651	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3628		1825	3650	
Flt Permitted				0.76	1.00			0.95		0.08	1.00	
Satd. Flow (perm)				1455	1633			3464		154	3650	
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)	0	0	0	30	0	54	1	1912	82	60	651	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	30	33	0	0	1994	0	60	651	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				8.3	8.3			98.7		98.7	98.7	
Effective Green, g (s)				8.3	8.3			98.7		98.7	98.7	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				101	113			2849		127	3002	
v/s Ratio Prot					0.02						0.18	
v/s Ratio Perm				c0.02				c0.58		0.39		
v/c Ratio				0.30	0.29			0.70		0.47	0.22	
Uniform Delay, d1				53.1	53.0			4.5		3.1	2.3	
Progression Factor				1.00	1.00			1.00		3.11	2.53	
Incremental Delay, d2				1.6	1.4			1.5		11.3	0.2	
Delay (s)				54.7	54.5			5.9		21.0	6.0	
Level of Service				D	D			A		C	A	
Approach Delay (s)		0.0			54.6			5.9			7.2	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

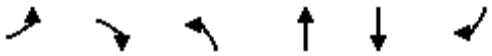
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	48	44	22	0	0	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	48	44	22	0	0	22

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	92	22	22
Volume Left (vph)	48	22	0
Volume Right (vph)	44	0	22
Hadj (s)	-0.18	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.10	0.03	0.02
Capacity (veh/h)	929	807	993
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

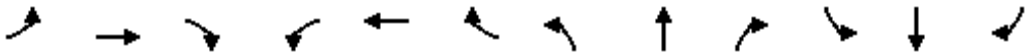
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	59	98	48	33	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	59	98	48	33	11

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	69	146	44
Volume Left (vph)	10	98	0
Volume Right (vph)	59	0	11
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.17	0.05
Capacity (veh/h)	893	831	867
Control Delay (s)	7.1	8.1	7.2
Approach Delay (s)	7.1	8.1	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

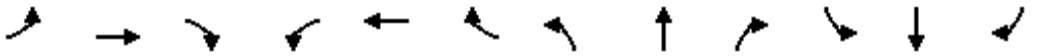


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	68	10	1	0	117	442	13	3	375	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	7	68	10	1	0	117	442	13	3	375	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	108	11	572	440
Volume Left (vph)	33	10	117	3
Volume Right (vph)	68	0	13	62
Hadj (s)	-0.32	0.18	0.03	-0.08
Departure Headway (s)	6.0	6.8	4.9	4.9
Degree Utilization, x	0.18	0.02	0.77	0.60
Capacity (veh/h)	544	459	726	715
Control Delay (s)	10.3	9.9	22.3	15.0
Approach Delay (s)	10.3	9.9	22.3	15.0
Approach LOS	B	A	C	B

Intersection Summary			
Delay	18.1		
HCM Level of Service	C		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

707: Eagle St W & Yonge St



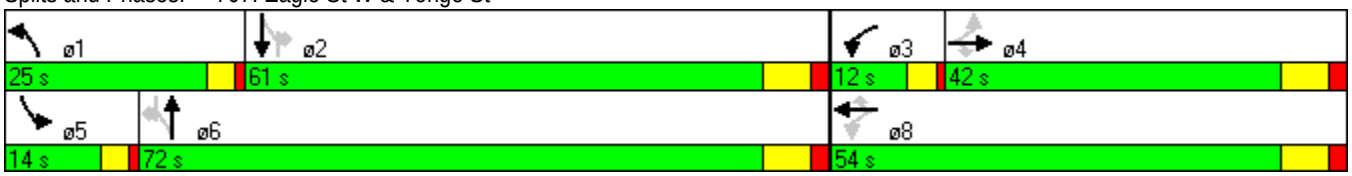
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1570	188	180	1172	43
Lane Group Flow (vph)	78	236	272	184	178	105	305	1570	188	180	1172	43
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	12.0	54.0	54.0	25.0	72.0	61.0	14.0	61.0	72.0
Total Split (%)	30.0%	30.0%	30.0%	8.6%	38.6%	38.6%	17.9%	51.4%	43.6%	10.0%	43.6%	51.4%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.38	0.73	0.55	0.82	0.37	0.21	0.63	0.93	0.27	0.53	0.83	0.06
Control Delay	55.2	68.1	9.8	70.0	44.0	7.3	39.6	45.8	15.0	31.7	58.1	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	68.1	9.8	70.0	44.0	7.3	39.6	45.8	15.0	31.7	58.1	17.0
Queue Length 50th (m)	19.4	62.9	0.9	41.3	40.8	0.0	57.9	211.3	16.3	31.4	154.0	2.4
Queue Length 95th (m)	33.2	85.2	23.8	#60.4	57.2	13.1	#109.9	#251.5	34.0	#67.7	192.7	m11.0
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	310	480	609	224	645	618	482	1695	689	338	1408	781
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.49	0.45	0.82	0.28	0.17	0.63	0.93	0.27	0.53	0.83	0.06

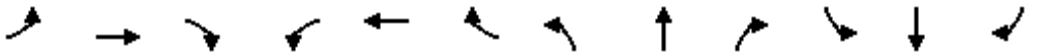
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1570	188	180	1172	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.29	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1239	1921	1633	552	1921	1633	132	3650	1633	142	3650	1633
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)	78	236	272	184	178	105	305	1570	188	180	1172	43
RTOR Reduction (vph)	0	0	223	0	0	78	0	0	60	0	0	23
Lane Group Flow (vph)	78	236	49	184	178	27	305	1570	128	180	1172	20
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Effective Green, g (s)	23.5	23.5	23.5	35.5	35.5	35.5	90.5	65.0	54.0	75.5	54.0	65.0
Actuated g/C Ratio	0.17	0.17	0.17	0.25	0.25	0.25	0.65	0.46	0.39	0.54	0.39	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	208	322	274	213	487	414	478	1695	630	335	1408	758
v/s Ratio Prot		0.12		c0.05	0.09		c0.15	c0.43		0.08	0.32	
v/s Ratio Perm	0.06		0.03	c0.17		0.02	0.26		0.08	0.21		0.01
v/c Ratio	0.38	0.73	0.18	0.86	0.37	0.06	0.64	0.93	0.20	0.54	0.83	0.03
Uniform Delay, d1	51.7	55.3	50.0	48.7	43.0	39.6	35.8	35.2	28.7	31.5	38.9	20.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	1.33	2.94
Incremental Delay, d2	1.1	8.3	0.3	28.4	0.5	0.1	6.4	10.2	0.7	5.7	5.6	0.1
Delay (s)	52.9	63.6	50.3	77.1	43.5	39.7	42.2	45.4	29.4	31.8	57.5	59.8
Level of Service	D	E	D	E	D	D	D	D	C	C	E	E
Approach Delay (s)		56.0			55.9			43.5			54.2	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	49.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX J
Signal Warrant Analysis

Signal Warrant Calculation

Cole Engineering

Major Street: Davis Drive

Minor Street: Street 'B'

Comment Future (2016) Total

Number of Approaches: 1 [ ] 2 [X]

Tee Intersection Configuration: Yes [X] No [ ]

Flow Condition: Free Flow (Rural) [ ] Restricted Flow (Urban) [X]

VOLUME	AM	PM	FACTOR *	
1A - All	2,060	2,850	n/a	1,228
1B - MiNor	113	62	25%	44
2A - Major	1,947	2,788	25%	1,184
2B - Crossing	56	30	25%	11

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT

150% Satisfied:	Yes [ ]	No [X]	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes [ ]	No [X]	

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
ALL APPROACHES	480	720	600	900	1228
	% FULFILLED				136%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MINOR STREET APPROACHES	180	255	180	255	44
	% FULFILLED				17%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MAJOR STREET APPROACHES	480	720	600	900	1184
	% FULFILLED				132%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	11
	% FULFILLED				14%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on miNor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both miNor streets, (2) heaviest through from miNor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation

Cole Engineering

Major Street: Davis Drive

Minor Street: Street 'B'

Comment Future (2021) Total

VOLUME	AM	PM	FACTOR *	
1A - All	2,557	3,444	n/a	1,500
1B - MiNor	421	219	25%	160
2A - Major	2,136	3,225	25%	1,340
2B - Crossing	290	148	25%	55

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Number of Approaches:	1		2	X
Tee Intersection Configuration:	Yes		No	X
Flow Condition:	Free Flow (Rural)			
	Restricted Flow (Urban)	X		

OVERALL WARRANT

150% Satisfied:	Yes		No	X	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes		No	X	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes		No	X	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes		No	X	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes	X	No		

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
ALL APPROACHES	480	720	600	900	1500
	% FULFILLED				167%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MINOR STREET APPROACHES	120	170	120	170	160
	% FULFILLED				94%

150% Satisfied:	Yes		No	X
120% Satisfied:	Yes		No	X
100% Satisfied:	Yes		No	X
80% Satisfied:	Yes	X	No	

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MAJOR STREET APPROACHES	480	720	600	900	1340
	% FULFILLED				149%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	55
	% FULFILLED				73%

150% Satisfied:	Yes		No	X
120% Satisfied:	Yes		No	X
100% Satisfied:	Yes		No	X
80% Satisfied:	Yes		No	X

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on miNor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both miNor streets, (2) heaviest through from miNor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation

Cole Engineering

Major Street: Davis Drive

Minor Street: Street 'B'

Comment Future (2026) Total

Number of Approaches: 1 [ ] 2 [X]

Tee Intersection Configuration: Yes [ ] No [X]

Flow Condition: Free Flow (Rural) [ ] Restricted Flow (Urban) [X]

VOLUME	AM	PM	FACTOR *	
1A - All	2,613	3,513	n/a	1,532
1B - MiNor	421	219	25%	160
2A - Major	2,192	3,294	25%	1,372
2B - Crossing	290	148	25%	55

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT

150% Satisfied:	Yes [ ]	No [X]	Warrant for new intersection with forecast traffic	
120% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with forecast traffic	
100% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic *	
COMBO 80% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic	
80% Satisfied:	Yes [X]	No [ ]		

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
ALL APPROACHES	480	720	600	900	1532
	% FULFILLED				170%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MINOR STREET APPROACHES	120	170	120	170	160
	% FULFILLED				94%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [X]	No [ ]

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MAJOR STREET APPROACHES	480	720	600	900	1372
	% FULFILLED				152%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
TRAFFIC CROSSING MAJOR STREET	50	75	50	75	55
	% FULFILLED				73%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on miNor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both miNor streets, (2) heaviest through from miNor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

APPENDIX K

Future (2021) Total Traffic

Level Of Service Calculations

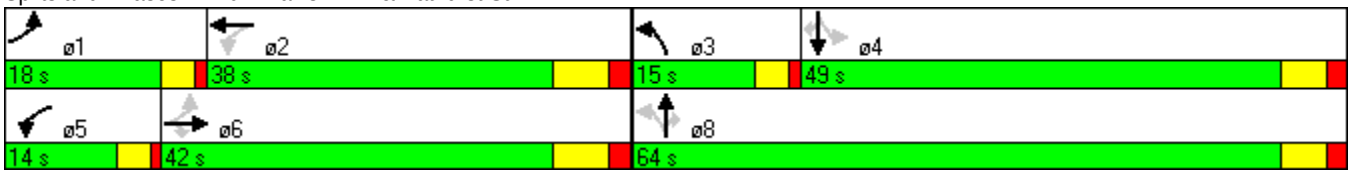
101: Davis Dr W & Bathurst St

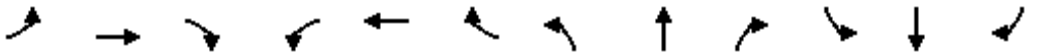
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	957	483	181	790	331	224	115	27	524	714
Lane Group Flow (vph)	278	957	483	181	853	331	224	115	27	524	714
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	42.0	42.0	14.0	38.0	15.0	64.0	64.0	49.0	49.0	49.0
Total Split (%)	15.0%	35.0%	35.0%	11.7%	31.7%	12.5%	53.3%	53.3%	40.8%	40.8%	40.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.94	0.87	0.68	0.82	0.90	0.78	0.13	0.14	0.07	0.41	0.97
Control Delay	68.9	49.8	17.5	66.2	73.9	31.9	15.8	2.5	26.0	30.6	51.6
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	68.9	49.8	17.5	66.2	73.9	31.9	15.8	2.5	26.0	30.6	51.6
Queue Length 50th (m)	48.5	113.9	33.2	41.1	111.4	30.4	11.2	0.0	4.2	48.3	116.3
Queue Length 95th (m)	#102.8	#149.5	72.1	#63.6	#141.1	#44.8	16.1	6.3	10.7	63.2	#197.1
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	297	1101	715	222	943	425	1764	849	421	1308	749
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	0.94	0.87	0.68	0.82	0.90	0.78	0.13	0.14	0.06	0.40	0.95

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	957	483	181	790	63	331	224	115	27	524	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3610		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.13	1.00		0.34	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	219	3650	1633	247	3610		647	3650	1633	1176	3650	1633
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)	278	957	483	181	790	63	331	224	115	27	524	714
RTOR Reduction (vph)	0	0	223	0	5	0	0	0	60	0	0	167
Lane Group Flow (vph)	278	957	260	181	848	0	331	224	55	27	524	547
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	50.1	36.2	36.2	41.0	31.1		56.9	56.9	56.9	41.9	41.9	41.9
Effective Green, g (s)	50.1	36.2	36.2	41.0	31.1		56.9	56.9	56.9	41.9	41.9	41.9
Actuated g/C Ratio	0.42	0.30	0.30	0.34	0.26		0.47	0.47	0.47	0.35	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	292	1101	493	215	936		415	1731	774	411	1274	570
v/s Ratio Prot	c0.12	0.26		0.07	0.23		c0.07	0.06			0.14	
v/s Ratio Perm	c0.28		0.16	0.22			0.31		0.03	0.02		c0.34
v/c Ratio	0.95	0.87	0.53	0.84	0.91		0.80	0.13	0.07	0.07	0.41	0.96
Uniform Delay, d1	33.3	39.7	34.8	31.2	43.0		23.7	17.7	17.2	26.0	29.7	38.2
Progression Factor	1.00	1.00	1.00	1.64	1.43		0.88	0.89	0.72	1.00	1.00	1.00
Incremental Delay, d2	39.7	9.4	4.0	23.4	13.2		10.1	0.0	0.0	0.1	0.2	27.9
Delay (s)	73.0	49.0	38.8	74.6	74.9		31.1	15.8	12.3	26.1	29.9	66.1
Level of Service	E	D	D	E	E		C	B	B	C	C	E
Approach Delay (s)		50.0			74.8			22.8			50.3	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	51.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

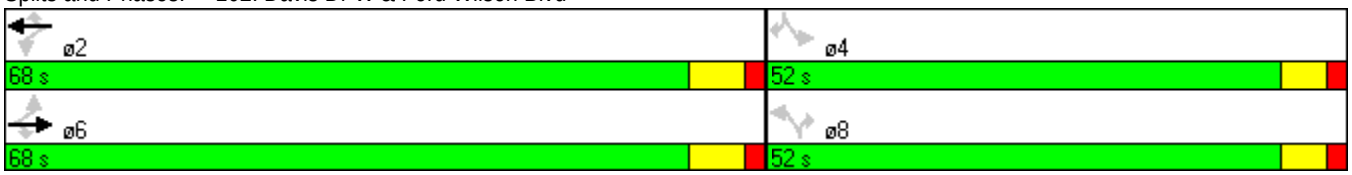
102: Davis Dr W & Ford Wilson Blvd

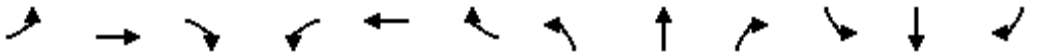
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	1048	30	42	853	40	56	65	121	87
Lane Group Flow (vph)	21	1048	30	42	853	40	56	65	121	87
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.08	0.56	0.04	0.23	0.46	0.05	0.08	0.10	0.17	0.13
Control Delay	23.2	23.8	12.5	20.6	19.9	4.6	24.1	6.1	25.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	23.8	12.5	20.6	19.9	4.6	24.1	6.1	25.3	5.4
Queue Length 50th (m)	2.3	61.4	0.9	5.3	65.5	0.0	8.3	0.0	18.6	0.0
Queue Length 95th (m)	m3.5	82.5	m2.1	13.4	81.6	5.4	17.0	8.8	31.9	10.0
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	257	1855	844	184	1855	850	700	666	700	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.56	0.04	0.23	0.46	0.05	0.08	0.10	0.17	0.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1048	30	42	853	40	56	0	65	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.26	1.00	1.00	0.19	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	505	3650	1633	361	3650	1633	1825		1633	1825		1633
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)	21	1048	30	42	853	40	56	0	65	121	0	87
RTOR Reduction (vph)	0	0	14	0	0	20	0	0	40	0	0	54
Lane Group Flow (vph)	21	1048	16	42	853	20	56	0	25	121	0	33
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	257	1855	830	184	1855	830	700		626	700		626
v/s Ratio Prot		c0.29			0.23							
v/s Ratio Perm	0.04		0.01	0.12		0.01	0.03		0.02	c0.07		0.02
v/c Ratio	0.08	0.56	0.02	0.23	0.46	0.02	0.08		0.04	0.17		0.05
Uniform Delay, d1	15.1	20.3	14.6	16.4	18.9	14.7	23.5		23.2	24.4		23.3
Progression Factor	1.45	1.12	2.34	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.4	0.8	0.0	2.9	0.8	0.1	0.2		0.1	0.5		0.2
Delay (s)	22.4	23.5	34.3	19.3	19.8	14.7	23.8		23.3	25.0		23.5
Level of Service	C	C	C	B	B	B	C		C	C		C
Approach Delay (s)		23.8			19.5			23.5			24.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

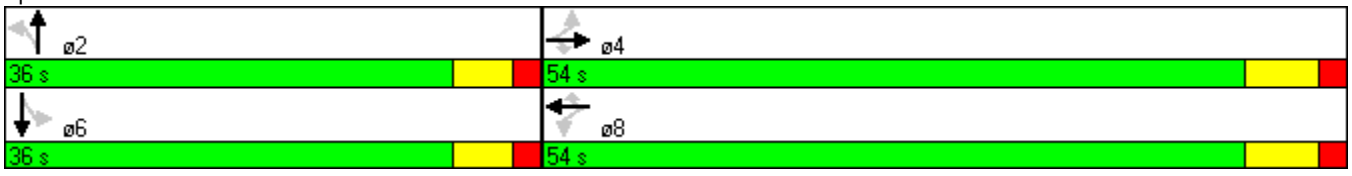
103: Davis Dr W & Street 'B'

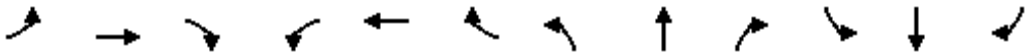
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	5	1216	26	31	817	41	109	0	181	0
Lane Group Flow (vph)	5	1216	26	31	817	41	109	111	181	20
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	
Protected Phases		4			8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	4	4	4	8	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	54.0	54.0	54.0	54.0	54.0	54.0	36.0	36.0	36.0	36.0
Total Split (%)	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	Max	Max
v/c Ratio	0.02	0.74	0.03	0.30	0.49	0.05	0.19	0.16	0.34	0.03
Control Delay	11.4	22.8	4.4	22.7	17.9	3.8	20.6	12.6	22.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	22.8	4.4	22.7	17.9	3.8	20.6	12.6	22.8	0.0
Queue Length 50th (m)	0.5	85.8	0.0	3.2	49.6	0.0	12.1	6.7	21.6	0.0
Queue Length 95th (m)	2.1	95.7	3.6	9.7	56.8	4.5	25.9	19.0	42.2	0.0
Internal Link Dist (m)		422.4			296.2			188.1		88.8
Turn Bay Length (m)										
Base Capacity (vph)	273	1906	865	118	1906	872	575	686	530	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.64	0.03	0.26	0.43	0.05	0.19	0.16	0.34	0.03

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 103: Davis Dr W & Street 'B'

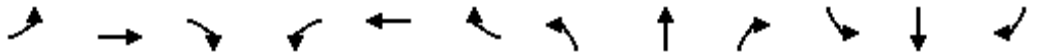




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1216	26	31	817	41	109	0	111	181	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1633		1825	1633	
Flt Permitted	0.27	1.00	1.00	0.12	1.00	1.00	0.74	1.00		0.69	1.00	
Satd. Flow (perm)	523	3650	1633	225	3650	1633	1430	1633		1317	1633	
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)	5	1216	26	31	817	41	109	0	111	181	0	20
RTOR Reduction (vph)	0	0	14	0	0	22	0	29	0	0	12	0
Lane Group Flow (vph)	5	1216	12	31	817	19	109	82	0	181	8	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	40.8	40.8	40.8	40.8	40.8	40.8	36.2	36.2		36.2	36.2	
Effective Green, g (s)	40.8	40.8	40.8	40.8	40.8	40.8	36.2	36.2		36.2	36.2	
Actuated g/C Ratio	0.45	0.45	0.45	0.45	0.45	0.45	0.40	0.40		0.40	0.40	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	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	
Lane Grp Cap (vph)	237	1655	740	102	1655	740	575	657		530	657	
v/s Ratio Prot		c0.33			0.22			0.05			0.00	
v/s Ratio Perm	0.01		0.01	0.14		0.01	0.08			c0.14		
v/c Ratio	0.02	0.73	0.02	0.30	0.49	0.03	0.19	0.13		0.34	0.01	
Uniform Delay, d1	13.6	20.2	13.5	15.6	17.3	13.6	17.4	16.9		18.6	16.2	
Progression Factor	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	1.7	0.0	1.7	0.2	0.0	0.7	0.4		1.8	0.0	
Delay (s)	13.6	21.9	13.6	17.3	17.6	13.6	18.1	17.3		20.4	16.2	
Level of Service	B	C	B	B	B	B	B	B		C	B	
Approach Delay (s)		21.7			17.4			17.7			20.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1438	6	5	850	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	1438	6	5	850	8	0	0	3	0	0	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		320			205							
pX, platoon unblocked	0.90			0.72			0.76	0.76	0.72	0.76	0.76	0.90
vC, conflicting volume	858			1444			2004	2437	722	1710	2432	425
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	630			829			1131	1697	0	747	1691	151
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			100	100	100	100	100	95
cM capacity (veh/h)	870			582			110	66	782	218	66	791

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	64	959	485	5	425	425	8	0	3	39
Volume Left	64	0	0	5	0	0	0	0	0	0
Volume Right	0	0	6	0	0	0	8	0	3	39
cSH	870	1700	1700	582	1700	1700	1700	1700	782	791
Volume to Capacity	0.07	0.56	0.29	0.01	0.25	0.25	0.00	0.00	0.00	0.05
Queue Length 95th (m)	1.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.2
Control Delay (s)	9.5	0.0	0.0	11.2	0.0	0.0	0.0	0.0	9.6	9.8
Lane LOS	A			B				A	A	A
Approach Delay (s)	0.4			0.1				9.6		9.8
Approach LOS								A		A

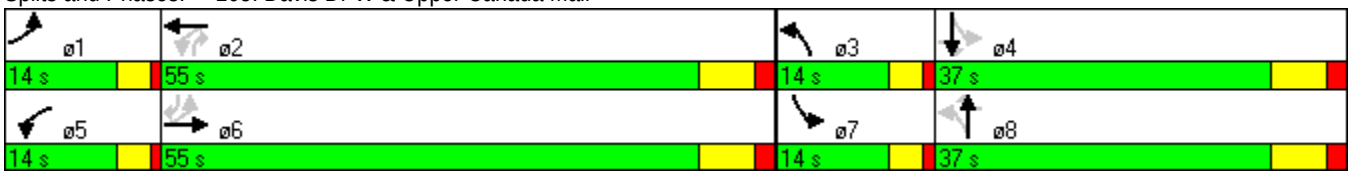
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	49.9%	ICU Level of Service		A
Analysis Period (min)	15			

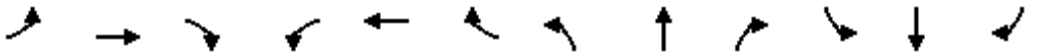
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1149	258	72	687	44	170	59	82	15	19	6
Lane Group Flow (vph)	34	1149	258	72	687	44	170	59	82	15	19	6
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.07	0.55	0.74	0.23	0.31	0.13	0.50	0.16	0.08	0.05	0.09	0.01
Control Delay	7.8	18.2	28.8	9.2	13.7	12.9	41.6	42.4	3.4	31.9	46.1	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	18.2	28.8	9.2	13.7	12.9	41.6	42.4	3.4	31.9	46.1	8.7
Queue Length 50th (m)	2.2	82.7	16.6	4.8	41.7	0.0	33.9	11.4	0.0	2.8	4.2	0.0
Queue Length 95th (m)	6.8	126.4	42.1	12.0	64.6	9.9	48.4	23.4	7.9	7.4	10.5	2.3
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	562	2107	547	342	2187	441	342	480	1012	342	480	945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.55	0.47	0.21	0.31	0.10	0.50	0.12	0.08	0.04	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1149	258	72	687	44	170	59	82	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.37	1.00	1.00	0.17	1.00	1.00	0.60	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	701	3650	1633	320	3650	1633	1144	1921	1633	1380	1921	1633
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)	34	1149	258	72	687	44	170	59	82	15	19	6
RTOR Reduction (vph)	0	0	160	0	0	36	0	0	36	0	0	3
Lane Group Flow (vph)	34	1149	98	72	687	8	170	59	46	15	19	3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	70.4	66.1	15.9	74.0	67.9	22.9	29.8	22.9	67.9	18.8	15.9	66.1
Effective Green, g (s)	70.4	66.1	15.9	74.0	67.9	22.9	29.8	22.9	67.9	18.8	15.9	66.1
Actuated g/C Ratio	0.59	0.55	0.13	0.62	0.57	0.19	0.25	0.19	0.57	0.16	0.13	0.55
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	452	2011	216	274	2065	312	340	367	924	227	255	900
v/s Ratio Prot	0.00	c0.31		c0.01	0.19		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.06	0.15		0.01	c0.08		0.03	0.01		0.00
v/c Ratio	0.08	0.57	0.45	0.26	0.33	0.03	0.50	0.16	0.05	0.07	0.07	0.00
Uniform Delay, d1	10.5	17.7	48.0	11.6	13.9	39.5	37.5	40.5	11.6	43.0	45.6	12.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.2	1.5	0.5	0.4	0.0	1.2	0.2	0.1	0.1	0.1	0.0
Delay (s)	10.6	18.9	49.5	12.1	14.4	39.5	38.6	40.7	11.7	43.1	45.7	12.1
Level of Service	B	B	D	B	B	D	D	D	B	D	D	B
Approach Delay (s)		24.1			15.5			31.9			39.7	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

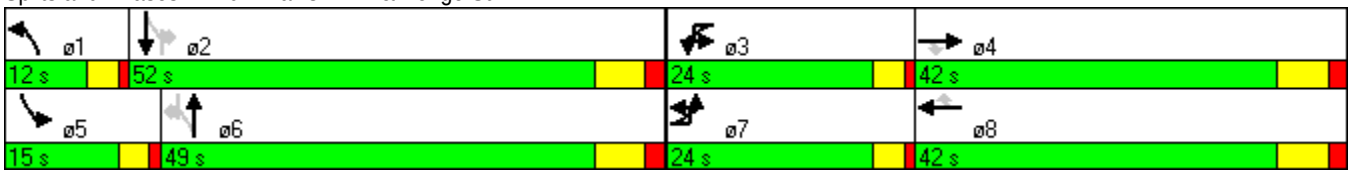
c Critical Lane Group

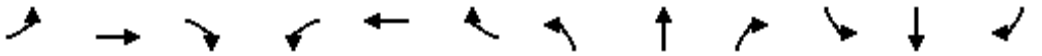
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	801	243	270	536	123	129	522	178	201	1132	255
Lane Group Flow (vph)	201	801	243	270	536	123	129	522	178	201	1132	255
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	12.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	24.0	42.0	42.0	24.0	42.0	42.0	12.0	49.0	52.0	15.0	52.0	49.0
Total Split (%)	18.5%	32.3%	32.3%	18.5%	32.3%	32.3%	9.2%	37.7%	40.0%	11.5%	40.0%	37.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.80	0.85	0.45	0.96	0.54	0.23	0.71	0.43	0.26	0.50	0.87	0.35
Control Delay	76.6	55.9	16.1	99.2	42.8	7.2	56.4	39.2	14.3	25.4	48.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	55.9	16.1	99.2	42.8	7.2	56.4	39.2	14.3	25.4	48.0	5.2
Queue Length 50th (m)	49.8	101.5	15.8	69.6	61.9	0.0	22.7	50.5	14.9	30.5	144.1	0.0
Queue Length 95th (m)	#80.7	125.3	39.4	#122.7	80.0	14.6	#47.1	54.0	21.6	47.0	#177.1	18.3
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	281	983	559	281	995	535	181	1228	696	411	1299	719
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.81	0.43	0.96	0.54	0.23	0.71	0.43	0.26	0.49	0.87	0.35

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

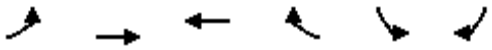




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	801	243	270	536	123	129	522	178	201	1132	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	176	3650	1633	669	3650	1633
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)	201	801	243	270	536	123	129	522	178	201	1132	255
RTOR Reduction (vph)	0	0	121	0	0	90	0	0	115	0	0	169
Lane Group Flow (vph)	201	801	122	270	536	33	129	522	63	201	1132	86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	18.0	33.4	33.4	20.0	35.4	35.4	52.0	43.7	46.3	57.2	46.3	43.7
Effective Green, g (s)	18.0	33.4	33.4	20.0	35.4	35.4	52.0	43.7	46.3	57.2	46.3	43.7
Actuated g/C Ratio	0.14	0.26	0.26	0.15	0.27	0.27	0.40	0.34	0.36	0.44	0.36	0.34
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	253	938	420	281	994	445	176	1227	582	391	1300	549
v/s Ratio Prot	0.11	c0.22		c0.15	0.15		c0.05	0.14		c0.04	c0.31	
v/s Ratio Perm			0.07			0.02	0.25		0.04	0.18		0.05
v/c Ratio	0.79	0.85	0.29	0.96	0.54	0.08	0.73	0.43	0.11	0.51	0.87	0.16
Uniform Delay, d1	54.2	46.0	38.8	54.6	40.3	35.1	30.0	33.4	28.0	23.5	39.1	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.52	1.12	3.22	1.00	1.00	1.00
Incremental Delay, d2	15.7	7.6	0.4	42.9	0.6	0.1	14.1	1.0	0.4	1.1	8.2	0.6
Delay (s)	69.9	53.6	39.2	97.5	40.9	35.2	59.8	38.4	90.5	24.7	47.2	30.8
Level of Service	E	D	D	F	D	D	E	D	F	C	D	C
Approach Delay (s)		53.4			56.6			52.9			41.7	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM Average Control Delay	49.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

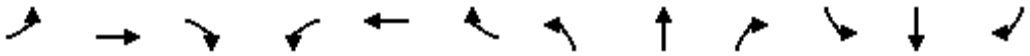
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	13	16	102	46	8
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	13	16	102	46	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	202	92	100	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	92	100	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	97	98	98	91	97	
cM capacity (veh/h)	664	779	772	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	30	118	46	8
Volume Left	17	0	46	0
Volume Right	0	102	0	8
cSH	710	1033	1636	1700
Volume to Capacity	0.04	0.11	0.03	0.00
Queue Length 95th (m)	1.0	2.9	0.7	0.0
Control Delay (s)	10.3	8.9	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.3	8.9	6.2	
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	72	0	117	0	158	104	118	268	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	72	0	117	0	158	104	118	268	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	831	766	268	714	714	210	268			262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	831	766	268	714	714	210	268			262		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	100	86	100			91		
cM capacity (veh/h)	233	305	776	325	327	835	1307			1314		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	72	117	262	386
Volume Left	0	72	0	0	118
Volume Right	0	0	117	104	0
cSH	1700	325	835	1307	1314
Volume to Capacity	0.00	0.22	0.14	0.00	0.09
Queue Length 95th (m)	0.0	6.3	3.7	0.0	2.2
Control Delay (s)	0.0	19.2	10.0	0.0	3.0
Lane LOS	A	C	B		A
Approach Delay (s)	0.0	13.5		0.0	3.0
Approach LOS	A	B			

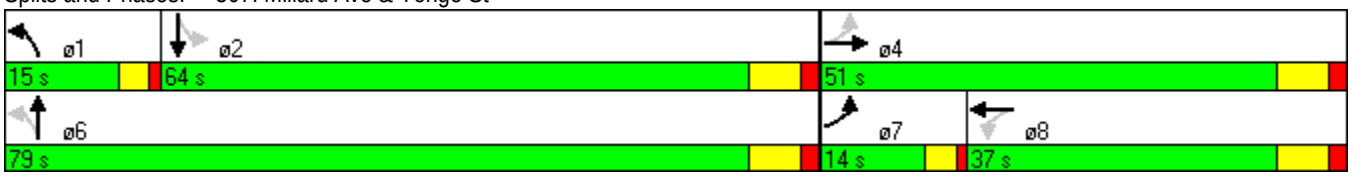
Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	52.5%	ICU Level of Service		A
Analysis Period (min)	15			

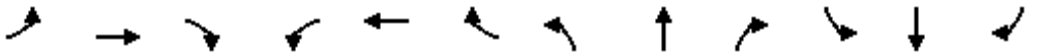
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	50	98	104	112	164	695	63	1553	168
Lane Group Flow (vph)	50	234	104	163	164	740	63	1553	168
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.13	0.41	0.40	0.39	0.75	0.35	0.19	0.90	0.10
Control Delay	29.6	28.3	48.4	41.7	65.4	15.5	21.6	28.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	28.3	48.4	41.7	65.4	15.5	21.6	28.5	0.1
Queue Length 50th (m)	8.7	34.7	22.9	32.2	36.4	37.5	6.7	92.1	0.0
Queue Length 95th (m)	17.4	56.1	40.7	53.3	#65.4	60.1	m10.1	m#242.8	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	384	632	272	435	229	2142	339	1735	1633
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	0.13	0.37	0.38	0.37	0.72	0.35	0.19	0.90	0.10

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	98	136	104	112	51	164	695	45	63	1553	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1754		1825	1831		1825	3617		1825	3650	1633
Flt Permitted	0.51	1.00		0.61	1.00		0.06	1.00		0.37	1.00	1.00
Satd. Flow (perm)	987	1754		1177	1831		118	3617		712	3650	1633
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)	50	98	136	104	112	51	164	695	45	63	1553	168
RTOR Reduction (vph)	0	40	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	50	194	0	104	151	0	164	737	0	63	1553	168
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.0	61.0	130.0
Effective Green, g (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.0	61.0	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	538		263	408		215	2117		334	1713	1633
v/s Ratio Prot	0.01	c0.11			0.08		c0.07	0.20			c0.43	
v/s Ratio Perm	0.04			c0.09			0.38			0.09		0.10
v/c Ratio	0.14	0.36		0.40	0.37		0.76	0.35		0.19	0.91	0.10
Uniform Delay, d1	32.3	35.1		43.0	42.8		35.0	14.0		20.1	31.9	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.83	1.07		0.92	0.70	1.00
Incremental Delay, d2	0.2	0.4		1.0	0.6		12.7	0.4		0.8	5.7	0.1
Delay (s)	32.5	35.5		44.0	43.3		76.8	15.3		19.3	27.9	0.1
Level of Service	C	D		D	D		E	B		B	C	A
Approach Delay (s)		35.0			43.6			26.5			25.0	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

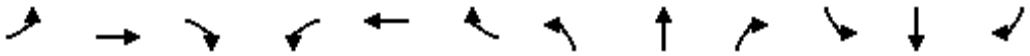
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	88	0	599	27	1156	
Lane Group Flow (vph)	88	71	624	27	1160	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.55	0.14	0.22	0.04	0.41	
Control Delay	63.2	0.6	3.8	2.8	4.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	63.2	0.6	3.8	2.8	4.2	
Queue Length 50th (m)	20.1	0.0	16.2	1.0	34.6	
Queue Length 95th (m)	35.5	0.0	26.4	m2.3	43.8	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	303	618	2839	623	2852	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.11	0.22	0.04	0.41	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

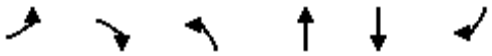
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	88	0	71	0	599	25	27	1156	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3628		1825	3648	
Flt Permitted				0.76	1.00			1.00		0.42	1.00	
Satd. Flow (perm)				1455	1633			3628		798	3648	
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)	0	0	0	88	0	71	0	599	25	27	1156	4
RTOR Reduction (vph)	0	0	0	0	63	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	8	0	0	622	0	27	1160	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				13.1	13.1			93.9		93.9	93.9	
Effective Green, g (s)				13.1	13.1			93.9		93.9	93.9	
Actuated g/C Ratio				0.11	0.11			0.78		0.78	0.78	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				159	178			2839		624	2855	
v/s Ratio Prot					0.00			0.17			c0.32	
v/s Ratio Perm				c0.06						0.03		
v/c Ratio				0.55	0.04			0.22		0.04	0.41	
Uniform Delay, d1				50.7	47.8			3.4		2.9	4.2	
Progression Factor				1.00	1.00			1.00		0.74	0.86	
Incremental Delay, d2				4.1	0.1			0.2		0.1	0.4	
Delay (s)				54.8	47.9			3.6		2.3	3.9	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.7			3.6			3.9	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

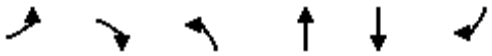
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	18	48	0	0	58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	18	48	0	0	58

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	32	48	58
Volume Left (vph)	14	48	0
Volume Right (vph)	18	0	58
Hadj (s)	-0.25	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.03	0.06	0.05
Capacity (veh/h)	903	835	1037
Control Delay (s)	7.0	7.5	6.6
Approach Delay (s)	7.0	7.5	6.6
Approach LOS	A	A	A

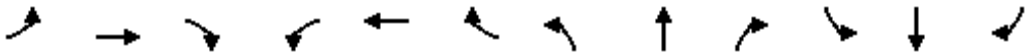
Intersection Summary			
Delay	7.0		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	97	65	22	53	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	97	65	22	53	20

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	117	87	73
Volume Left (vph)	20	65	0
Volume Right (vph)	97	0	20
Hadj (s)	-0.46	0.15	-0.16
Departure Headway (s)	3.8	4.4	4.1
Degree Utilization, x	0.12	0.11	0.08
Capacity (veh/h)	910	794	855
Control Delay (s)	7.3	7.9	7.4
Approach Delay (s)	7.3	7.9	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	89	13	5	1	38	208	5	0	290	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	6	89	13	5	1	38	208	5	0	290	46

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	159	19	251	336
Volume Left (vph)	64	13	38	0
Volume Right (vph)	89	1	5	46
Hadj (s)	-0.26	0.11	0.02	-0.08
Departure Headway (s)	5.1	5.7	4.8	4.6
Degree Utilization, x	0.22	0.03	0.33	0.43
Capacity (veh/h)	643	545	716	748
Control Delay (s)	9.5	8.8	10.2	11.0
Approach Delay (s)	9.5	8.8	10.2	11.0
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.4		
HCM Level of Service	B		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

707: Eagle St W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	1022	232	77	1514	116
Lane Group Flow (vph)	40	189	225	196	186	113	241	1022	232	77	1514	116
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	52.0	16.0	67.0	62.0	11.0	62.0	67.0
Total Split (%)	31.5%	31.5%	31.5%	8.5%	40.0%	40.0%	12.3%	51.5%	47.7%	8.5%	47.7%	51.5%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	C-Max	C-Max	Max	C-Max	C-Max
v/c Ratio	0.23	0.69	0.61	0.84	0.42	0.25	0.54	0.61	0.29	0.16	0.98	0.14
Control Delay	50.1	65.1	23.9	72.3	45.0	7.6	31.6	28.1	5.0	15.4	61.0	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	65.1	23.9	72.3	45.0	7.6	31.6	28.1	5.0	15.4	61.0	14.4
Queue Length 50th (m)	9.3	46.9	16.4	42.6	41.3	0.0	36.6	101.0	3.1	11.2	154.2	7.8
Queue Length 95th (m)	19.2	67.0	40.0	#64.2	58.7	13.8	70.1	122.3	18.4	m14.4	#243.7	m12.3
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	322	502	542	232	665	639	446	1685	813	476	1544	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.38	0.42	0.84	0.28	0.18	0.54	0.61	0.29	0.16	0.98	0.14

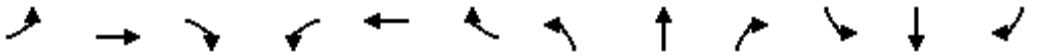
Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

707: Eagle St W & Yonge St

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	1022	232	77	1514	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.35	1.00	1.00	0.07	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	1230	1921	1633	680	1921	1633	130	3650	1633	364	3650	1633
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)	40	189	225	196	186	113	241	1022	232	77	1514	116
RTOR Reduction (vph)	0	0	133	0	0	87	0	0	122	0	0	62
Lane Group Flow (vph)	40	189	92	196	186	26	241	1022	110	77	1514	54
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	60.0	55.0	77.4	55.0	60.0
Effective Green, g (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	60.0	55.0	77.4	55.0	60.0
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.66	0.46	0.42	0.60	0.42	0.46
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	176	275	234	216	437	372	444	1685	691	468	1544	754
v/s Ratio Prot		0.10		c0.05	0.10		c0.11	0.28		0.03	c0.41	
v/s Ratio Perm	0.03		0.06	c0.16		0.02	0.25		0.07	0.07		0.03
v/c Ratio	0.23	0.69	0.39	0.91	0.43	0.07	0.54	0.61	0.16	0.16	0.98	0.07
Uniform Delay, d1	49.3	52.9	50.6	48.3	42.9	39.4	32.2	26.2	23.2	12.5	37.0	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.85	1.32	4.07
Incremental Delay, d2	0.7	7.0	1.1	36.5	0.7	0.1	4.7	1.6	0.5	0.4	12.8	0.1
Delay (s)	50.0	59.9	51.7	84.8	43.6	39.5	36.9	27.8	23.7	23.6	61.6	79.5
Level of Service	D	E	D	F	D	D	D	C	C	C	E	E
Approach Delay (s)		55.0			59.0			28.6			61.1	
Approach LOS		D			E			C			E	

Intersection Summary			
HCM Average Control Delay	48.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

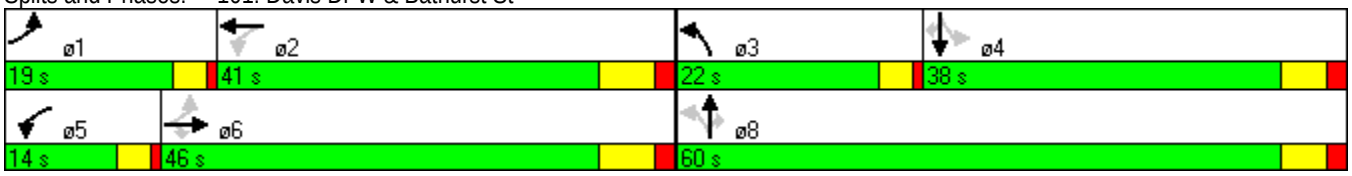
101: Davis Dr W & Bathurst St

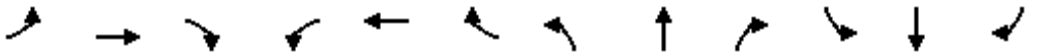
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1194	219	210	1067	701	1020	356	79	308	255
Lane Group Flow (vph)	373	1194	219	210	1134	701	1020	356	79	308	255
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	19.0	46.0	46.0	14.0	41.0	22.0	60.0	60.0	38.0	38.0	38.0
Total Split (%)	15.8%	38.3%	38.3%	11.7%	34.2%	18.3%	50.0%	50.0%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.87	0.88	0.29	0.77	1.10	1.51	0.74	0.46	0.91	0.44	0.53
Control Delay	52.6	45.5	4.9	48.2	112.4	262.9	29.5	6.0	119.5	43.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	45.5	4.9	48.2	112.4	262.9	29.5	6.0	119.5	43.3	13.2
Queue Length 50th (m)	67.9	144.9	0.0	39.3	~164.4	~230.9	108.2	21.6	18.3	33.7	9.8
Queue Length 95th (m)	#152.4	#196.4	16.5	#79.2	#207.0	#289.7	111.1	28.4	#40.6	43.1	30.9
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	431	1352	743	273	1028	464	1643	871	120	973	586
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	0.87	0.88	0.29	0.77	1.10	1.51	0.62	0.41	0.66	0.32	0.44

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

101: Davis Dr W & Bathurst St

Splits and Phases: 101: Davis Dr W & Bathurst St



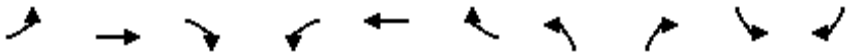


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1194	219	210	1067	67	701	1020	356	79	308	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3618		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.12	1.00		0.41	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	202	3650	1633	226	3618		782	3650	1633	452	3650	1633
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)	373	1194	219	210	1067	67	701	1020	356	79	308	255
RTOR Reduction (vph)	0	0	138	0	4	0	0	0	155	0	0	165
Lane Group Flow (vph)	373	1194	81	210	1130	0	701	1020	201	79	308	90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	61.8	44.5	44.5	47.3	34.0		45.2	45.2	45.2	23.2	23.2	23.2
Effective Green, g (s)	61.8	44.5	44.5	47.3	34.0		45.2	45.2	45.2	23.2	23.2	23.2
Actuated g/C Ratio	0.52	0.37	0.37	0.39	0.28		0.38	0.38	0.38	0.19	0.19	0.19
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	426	1354	606	266	1025		451	1375	615	87	706	316
v/s Ratio Prot	c0.17	0.33		0.09	c0.31		c0.23	0.28			0.08	
v/s Ratio Perm	0.28		0.05	0.22			c0.35		0.12	0.17		0.05
v/c Ratio	0.88	0.88	0.13	0.79	1.10		1.55	0.74	0.33	0.91	0.44	0.28
Uniform Delay, d1	34.3	35.3	25.0	28.0	43.0		34.2	32.4	26.6	47.4	42.6	41.3
Progression Factor	1.00	1.00	1.00	1.22	1.38		0.85	0.85	0.63	1.00	1.00	1.00
Incremental Delay, d2	17.9	8.5	0.5	12.8	59.2		257.0	1.5	0.2	66.1	0.4	0.5
Delay (s)	52.2	43.8	25.5	47.0	118.5		286.0	28.9	17.0	113.4	43.1	41.8
Level of Service	D	D	C	D	F		F	C	B	F	D	D
Approach Delay (s)		43.3			107.3			113.7			51.2	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM Average Control Delay	83.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	117.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

102: Davis Dr W & Ford Wilson Blvd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1370	58	99	1244	141	53	91	61	20
Lane Group Flow (vph)	174	1370	58	99	1244	141	53	91	61	20
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	84.0	84.0	84.0	84.0	84.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	0.82	0.58	0.05	0.57	0.53	0.13	0.12	0.20	0.13	0.05
Control Delay	41.7	7.1	0.9	27.6	12.7	1.6	35.7	14.9	36.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	7.1	0.9	27.6	12.7	1.6	35.7	14.9	36.0	13.8
Queue Length 50th (m)	16.9	37.9	0.3	12.1	77.6	0.0	9.7	5.1	11.2	0.0
Queue Length 95th (m)	m#29.9	48.3	m0.0	35.2	94.1	6.8	20.2	18.1	22.4	6.2
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	213	2342	1069	175	2342	1098	456	456	456	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.58	0.05	0.57	0.53	0.13	0.12	0.20	0.13	0.05

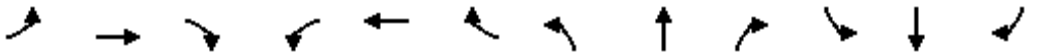
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

102: Davis Dr W & Ford Wilson Blvd

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1370	58	99	1244	141	53	0	91	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.17	1.00	1.00	0.14	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	333	3650	1633	273	3650	1633	1825		1633	1825		1633
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)	174	1370	58	99	1244	141	53	0	91	61	0	20
RTOR Reduction (vph)	0	0	21	0	0	51	0	0	47	0	0	15
Lane Group Flow (vph)	174	1370	37	99	1244	90	53	0	44	61	0	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	214	2342	1048	175	2342	1048	456		408	456		408
v/s Ratio Prot		0.38			0.34							
v/s Ratio Perm	c0.52		0.02	0.36		0.06	0.03		0.03	c0.03		0.00
v/c Ratio	0.81	0.58	0.04	0.57	0.53	0.09	0.12		0.11	0.13		0.01
Uniform Delay, d1	16.1	12.3	7.9	12.1	11.7	8.2	34.8		34.7	34.9		33.9
Progression Factor	1.14	0.51	0.39	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	18.5	0.7	0.0	12.6	0.9	0.2	0.5		0.5	0.1		0.0
Delay (s)	36.9	7.0	3.1	24.7	12.6	8.3	35.3		35.2	35.1		33.9
Level of Service	D	A	A	C	B	A	D		D	D		C
Approach Delay (s)		10.1			13.0			35.2			34.8	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

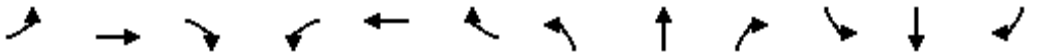
103: Davis Dr W & Street B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	20	1407	105	106	1410	177	58	0	90	0
Lane Group Flow (vph)	20	1407	105	106	1410	177	58	61	90	10
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	
Protected Phases		4			8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	4	4	4	8	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	65.0	65.0	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	Max	Max
v/c Ratio	0.15	0.67	0.11	0.81	0.67	0.17	0.14	0.12	0.23	0.02
Control Delay	10.0	14.5	1.5	58.7	14.6	1.4	29.1	9.4	30.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	14.5	1.5	58.7	14.6	1.4	29.1	9.4	30.1	0.1
Queue Length 50th (m)	1.4	75.8	0.0	12.5	76.2	0.0	7.8	0.3	12.4	0.0
Queue Length 95th (m)	4.5	84.0	5.0	#43.2	84.2	6.3	18.5	9.9	26.7	0.0
Internal Link Dist (m)		427.9			290.8			144.5		87.5
Turn Bay Length (m)										
Base Capacity (vph)	145	2352	1090	146	2352	1115	404	500	386	499
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.60	0.10	0.73	0.60	0.16	0.14	0.12	0.23	0.02

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

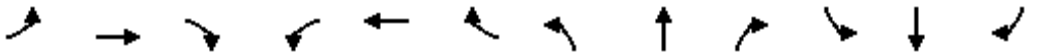
Splits and Phases: 103: Davis Dr W & Street B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	1407	105	106	1410	177	58	0	61	90	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1633		1825	1633	
Flt Permitted	0.12	1.00	1.00	0.12	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	225	3650	1633	227	3650	1633	1443	1633		1378	1633	
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)	20	1407	105	106	1410	177	58	0	61	90	0	10
RTOR Reduction (vph)	0	0	45	0	0	75	0	42	0	0	7	0
Lane Group Flow (vph)	20	1407	60	106	1410	102	58	19	0	90	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	51.8	51.8	51.8	51.8	51.8	51.8	25.2	25.2		25.2	25.2	
Effective Green, g (s)	51.8	51.8	51.8	51.8	51.8	51.8	25.2	25.2		25.2	25.2	
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.58	0.58	0.28	0.28		0.28	0.28	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	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	
Lane Grp Cap (vph)	130	2101	940	131	2101	940	404	457		386	457	
v/s Ratio Prot		0.39			0.39			0.01			0.00	
v/s Ratio Perm	0.09		0.04	c0.47		0.06	0.04			c0.07		
v/c Ratio	0.15	0.67	0.06	0.81	0.67	0.11	0.14	0.04		0.23	0.01	
Uniform Delay, d1	8.9	13.2	8.4	15.2	13.2	8.6	24.3	23.6		25.0	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.8	0.0	29.5	0.9	0.1	0.7	0.2		1.4	0.0	
Delay (s)	9.4	14.0	8.4	44.7	14.1	8.7	25.1	23.8		26.4	23.4	
Level of Service	A	B	A	D	B	A	C	C		C	C	
Approach Delay (s)		13.6			15.4			24.4			26.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.1%	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												
Volume (veh/h)	229	1323	6	7	1509	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	1323	6	7	1509	6	5	0	9	0	0	179
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		315			205							
pX, platoon unblocked	0.76			0.75			0.87	0.87	0.75	0.87	0.87	0.76
vC, conflicting volume	1515			1329			2552	3313	664	2652	3310	754
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1048			770			1245	2121	0	1359	2117	48
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	55			99			91	100	99	100	100	77
cM capacity (veh/h)	511			640			57	24	817	60	24	774

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	229	882	447	7	754	754	6	5	9	179
Volume Left	229	0	0	7	0	0	0	5	0	0
Volume Right	0	0	6	0	0	0	6	0	9	179
cSH	511	1700	1700	640	1700	1700	1700	57	817	774
Volume to Capacity	0.45	0.52	0.26	0.01	0.44	0.44	0.00	0.09	0.01	0.23
Queue Length 95th (m)	17.4	0.0	0.0	0.3	0.0	0.0	0.0	2.1	0.3	6.8
Control Delay (s)	17.6	0.0	0.0	10.7	0.0	0.0	0.0	74.2	9.5	11.0
Lane LOS	C			B				F	A	B
Approach Delay (s)	2.6			0.0				32.6		11.0
Approach LOS								D		B

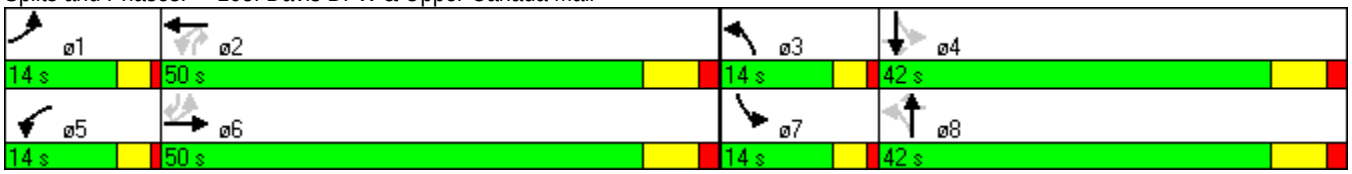
Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C	
Analysis Period (min)	15			

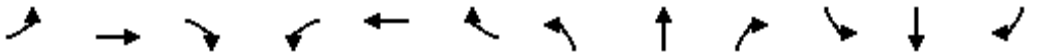
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1072	197	153	1223	84	286	178	111	138	148	27
Lane Group Flow (vph)	63	1072	197	153	1223	84	286	178	111	138	148	27
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.23	0.57	0.54	0.45	0.61	0.28	0.87	0.66	0.12	0.46	0.56	0.03
Control Delay	10.8	23.1	16.9	12.9	21.2	11.3	65.1	60.7	3.4	38.2	56.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	23.1	16.9	12.9	21.2	11.3	65.1	60.7	3.4	38.2	56.0	6.9
Queue Length 50th (m)	4.9	87.8	7.6	12.5	101.1	0.0	57.6	40.4	0.0	25.4	33.0	0.0
Queue Length 95th (m)	11.4	130.5	28.1	23.9	141.8	13.3	#83.4	60.2	9.4	39.4	51.1	5.5
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	315	1866	590	353	2018	536	329	560	952	303	560	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.57	0.33	0.43	0.61	0.16	0.87	0.32	0.12	0.46	0.26	0.03

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall



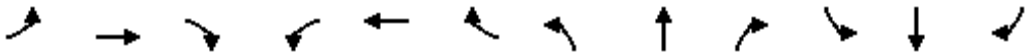


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1072	197	153	1223	84	286	178	111	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.16	1.00	1.00	0.17	1.00	1.00	0.56	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	303	3650	1633	326	3650	1633	1077	1921	1633	934	1921	1633
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)	63	1072	197	153	1223	84	286	178	111	138	148	27
RTOR Reduction (vph)	0	0	139	0	0	72	0	0	50	0	0	13
Lane Group Flow (vph)	63	1072	58	153	1223	12	286	178	61	138	148	14
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	67.4	61.3	16.4	75.6	65.5	16.7	26.7	16.7	65.5	26.1	16.4	61.3
Effective Green, g (s)	67.4	61.3	16.4	75.6	65.5	16.7	26.7	16.7	65.5	26.1	16.4	61.3
Actuated g/C Ratio	0.56	0.51	0.14	0.63	0.55	0.14	0.22	0.14	0.55	0.22	0.14	0.51
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	248	1865	223	334	1992	227	302	267	891	275	263	834
v/s Ratio Prot	0.01	0.29		c0.04	c0.34		c0.08	0.09		0.04	0.08	
v/s Ratio Perm	0.13		0.04	0.25		0.01	c0.13		0.04	0.07		0.01
v/c Ratio	0.25	0.57	0.26	0.46	0.61	0.05	0.95	0.67	0.07	0.50	0.56	0.02
Uniform Delay, d1	13.7	20.3	46.4	12.3	18.6	44.8	44.8	49.0	12.9	39.8	48.4	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.3	0.6	1.0	1.4	0.1	37.5	6.2	0.1	1.4	2.7	0.0
Delay (s)	14.3	21.6	47.0	13.3	20.0	44.9	82.3	55.2	13.0	41.3	51.2	14.5
Level of Service	B	C	D	B	C	D	F	E	B	D	D	B
Approach Delay (s)		25.0			20.8			60.5			43.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

107: Davis Dr W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	768	222	323	889	255	320	1230	254	293	838	244
Lane Group Flow (vph)	331	768	222	323	889	255	320	1230	254	293	838	244
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	28.0	42.0	42.0	28.0	42.0	42.0	20.0	47.0	50.0	23.0	50.0	47.0
Total Split (%)	20.0%	30.0%	30.0%	20.0%	30.0%	30.0%	14.3%	33.6%	35.7%	16.4%	35.7%	33.6%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.06	0.84	0.39	1.03	0.97	0.48	1.06	1.18	0.41	0.96	0.75	0.38
Control Delay	121.3	59.4	7.1	115.1	75.9	18.8	96.2	144.3	32.8	80.0	48.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.3	59.4	7.1	115.1	75.9	18.8	96.2	144.3	32.8	80.0	48.6	6.2
Queue Length 50th (m)	~100.3	107.0	0.0	~95.7	129.3	19.7	~91.3	~211.5	35.0	64.1	110.0	0.0
Queue Length 95th (m)	#160.0	131.3	19.7	#154.9	#171.6	46.0	m#112.5	m#248.4	m45.7	#120.5	133.8	19.6
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	313	913	575	313	913	533	301	1043	625	306	1121	641
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.84	0.39	1.03	0.97	0.48	1.06	1.18	0.41	0.96	0.75	0.38

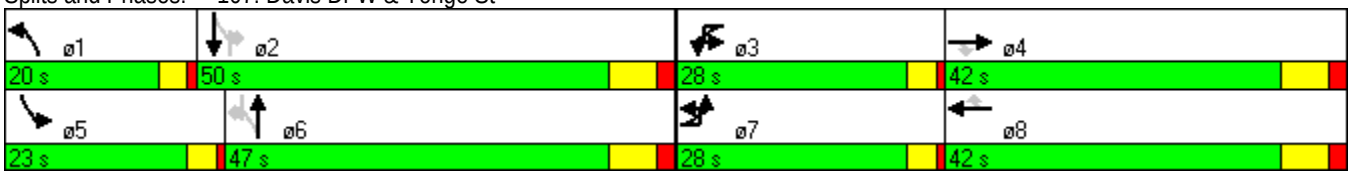
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

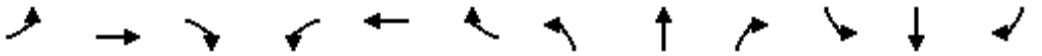
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 107: Davis Dr W & Yonge St

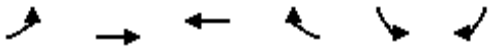




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	768	222	323	889	255	320	1230	254	293	838	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	299	3650	1633	179	3650	1633
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)	331	768	222	323	889	255	320	1230	254	293	838	244
RTOR Reduction (vph)	0	0	167	0	0	125	0	0	123	0	0	174
Lane Group Flow (vph)	331	768	56	323	889	131	320	1230	131	293	838	70
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	24.0	35.0	35.0	24.0	35.0	35.0	56.0	40.0	43.0	62.0	43.0	40.0
Effective Green, g (s)	24.0	35.0	35.0	24.0	35.0	35.0	56.0	40.0	43.0	62.0	43.0	40.0
Actuated g/C Ratio	0.17	0.25	0.25	0.17	0.25	0.25	0.40	0.29	0.31	0.44	0.31	0.29
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	313	913	408	313	913	408	294	1043	502	303	1121	467
v/s Ratio Prot	c0.18	0.21		0.18	c0.24		c0.12	c0.34		c0.13	0.23	
v/s Ratio Perm			0.03			0.08	0.31		0.08	0.30		0.04
v/c Ratio	1.06	0.84	0.14	1.03	0.97	0.32	1.09	1.18	0.26	0.97	0.75	0.15
Uniform Delay, d1	58.0	49.9	40.8	58.0	52.0	42.8	33.3	50.0	36.5	43.4	43.6	37.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.60	1.44	2.70	1.00	1.00	1.00
Incremental Delay, d2	66.8	7.1	0.2	59.4	23.4	0.5	60.5	85.2	0.5	42.3	4.6	0.7
Delay (s)	124.8	56.9	40.9	117.4	75.4	43.3	113.7	156.9	99.0	85.8	48.2	38.0
Level of Service	F	E	D	F	E	D	F	F	F	F	D	D
Approach Delay (s)		71.3			79.1			141.1			54.4	
Approach LOS		E			E			F			D	

Intersection Summary			
HCM Average Control Delay	90.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	111.5%	ICU Level of Service	H
Analysis Period (min)	15		

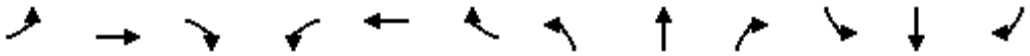
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	16	17	79	114	16
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	16	17	79	114	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	316	228	244	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316	228	244	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	96	97	97	93	93	
cM capacity (veh/h)	551	628	615	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	38	96	114	16
Volume Left	22	0	114	0
Volume Right	0	79	0	16
cSH	581	960	1636	1700
Volume to Capacity	0.07	0.10	0.07	0.01
Queue Length 95th (m)	1.6	2.5	1.7	0.0
Control Delay (s)	11.6	9.2	7.4	0.0
Lane LOS	B	A	A	
Approach Delay (s)	11.6	9.2	6.5	
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	94	0	178	0	349	71	112	311	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	94	0	178	0	349	71	112	311	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	94	178	420	423
Volume Left (vph)	0	94	0	0	112
Volume Right (vph)	0	0	178	71	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.05
Departure Headway (s)	6.9	7.2	5.9	5.3	5.4
Degree Utilization, x	0.00	0.19	0.29	0.61	0.63
Capacity (veh/h)	421	462	555	657	647
Control Delay (s)	9.9	10.6	10.2	16.2	17.2
Approach Delay (s)	0.0	10.3		16.2	17.2
Approach LOS	A	B		C	C

Intersection Summary				
Delay	15.2			
HCM Level of Service	C			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

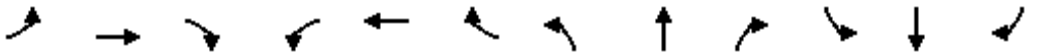
307: Millard Ave & Yonge St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	136	138	75	146	108	1838	120	1105	80
Lane Group Flow (vph)	136	266	75	223	108	1938	120	1105	80
Turn Type	pm+pt		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	1	6	5	2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	5	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	7.0	30.0	
Minimum Split (s)	11.0	36.0	36.0	36.0	11.0	37.0	11.0	37.0	
Total Split (s)	11.0	47.0	36.0	36.0	12.0	82.0	11.0	81.0	0.0
Total Split (%)	7.9%	33.6%	25.7%	25.7%	8.6%	58.6%	7.9%	57.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	4.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
v/c Ratio	0.68	0.61	0.45	0.76	0.33	0.93	0.68	0.52	0.05
Control Delay	59.5	47.4	60.9	68.9	4.3	13.2	60.7	7.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	47.4	60.9	68.9	4.3	13.2	60.7	7.7	0.0
Queue Length 50th (m)	30.7	58.4	19.2	55.7	3.2	45.9	20.7	26.6	0.0
Queue Length 95th (m)	45.6	81.4	33.2	79.0	m4.0	m#57.2	m#33.3	m35.7	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	201	533	229	391	332	2086	176	2132	1633
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	0.68	0.50	0.33	0.57	0.33	0.93	0.68	0.52	0.05

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	138	128	75	146	77	108	1838	100	120	1105	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1782		1825	1822		1825	3622		1825	3650	1633
Flt Permitted	0.28	1.00		0.58	1.00		0.20	1.00		0.05	1.00	1.00
Satd. Flow (perm)	541	1782		1107	1822		375	3622		94	3650	1633
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)	136	138	128	75	146	77	108	1838	100	120	1105	80
RTOR Reduction (vph)	0	25	0	0	14	0	0	3	0	0	0	0
Lane Group Flow (vph)	136	241	0	75	209	0	108	1935	0	120	1105	80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	32.3	32.3		21.3	21.3		88.5	80.6		90.9	81.8	140.0
Effective Green, g (s)	32.3	32.3		21.3	21.3		88.5	80.6		90.9	81.8	140.0
Actuated g/C Ratio	0.23	0.23		0.15	0.15		0.63	0.58		0.65	0.58	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	411		168	277		319	2085		174	2133	1633
v/s Ratio Prot	c0.04	0.13			0.11		0.02	c0.53		c0.04	0.30	
v/s Ratio Perm	c0.13			0.07			0.19			0.40		c0.05
v/c Ratio	0.72	0.59		0.45	0.75		0.34	0.93		0.69	0.52	0.05
Uniform Delay, d1	47.9	47.9		54.0	56.8		11.8	27.1		37.6	17.3	0.0
Progression Factor	1.00	1.00		1.00	1.00		0.39	0.26		2.10	0.39	1.00
Incremental Delay, d2	12.3	2.1		1.9	11.0		0.3	4.2		7.0	0.6	0.0
Delay (s)	60.2	50.0		55.9	67.8		4.9	11.1		86.0	7.3	0.0
Level of Service	E	D		E	E		A	B		F	A	A
Approach Delay (s)		53.5			64.8			10.8			14.1	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

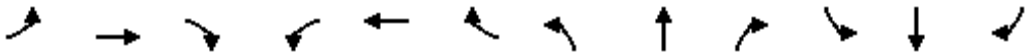
Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	30	0	1	2023	60	677	
Lane Group Flow (vph)	30	54	0	2106	60	677	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.24	0.34		0.72	0.55	0.22	
Control Delay	55.8	43.3		6.9	40.0	6.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	55.8	43.3		6.9	40.0	6.2	
Queue Length 50th (m)	6.7	8.1		101.2	12.4	42.5	
Queue Length 95th (m)	16.1	20.5		137.4	m#27.6	47.7	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	315	368		2924	109	3079	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.10	0.15		0.72	0.55	0.22	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

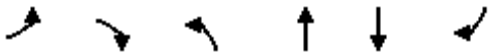
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	30	0	54	1	2023	82	60	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3629		1825	3650	
Flt Permitted				0.76	1.00			0.95		0.07	1.00	
Satd. Flow (perm)				1455	1633			3465		129	3650	
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)	0	0	0	30	0	54	1	2023	82	60	677	0
RTOR Reduction (vph)	0	0	0	0	17	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	30	37	0	0	2105	0	60	677	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				8.4	8.4			98.6		98.6	98.6	
Effective Green, g (s)				8.4	8.4			98.6		98.6	98.6	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				102	114			2847		106	2999	
v/s Ratio Prot					c0.02						0.19	
v/s Ratio Perm				0.02				c0.61		0.46		
v/c Ratio				0.29	0.33			0.74		0.57	0.23	
Uniform Delay, d1				53.0	53.1			4.9		3.6	2.3	
Progression Factor				1.00	1.00			1.00		2.88	2.43	
Incremental Delay, d2				1.6	1.7			1.8		18.5	0.2	
Delay (s)				54.6	54.8			6.6		28.8	5.9	
Level of Service				D	D			A		C	A	
Approach Delay (s)		0.0			54.7			6.6			7.7	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

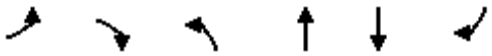
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	48	44	22	0	0	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	48	44	22	0	0	22

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	92	22	22
Volume Left (vph)	48	22	0
Volume Right (vph)	44	0	22
Hadj (s)	-0.18	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.10	0.03	0.02
Capacity (veh/h)	929	807	993
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

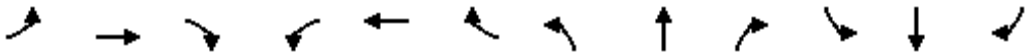
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	59	98	48	33	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	59	98	48	33	11

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	69	146	44
Volume Left (vph)	10	98	0
Volume Right (vph)	59	0	11
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.17	0.05
Capacity (veh/h)	893	831	867
Control Delay (s)	7.1	8.1	7.2
Approach Delay (s)	7.1	8.1	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

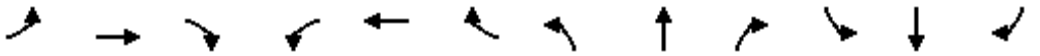


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	68	10	1	0	117	442	13	3	375	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	7	68	10	1	0	117	442	13	3	375	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	108	11	572	440
Volume Left (vph)	33	10	117	3
Volume Right (vph)	68	0	13	62
Hadj (s)	-0.32	0.18	0.03	-0.08
Departure Headway (s)	6.0	6.8	4.9	4.9
Degree Utilization, x	0.18	0.02	0.77	0.60
Capacity (veh/h)	544	459	726	715
Control Delay (s)	10.3	9.9	22.3	15.0
Approach Delay (s)	10.3	9.9	22.3	15.0
Approach LOS	B	A	C	B

Intersection Summary			
Delay	18.1		
HCM Level of Service	C		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

707: Eagle St W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1827	188	180	1321	43
Lane Group Flow (vph)	78	236	272	184	178	105	305	1827	188	180	1321	43
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	52.0	24.0	76.0	64.0	12.0	64.0	76.0
Total Split (%)	29.3%	29.3%	29.3%	7.9%	37.1%	37.1%	17.1%	54.3%	45.7%	8.6%	45.7%	54.3%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	C-Min	C-Min	Min	C-Min	C-Min
v/c Ratio	0.38	0.73	0.57	0.87	0.38	0.22	0.81	0.98	0.24	0.67	0.80	0.05
Control Delay	55.2	68.1	13.0	80.0	45.0	7.5	52.7	51.2	14.4	39.5	54.0	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	68.1	13.0	80.0	45.0	7.5	52.7	51.2	14.4	39.5	54.0	15.9
Queue Length 50th (m)	19.4	62.9	6.7	41.7	41.3	0.0	59.9	~267.7	16.6	31.6	175.0	2.5
Queue Length 95th (m)	33.2	85.2	30.8	#65.4	57.8	13.2	#115.6	#322.4	34.8	#83.6	206.1	m9.8
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	301	467	581	211	617	596	379	1859	790	269	1661	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.51	0.47	0.87	0.29	0.18	0.80	0.98	0.24	0.67	0.80	0.05

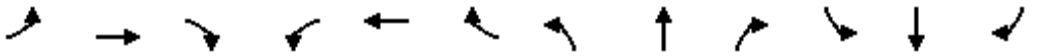
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1827	188	180	1321	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.29	1.00	1.00	0.07	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1239	1921	1633	552	1921	1633	134	3650	1633	121	3650	1633
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)	78	236	272	184	178	105	305	1827	188	180	1321	43
RTOR Reduction (vph)	0	0	203	0	0	79	0	0	47	0	0	21
Lane Group Flow (vph)	78	236	69	184	178	26	305	1827	141	180	1321	22
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	23.5	23.5	23.5	34.5	34.5	34.5	91.5	71.3	63.7	79.9	63.7	71.3
Effective Green, g (s)	23.5	23.5	23.5	34.5	34.5	34.5	91.5	71.3	63.7	79.9	63.7	71.3
Actuated g/C Ratio	0.17	0.17	0.17	0.25	0.25	0.25	0.65	0.51	0.46	0.57	0.46	0.51
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	208	322	274	200	473	402	375	1859	743	266	1661	832
v/s Ratio Prot		0.12		c0.05	0.09		c0.14	c0.50		0.08	0.36	
v/s Ratio Perm	0.06		0.04	c0.18		0.02	0.39		0.09	0.31		0.01
v/c Ratio	0.38	0.73	0.25	0.92	0.38	0.06	0.81	0.98	0.19	0.68	0.80	0.03
Uniform Delay, d1	51.7	55.3	50.6	50.9	43.8	40.4	40.9	33.7	22.8	38.4	32.6	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	1.48	3.07
Incremental Delay, d2	1.1	8.3	0.5	41.8	0.5	0.1	12.7	17.2	0.6	6.2	3.7	0.1
Delay (s)	52.9	63.6	51.1	92.7	44.3	40.5	53.5	50.9	23.3	36.4	51.8	52.5
Level of Service	D	E	D	F	D	D	D	D	C	D	D	D
Approach Delay (s)		56.4			62.5			49.0			50.0	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX L
Future (2026) Total Traffic
Level Of Service Calculations

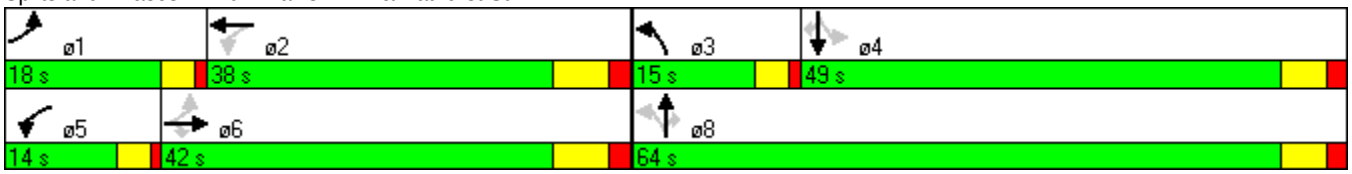
101: Davis Dr W & Bathurst St

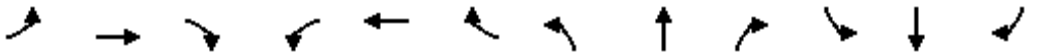
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	278	999	483	181	804	331	233	115	27	570	714
Lane Group Flow (vph)	278	999	483	181	867	331	233	115	27	570	714
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	42.0	42.0	14.0	38.0	15.0	64.0	64.0	49.0	49.0	49.0
Total Split (%)	15.0%	35.0%	35.0%	11.7%	31.7%	12.5%	53.3%	53.3%	40.8%	40.8%	40.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.94	0.91	0.69	0.82	0.92	0.82	0.13	0.14	0.07	0.45	0.97
Control Delay	69.0	53.7	19.3	66.2	76.1	36.5	15.8	2.6	26.0	31.2	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	53.7	19.3	66.2	76.1	36.5	15.8	2.6	26.0	31.2	52.1
Queue Length 50th (m)	48.5	120.8	37.4	41.2	113.5	30.5	11.6	0.0	4.2	53.3	117.4
Queue Length 95th (m)	#102.8	#160.8	77.0	#64.1	#145.4	#50.9	16.7	6.3	10.7	69.1	#198.4
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	297	1098	702	222	939	404	1764	849	418	1308	747
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	0.94	0.91	0.69	0.82	0.92	0.82	0.13	0.14	0.06	0.44	0.96

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	278	999	483	181	804	63	331	233	115	27	570	714
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3610		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.13	1.00		0.31	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	220	3650	1633	248	3610		592	3650	1633	1165	3650	1633
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)	278	999	483	181	804	63	331	233	115	27	570	714
RTOR Reduction (vph)	0	0	211	0	4	0	0	0	60	0	0	164
Lane Group Flow (vph)	278	999	272	181	863	0	331	233	55	27	570	550
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	50.0	36.0	36.0	41.0	31.0		57.0	57.0	57.0	42.0	42.0	42.0
Effective Green, g (s)	50.0	36.0	36.0	41.0	31.0		57.0	57.0	57.0	42.0	42.0	42.0
Actuated g/C Ratio	0.42	0.30	0.30	0.34	0.26		0.48	0.48	0.48	0.35	0.35	0.35
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	292	1095	490	216	933		394	1734	776	408	1278	572
v/s Ratio Prot	c0.12	0.27		0.07	0.24		c0.08	0.06			0.16	
v/s Ratio Perm	c0.28		0.17	0.22			0.32		0.03	0.02		c0.34
v/c Ratio	0.95	0.91	0.55	0.84	0.92		0.84	0.13	0.07	0.07	0.45	0.96
Uniform Delay, d1	33.4	40.5	35.3	31.5	43.4		24.3	17.7	17.1	26.0	30.0	38.2
Progression Factor	1.00	1.00	1.00	1.64	1.43		0.91	0.89	0.72	1.00	1.00	1.00
Incremental Delay, d2	39.7	12.9	4.5	22.4	15.2		14.7	0.0	0.0	0.1	0.2	28.1
Delay (s)	73.1	53.4	39.7	74.2	77.3		36.8	15.8	12.4	26.0	30.3	66.4
Level of Service	E	D	D	E	E		D	B	B	C	C	E
Approach Delay (s)		52.7			76.8			25.5			49.8	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM Average Control Delay	53.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

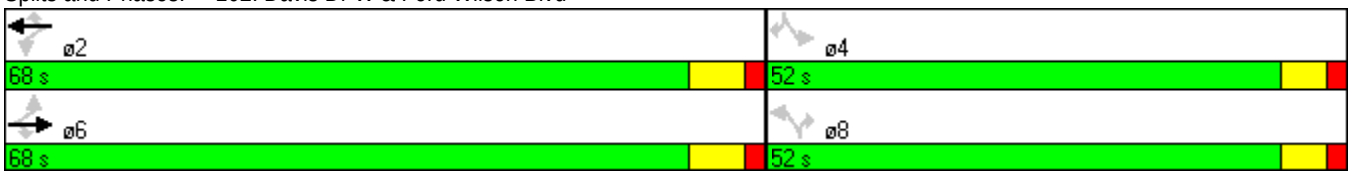
102: Davis Dr W & Ford Wilson Blvd

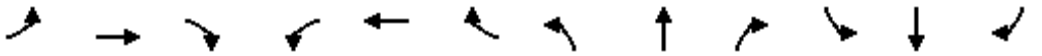
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	21	1090	30	42	867	40	56	65	121	87
Lane Group Flow (vph)	21	1090	30	42	867	40	56	65	121	87
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	8	8	4	4
Detector Phase	6	6	6	2	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	10.0	10.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (s)	68.0	68.0	68.0	68.0	68.0	68.0	52.0	52.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	Max	Max	Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.08	0.59	0.04	0.25	0.47	0.05	0.08	0.10	0.17	0.13
Control Delay	23.6	24.9	13.1	21.5	20.1	4.6	24.1	6.7	25.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	24.9	13.1	21.5	20.1	4.6	24.1	6.7	25.3	5.4
Queue Length 50th (m)	2.3	67.0	1.2	5.4	66.8	0.0	8.3	0.4	18.6	0.0
Queue Length 95th (m)	m3.4	m82.4	m2.1	13.8	83.2	5.4	17.0	9.3	31.9	10.0
Internal Link Dist (m)		751.2			422.4					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	251	1855	844	170	1855	850	700	664	700	680
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.59	0.04	0.25	0.47	0.05	0.08	0.10	0.17	0.13

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	1090	30	42	867	40	56	0	65	121	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.26	1.00	1.00	0.17	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	494	3650	1633	333	3650	1633	1825		1633	1825		1633
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)	21	1090	30	42	867	40	56	0	65	121	0	87
RTOR Reduction (vph)	0	0	14	0	0	20	0	0	38	0	0	54
Lane Group Flow (vph)	21	1090	16	42	867	20	56	0	27	121	0	33
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	8		8	4		4
Actuated Green, G (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Effective Green, g (s)	61.0	61.0	61.0	61.0	61.0	61.0	46.0		46.0	46.0		46.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38		0.38	0.38		0.38
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	251	1855	830	169	1855	830	700		626	700		626
v/s Ratio Prot		c0.30			0.24							
v/s Ratio Perm	0.04		0.01	0.13		0.01	0.03		0.02	c0.07		0.02
v/c Ratio	0.08	0.59	0.02	0.25	0.47	0.02	0.08		0.04	0.17		0.05
Uniform Delay, d1	15.1	20.7	14.6	16.6	19.0	14.7	23.5		23.2	24.4		23.3
Progression Factor	1.48	1.15	2.32	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	0.4	0.8	0.0	3.5	0.8	0.1	0.2		0.1	0.5		0.2
Delay (s)	22.8	24.6	34.0	20.1	19.9	14.7	23.8		23.3	25.0		23.5
Level of Service	C	C	C	C	B	B	C		C	C		C
Approach Delay (s)		24.9			19.7			23.5			24.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

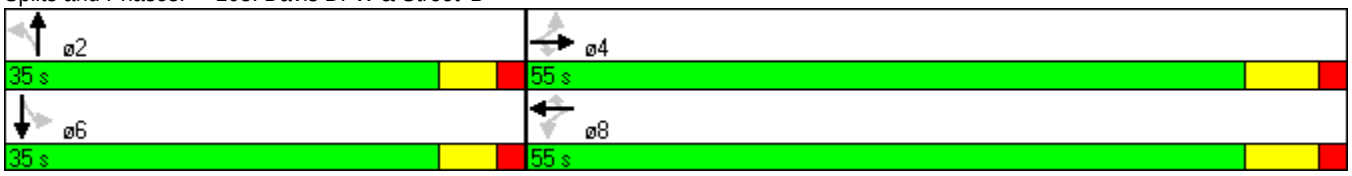
c Critical Lane Group

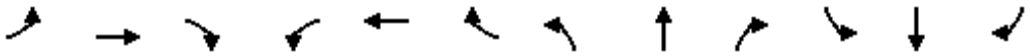
103: Davis Dr W & Street 'B'

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	5	1258	26	31	831	41	109	0	181	0
Lane Group Flow (vph)	5	1258	26	31	831	41	109	111	181	20
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	
Protected Phases		4			8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	4	4	4	8	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	55.0	55.0	55.0	55.0	55.0	55.0	35.0	35.0	35.0	35.0
Total Split (%)	61.1%	61.1%	61.1%	61.1%	61.1%	61.1%	38.9%	38.9%	38.9%	38.9%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min
v/c Ratio	0.02	0.66	0.03	0.19	0.44	0.05	0.32	0.26	0.57	0.04
Control Delay	7.8	12.3	3.5	11.8	9.6	3.0	23.6	15.1	29.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	12.3	3.5	11.8	9.6	3.0	23.6	15.1	29.8	0.2
Queue Length 50th (m)	0.2	44.3	0.0	1.5	24.8	0.0	9.2	5.3	16.4	0.0
Queue Length 95th (m)	1.7	83.6	3.1	7.2	48.3	3.9	26.8	20.1	43.8	0.0
Internal Link Dist (m)		422.4			296.2			188.1		134.7
Turn Bay Length (m)										
Base Capacity (vph)	507	3008	1350	251	3008	1353	750	879	691	924
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.42	0.02	0.12	0.28	0.03	0.15	0.13	0.26	0.02

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 59.2
Natural Cycle: 55
Control Type: Actuated-Uncoordinated

Splits and Phases: 103: Davis Dr W & Street 'B'

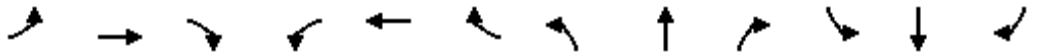




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1258	26	31	831	41	109	0	111	181	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1633		1825	1633	
Flt Permitted	0.32	1.00	1.00	0.16	1.00	1.00	0.74	1.00		0.69	1.00	
Satd. Flow (perm)	614	3650	1633	303	3650	1633	1430	1633		1317	1633	
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)	5	1258	26	31	831	41	109	0	111	181	0	20
RTOR Reduction (vph)	0	0	12	0	0	19	0	35	0	0	15	0
Lane Group Flow (vph)	5	1258	14	31	831	22	109	76	0	181	5	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	31.0	31.0	31.0	31.0	31.0	31.0	14.3	14.3		14.3	14.3	
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0	31.0	14.3	14.3		14.3	14.3	
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53	0.53	0.25	0.25		0.25	0.25	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	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	
Lane Grp Cap (vph)	326	1941	868	161	1941	868	351	401		323	401	
v/s Ratio Prot		c0.34			0.23			0.05			0.00	
v/s Ratio Perm	0.01		0.01	0.10		0.01	0.08			c0.14		
v/c Ratio	0.02	0.65	0.02	0.19	0.43	0.03	0.31	0.19		0.56	0.01	
Uniform Delay, d1	6.4	9.8	6.4	7.1	8.3	6.5	18.0	17.4		19.2	16.7	
Progression Factor	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	0.8	0.0	0.6	0.2	0.0	0.5	0.2		2.2	0.0	
Delay (s)	6.5	10.5	6.5	7.7	8.4	6.5	18.5	17.6		21.5	16.7	
Level of Service	A	B	A	A	A	A	B	B		C	B	
Approach Delay (s)		10.4			8.3			18.1			21.0	
Approach LOS		B			A			B			C	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	64	1480	6	5	864	8	0	0	3	0	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	1480	6	5	864	8	0	0	3	0	0	39
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		320			205							
pX, platoon unblocked	0.90			0.75			0.80	0.80	0.75	0.80	0.80	0.90
vC, conflicting volume	872			1486			2053	2493	743	1745	2488	432
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	636			990			1261	1809	4	878	1803	147
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			100	100	100	100	100	95
cM capacity (veh/h)	862			532			92	59	817	184	59	792

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	64	987	499	5	432	432	8	0	3	39
Volume Left	64	0	0	5	0	0	0	0	0	0
Volume Right	0	0	6	0	0	0	8	0	3	39
cSH	862	1700	1700	532	1700	1700	1700	1700	817	792
Volume to Capacity	0.07	0.58	0.29	0.01	0.25	0.25	0.00	0.00	0.00	0.05
Queue Length 95th (m)	1.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	1.2
Control Delay (s)	9.5	0.0	0.0	11.8	0.0	0.0	0.0	0.0	9.4	9.8
Lane LOS	A			B				A	A	A
Approach Delay (s)	0.4			0.1				9.4		9.8
Approach LOS								A		A

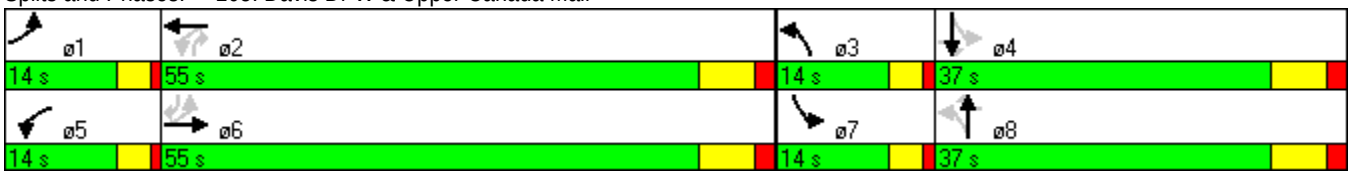
Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	51.1%	ICU Level of Service		A
Analysis Period (min)	15			

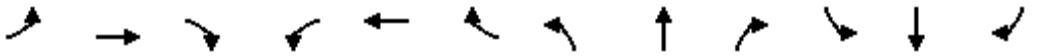
105: Davis Dr W & Upper Canada Mall

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1191	258	72	701	44	170	59	82	15	19	6
Lane Group Flow (vph)	34	1191	258	72	701	44	170	59	82	15	19	6
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	55.0	37.0	14.0	55.0	37.0	14.0	37.0	55.0	14.0	37.0	55.0
Total Split (%)	11.7%	45.8%	30.8%	11.7%	45.8%	30.8%	11.7%	30.8%	45.8%	11.7%	30.8%	45.8%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.07	0.57	0.75	0.25	0.32	0.13	0.49	0.16	0.08	0.05	0.09	0.01
Control Delay	7.9	18.8	30.0	9.5	14.0	12.8	41.2	42.1	3.4	31.6	45.7	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	18.8	30.0	9.5	14.0	12.8	41.2	42.1	3.4	31.6	45.7	8.7
Queue Length 50th (m)	2.3	88.2	17.9	4.9	43.2	0.0	33.7	11.3	0.0	2.7	4.1	0.0
Queue Length 95th (m)	6.9	133.9	43.5	12.2	66.6	9.9	48.2	23.3	7.9	7.4	10.5	2.3
Internal Link Dist (m)		181.2			395.0			189.5			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	553	2099	543	326	2180	441	345	480	1008	345	480	942
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.57	0.48	0.22	0.32	0.10	0.49	0.12	0.08	0.04	0.04	0.01

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 105: Davis Dr W & Upper Canada Mall





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	1191	258	72	701	44	170	59	82	15	19	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.36	1.00	1.00	0.15	1.00	1.00	0.60	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	687	3650	1633	295	3650	1633	1148	1921	1633	1380	1921	1633
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)	34	1191	258	72	701	44	170	59	82	15	19	6
RTOR Reduction (vph)	0	0	155	0	0	35	0	0	36	0	0	3
Lane Group Flow (vph)	34	1191	103	72	701	9	170	59	46	15	19	3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	70.1	65.8	16.2	73.7	67.6	23.2	30.1	23.2	67.6	19.1	16.2	65.8
Effective Green, g (s)	70.1	65.8	16.2	73.7	67.6	23.2	30.1	23.2	67.6	19.1	16.2	65.8
Actuated g/C Ratio	0.58	0.55	0.13	0.61	0.56	0.19	0.25	0.19	0.56	0.16	0.13	0.55
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	442	2001	220	259	2056	316	344	371	920	230	259	895
v/s Ratio Prot	0.00	c0.33		c0.01	0.19		c0.04	0.03		0.00	0.01	
v/s Ratio Perm	0.04		0.06	0.16		0.01	c0.08		0.03	0.01		0.00
v/c Ratio	0.08	0.60	0.47	0.28	0.34	0.03	0.49	0.16	0.05	0.07	0.07	0.00
Uniform Delay, d1	10.7	18.2	47.9	12.1	14.2	39.2	37.2	40.3	11.8	42.8	45.3	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.3	1.6	0.6	0.5	0.0	1.1	0.2	0.1	0.1	0.1	0.0
Delay (s)	10.7	19.5	49.5	12.7	14.6	39.3	38.3	40.5	11.9	42.9	45.5	12.3
Level of Service	B	B	D	B	B	D	D	D	B	D	D	B
Approach Delay (s)		24.5			15.8			31.8			39.5	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

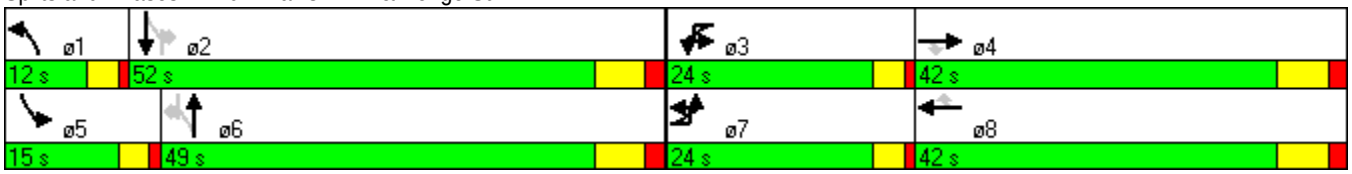
c Critical Lane Group

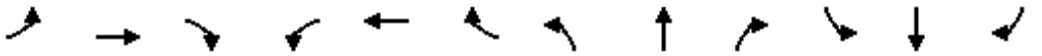
107: Davis Dr W & Yonge St

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	843	243	270	550	123	129	544	178	201	1227	255
Lane Group Flow (vph)	201	843	243	270	550	123	129	544	178	201	1227	255
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	12.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	24.0	42.0	42.0	24.0	42.0	42.0	12.0	49.0	52.0	15.0	52.0	49.0
Total Split (%)	18.5%	32.3%	32.3%	18.5%	32.3%	32.3%	9.2%	37.7%	40.0%	11.5%	40.0%	37.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	0.80	0.88	0.45	0.96	0.54	0.23	0.73	0.45	0.26	0.52	0.95	0.36
Control Delay	76.6	57.7	16.4	99.2	42.5	7.2	59.8	46.3	15.6	26.2	57.1	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.6	57.7	16.4	99.2	42.5	7.2	59.8	46.3	15.6	26.2	57.1	6.5
Queue Length 50th (m)	49.8	108.4	16.4	69.6	63.8	0.0	23.5	55.2	12.3	30.5	162.3	2.8
Queue Length 95th (m)	#80.7	#133.8	40.2	#122.7	82.3	14.6	#46.9	62.5	25.3	47.0	#208.7	21.6
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	281	983	557	281	1013	542	176	1214	693	394	1290	703
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.86	0.44	0.96	0.54	0.23	0.73	0.45	0.26	0.51	0.95	0.36

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 107: Davis Dr W & Yonge St

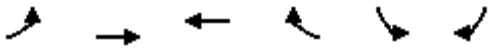




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	843	243	270	550	123	129	544	178	201	1227	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	178	3650	1633	635	3650	1633
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)	201	843	243	270	550	123	129	544	178	201	1227	255
RTOR Reduction (vph)	0	0	118	0	0	89	0	0	115	0	0	160
Lane Group Flow (vph)	201	843	125	270	550	34	129	544	63	201	1227	95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	18.0	34.1	34.1	20.0	36.1	36.1	51.2	43.2	45.9	56.6	45.9	43.2
Effective Green, g (s)	18.0	34.1	34.1	20.0	36.1	36.1	51.2	43.2	45.9	56.6	45.9	43.2
Actuated g/C Ratio	0.14	0.26	0.26	0.15	0.28	0.28	0.39	0.33	0.35	0.44	0.35	0.33
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	253	957	428	281	1014	453	171	1213	577	374	1289	543
v/s Ratio Prot	0.11	c0.23		c0.15	0.15		c0.05	0.15		c0.04	c0.34	
v/s Ratio Perm			0.08			0.02	0.25		0.04	0.19		0.06
v/c Ratio	0.79	0.88	0.29	0.96	0.54	0.08	0.75	0.45	0.11	0.54	0.95	0.18
Uniform Delay, d1	54.2	46.0	38.3	54.6	39.9	34.6	31.6	34.1	28.3	24.0	41.0	30.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.58	1.31	3.54	1.00	1.00	1.00
Incremental Delay, d2	15.7	9.5	0.4	42.9	0.6	0.1	16.5	1.2	0.4	1.5	15.9	0.7
Delay (s)	69.9	55.5	38.7	97.5	40.5	34.7	66.6	45.6	100.4	25.5	56.9	31.5
Level of Service	E	E	D	F	D	C	E	D	F	C	E	C
Approach Delay (s)		54.6			56.1			60.3			49.3	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM Average Control Delay	54.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	17	13	16	102	46	8
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	17	13	16	102	46	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	202	92	100	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	202	92	100	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	97	98	98	91	97	
cM capacity (veh/h)	664	779	772	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	30	118	46	8
Volume Left	17	0	46	0
Volume Right	0	102	0	8
cSH	710	1033	1636	1700
Volume to Capacity	0.04	0.11	0.03	0.00
Queue Length 95th (m)	1.0	2.9	0.7	0.0
Control Delay (s)	10.3	8.9	7.3	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.3	8.9	6.2	
Approach LOS	B	A		

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	72	0	117	0	158	104	118	268	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	72	0	117	0	158	104	118	268	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	831	766	268	714	714	210	268			262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	831	766	268	714	714	210	268			262		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	78	100	86	100			91		
cM capacity (veh/h)	233	305	776	325	327	835	1307			1314		

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	0	72	117	262	386
Volume Left	0	72	0	0	118
Volume Right	0	0	117	104	0
cSH	1700	325	835	1307	1314
Volume to Capacity	0.00	0.22	0.14	0.00	0.09
Queue Length 95th (m)	0.0	6.3	3.7	0.0	2.2
Control Delay (s)	0.0	19.2	10.0	0.0	3.0
Lane LOS	A	C	B		A
Approach Delay (s)	0.0	13.5		0.0	3.0
Approach LOS	A	B			

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	52.5%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	50	98	104	112	164	717	63	1648	168
Lane Group Flow (vph)	50	234	104	163	164	762	63	1648	168
Turn Type	pm+pt		Perm		pm+pt		Perm		Free
Protected Phases	7	4		8	1	6		2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	2	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	30.0	30.0	
Minimum Split (s)	14.0	36.0	36.0	36.0	14.0	37.0	37.0	37.0	
Total Split (s)	14.0	51.0	37.0	37.0	15.0	79.0	64.0	64.0	0.0
Total Split (%)	10.8%	39.2%	28.5%	28.5%	11.5%	60.8%	49.2%	49.2%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	7.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes	
Recall Mode	None	Ped	Ped	Ped	None	C-Max	C-Max	C-Max	
v/c Ratio	0.13	0.41	0.40	0.39	0.75	0.36	0.19	0.95	0.10
Control Delay	29.6	28.3	48.4	41.7	66.5	12.4	22.4	33.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	28.3	48.4	41.7	66.5	12.4	22.4	33.6	0.1
Queue Length 50th (m)	8.7	34.7	22.9	32.2	32.9	34.0	7.2	~109.1	0.0
Queue Length 95th (m)	17.4	56.1	40.7	53.3	#63.6	50.4	m9.4	m#257.0	m0.0
Internal Link Dist (m)		368.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	384	632	272	435	229	2142	331	1735	1633
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	0.13	0.37	0.38	0.37	0.72	0.36	0.19	0.95	0.10

Intersection Summary

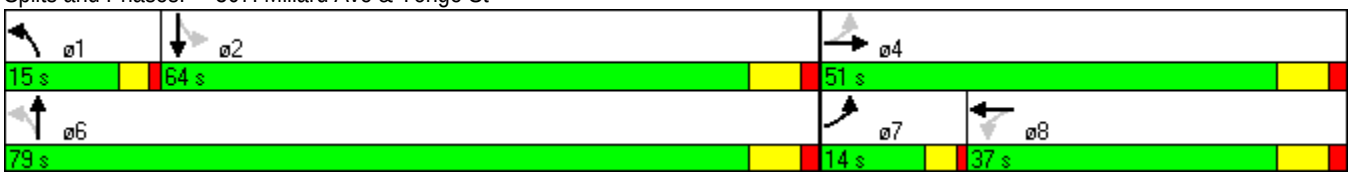
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated

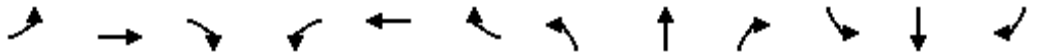
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	98	136	104	112	51	164	717	45	63	1648	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.91		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1754		1825	1831		1825	3618		1825	3650	1633
Flt Permitted	0.51	1.00		0.61	1.00		0.06	1.00		0.36	1.00	1.00
Satd. Flow (perm)	987	1754		1177	1831		118	3618		697	3650	1633
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)	50	98	136	104	112	51	164	717	45	63	1648	168
RTOR Reduction (vph)	0	40	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	50	194	0	104	151	0	164	759	0	63	1648	168
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			Perm		Free
Protected Phases	7	4			8		1	6			2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.0	61.0	130.0
Effective Green, g (s)	39.9	39.9		29.0	29.0		76.1	76.1		61.0	61.0	130.0
Actuated g/C Ratio	0.31	0.31		0.22	0.22		0.59	0.59		0.47	0.47	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	538		263	408		215	2118		327	1713	1633
v/s Ratio Prot	0.01	c0.11			0.08		c0.07	0.21			c0.45	
v/s Ratio Perm	0.04			c0.09			0.38			0.09		0.10
v/c Ratio	0.14	0.36		0.40	0.37		0.76	0.36		0.19	0.96	0.10
Uniform Delay, d1	32.3	35.1		43.0	42.8		36.2	14.1		20.1	33.4	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.83	0.84		0.96	0.73	1.00
Incremental Delay, d2	0.2	0.4		1.0	0.6		13.5	0.4		0.7	9.4	0.1
Delay (s)	32.5	35.5		44.0	43.3		79.7	12.3		20.0	33.8	0.1
Level of Service	C	D		D	D		E	B		C	C	A
Approach Delay (s)		35.0			43.6			24.3			30.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

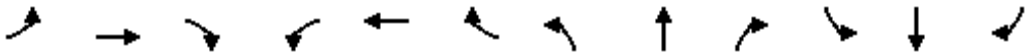
c Critical Lane Group

Lane Group	WBL	WBT	NBT	SBL	SBT	ø4
Lane Configurations						
Volume (vph)	88	0	608	27	1202	
Lane Group Flow (vph)	88	71	633	27	1206	
Turn Type	Perm			Perm		
Protected Phases		8	6		2	4
Permitted Phases	8			2		
Detector Phase	8	8	6	2	2	
Switch Phase						
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	10.0
Minimum Split (s)	31.0	31.0	47.0	47.0	47.0	31.0
Total Split (s)	31.0	31.0	89.0	89.0	89.0	31.0
Total Split (%)	25.8%	25.8%	74.2%	74.2%	74.2%	26%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	Min
v/c Ratio	0.55	0.15	0.22	0.04	0.42	
Control Delay	63.2	0.6	3.8	2.7	4.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	63.2	0.6	3.8	2.7	4.1	
Queue Length 50th (m)	20.1	0.0	16.4	1.0	34.6	
Queue Length 95th (m)	35.5	0.0	26.8	m2.2	43.5	
Internal Link Dist (m)		137.3	253.8		409.6	
Turn Bay Length (m)	30.0			50.0		
Base Capacity (vph)	303	613	2839	619	2855	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.12	0.22	0.04	0.42	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

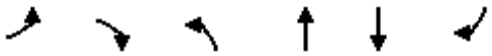
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	88	0	71	0	608	25	27	1202	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3628		1825	3648	
Flt Permitted				0.76	1.00			1.00		0.41	1.00	
Satd. Flow (perm)				1455	1633			3628		791	3648	
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)	0	0	0	88	0	71	0	608	25	27	1202	4
RTOR Reduction (vph)	0	0	0	0	63	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	8	0	0	631	0	27	1206	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				13.1	13.1			93.9		93.9	93.9	
Effective Green, g (s)				13.1	13.1			93.9		93.9	93.9	
Actuated g/C Ratio				0.11	0.11			0.78		0.78	0.78	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				159	178			2839		619	2855	
v/s Ratio Prot					0.00			0.17			c0.33	
v/s Ratio Perm				c0.06						0.03		
v/c Ratio				0.55	0.04			0.22		0.04	0.42	
Uniform Delay, d1				50.7	47.8			3.4		2.9	4.2	
Progression Factor				1.00	1.00			1.00		0.71	0.82	
Incremental Delay, d2				4.1	0.1			0.2		0.1	0.4	
Delay (s)				54.8	47.9			3.6		2.2	3.8	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			51.7			3.6			3.8	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

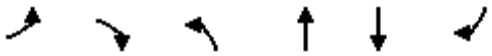
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	14	18	48	0	0	58
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	14	18	48	0	0	58

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	32	48	58
Volume Left (vph)	14	48	0
Volume Right (vph)	18	0	58
Hadj (s)	-0.25	0.20	-0.60
Departure Headway (s)	3.9	4.2	3.4
Degree Utilization, x	0.03	0.06	0.05
Capacity (veh/h)	903	835	1037
Control Delay (s)	7.0	7.5	6.6
Approach Delay (s)	7.0	7.5	6.6
Approach LOS	A	A	A

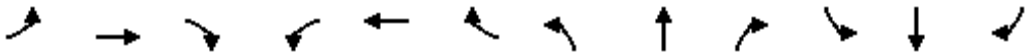
Intersection Summary			
Delay	7.0		
HCM Level of Service	A		
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	20	97	65	22	53	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	20	97	65	22	53	20

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	117	87	73
Volume Left (vph)	20	65	0
Volume Right (vph)	97	0	20
Hadj (s)	-0.46	0.15	-0.16
Departure Headway (s)	3.8	4.4	4.1
Degree Utilization, x	0.12	0.11	0.08
Capacity (veh/h)	910	794	855
Control Delay (s)	7.3	7.9	7.4
Approach Delay (s)	7.3	7.9	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

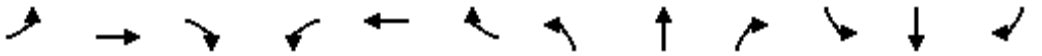


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	6	89	13	5	1	38	208	5	0	290	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	6	89	13	5	1	38	208	5	0	290	46

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	159	19	251	336
Volume Left (vph)	64	13	38	0
Volume Right (vph)	89	1	5	46
Hadj (s)	-0.26	0.11	0.02	-0.08
Departure Headway (s)	5.1	5.7	4.8	4.6
Degree Utilization, x	0.22	0.03	0.33	0.43
Capacity (veh/h)	643	545	716	748
Control Delay (s)	9.5	8.8	10.2	11.0
Approach Delay (s)	9.5	8.8	10.2	11.0
Approach LOS	A	A	B	B

Intersection Summary			
Delay	10.4		
HCM Level of Service	B		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

707: Eagle St W & Yonge St



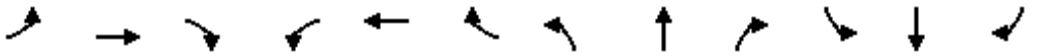
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	1044	232	77	1609	116
Lane Group Flow (vph)	40	189	225	196	186	113	241	1044	232	77	1609	116
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	52.0	15.0	67.0	63.0	11.0	63.0	67.0
Total Split (%)	31.5%	31.5%	31.5%	8.5%	40.0%	40.0%	11.5%	51.5%	48.5%	8.5%	48.5%	51.5%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	C-Min	C-Min	Min	C-Min	C-Min
v/c Ratio	0.23	0.69	0.64	0.84	0.42	0.25	0.65	0.50	0.27	0.22	0.95	0.12
Control Delay	50.1	65.1	28.0	72.3	45.0	7.6	38.6	18.4	4.8	16.3	52.1	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	65.1	28.0	72.3	45.0	7.6	38.6	18.4	4.8	16.3	52.1	12.1
Queue Length 50th (m)	9.3	46.9	20.3	42.6	41.3	0.0	40.1	78.4	3.0	11.4	163.1	8.3
Queue Length 95th (m)	19.2	67.0	44.4	#64.2	58.7	13.8	#77.9	114.6	18.3	m13.5	m#249.6	m11.1
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	322	502	530	232	665	639	373	2096	869	353	1689	987
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.38	0.42	0.84	0.28	0.18	0.65	0.50	0.27	0.22	0.95	0.12

Intersection Summary
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	189	225	196	186	113	241	1044	232	77	1609	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.35	1.00	1.00	0.06	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	1230	1921	1633	680	1921	1633	120	3650	1633	502	3650	1633
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)	40	189	225	196	186	113	241	1044	232	77	1609	116
RTOR Reduction (vph)	0	0	119	0	0	87	0	0	113	0	0	49
Lane Group Flow (vph)	40	189	106	196	186	26	241	1044	119	77	1609	67
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	74.7	60.2	67.9	60.2	74.7
Effective Green, g (s)	18.6	18.6	18.6	29.6	29.6	29.6	86.4	74.7	60.2	67.9	60.2	74.7
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.66	0.57	0.46	0.52	0.46	0.57
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	176	275	234	216	437	372	371	2097	756	341	1690	938
v/s Ratio Prot		0.10		c0.05	0.10		c0.11	0.29		0.01	c0.44	
v/s Ratio Perm	0.03		0.06	c0.16		0.02	0.32		0.07	0.10		0.04
v/c Ratio	0.23	0.69	0.45	0.91	0.43	0.07	0.65	0.50	0.16	0.23	0.95	0.07
Uniform Delay, d1	49.3	52.9	51.0	48.3	42.9	39.4	36.7	16.5	20.2	15.5	33.5	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.72	1.35	4.29
Incremental Delay, d2	0.7	7.0	1.4	36.5	0.7	0.1	3.9	0.8	0.4	0.2	7.2	0.1
Delay (s)	50.0	59.9	52.4	84.8	43.6	39.5	40.6	17.3	20.7	26.9	52.4	52.7
Level of Service	D	E	D	F	D	D	D	B	C	C	D	D
Approach Delay (s)		55.3			59.0			21.5			51.3	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM Average Control Delay	42.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

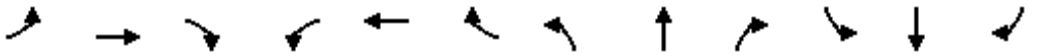
c Critical Lane Group

101: Davis Dr W & Bathurst St

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1218	219	210	1112	701	1108	356	79	322	255
Lane Group Flow (vph)	373	1218	219	210	1179	701	1108	356	79	322	255
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2	3	8			4	
Permitted Phases	6		6	2		8		8	4		4
Detector Phase	1	6	6	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	15.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	40.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	19.0	46.0	46.0	14.0	41.0	22.0	60.0	60.0	38.0	38.0	38.0
Total Split (%)	15.8%	38.3%	38.3%	11.7%	34.2%	18.3%	50.0%	50.0%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.96	0.93	0.30	0.83	1.15	1.44	0.76	0.44	0.98	0.41	0.50
Control Delay	71.5	51.7	5.3	57.5	127.5	231.8	27.7	5.3	139.7	40.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	51.7	5.3	57.5	127.5	231.8	27.7	5.3	139.7	40.8	12.1
Queue Length 50th (m)	~82.3	~161.1	0.6	42.0	~176.3	~221.2	112.0	19.7	17.9	33.2	9.2
Queue Length 95th (m)	#152.4	#202.6	17.2	#79.4	#219.1	#288.7	119.2	25.6	#45.7	45.1	30.9
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	387	1305	722	253	1028	486	1643	871	99	973	586
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	0.96	0.93	0.30	0.83	1.15	1.44	0.67	0.41	0.80	0.33	0.44

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St

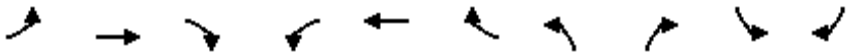


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1218	219	210	1112	67	701	1108	356	79	322	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3619		1825	3650	1633	1825	3650	1633
Flt Permitted	0.11	1.00	1.00	0.12	1.00		0.41	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	202	3650	1633	226	3619		794	3650	1633	372	3650	1633
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)	373	1218	219	210	1112	67	701	1108	356	79	322	255
RTOR Reduction (vph)	0	0	138	0	4	0	0	0	148	0	0	160
Lane Group Flow (vph)	373	1218	81	210	1175	0	701	1108	208	79	322	95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	Perm		Perm
Protected Phases	1	6		5	2		3	8			4	
Permitted Phases	6		6	2			8		8	4		4
Actuated Green, G (s)	58.9	42.9	42.9	46.0	34.0		48.1	48.1	48.1	26.1	26.1	26.1
Effective Green, g (s)	58.9	42.9	42.9	46.0	34.0		48.1	48.1	48.1	26.1	26.1	26.1
Actuated g/C Ratio	0.49	0.36	0.36	0.38	0.28		0.40	0.40	0.40	0.22	0.22	0.22
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	382	1305	584	247	1025		473	1463	655	81	794	355
v/s Ratio Prot	c0.17	0.33		0.09	c0.32		c0.22	0.30			0.09	
v/s Ratio Perm	0.31		0.05	0.24			c0.37		0.13	0.21		0.06
v/c Ratio	0.98	0.93	0.14	0.85	1.15		1.48	0.76	0.32	0.98	0.41	0.27
Uniform Delay, d1	36.7	37.2	26.1	29.5	43.0		32.7	30.9	24.7	46.6	40.3	39.0
Progression Factor	1.00	1.00	1.00	1.34	1.37		0.83	0.83	0.60	1.00	1.00	1.00
Incremental Delay, d2	39.4	13.4	0.5	20.8	76.3		224.4	1.5	0.2	91.0	0.3	0.4
Delay (s)	76.1	50.5	26.6	60.3	135.4		251.4	27.1	14.9	137.6	40.6	39.4
Level of Service	E	D	C	E	F		F	C	B	F	D	D
Approach Delay (s)		52.9			124.1			97.7			51.8	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM Average Control Delay	85.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	118.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

102: Davis Dr W & Ford Wilson Blvd

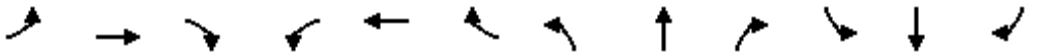


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR
Lane Configurations										
Volume (vph)	174	1394	58	99	1289	141	53	91	61	20
Lane Group Flow (vph)	174	1394	58	99	1289	141	53	91	61	20
Turn Type	Perm		Perm	Perm		Perm	custom	custom	custom	custom
Protected Phases		6			2					
Permitted Phases	6		6	2		2	4	4	8	8
Detector Phase	6	6	6	2	2	2	4	4	8	8
Switch Phase										
Minimum Initial (s)	40.0	40.0	40.0	40.0	40.0	40.0	10.0	10.0	1.0	1.0
Minimum Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	36.0	36.0	36.0	36.0
Total Split (s)	84.0	84.0	84.0	84.0	84.0	84.0	36.0	36.0	36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None
v/c Ratio	0.87	0.60	0.05	0.59	0.55	0.13	0.12	0.20	0.13	0.05
Control Delay	48.6	7.4	0.8	30.4	13.0	1.6	35.7	15.8	36.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	7.4	0.8	30.4	13.0	1.6	35.7	15.8	36.0	13.8
Queue Length 50th (m)	19.8	42.3	0.0	12.5	82.0	0.0	9.7	5.6	11.2	0.0
Queue Length 95th (m)	m#29.2	m47.1	m0.0	#39.8	99.0	6.8	20.2	18.7	22.4	6.2
Internal Link Dist (m)		751.2			427.9					
Turn Bay Length (m)	60.0		60.0	115.0		90.0	25.0		70.0	
Base Capacity (vph)	200	2342	1069	167	2342	1098	456	453	456	423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.60	0.05	0.59	0.55	0.13	0.12	0.20	0.13	0.05

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

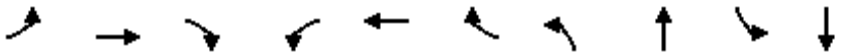
Splits and Phases: 102: Davis Dr W & Ford Wilson Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	1394	58	99	1289	141	53	0	91	61	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825		1633	1825		1633
Flt Permitted	0.16	1.00	1.00	0.14	1.00	1.00	0.95		1.00	0.95		1.00
Satd. Flow (perm)	311	3650	1633	262	3650	1633	1825		1633	1825		1633
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)	174	1394	58	99	1289	141	53	0	91	61	0	20
RTOR Reduction (vph)	0	0	21	0	0	51	0	0	45	0	0	15
Lane Group Flow (vph)	174	1394	37	99	1289	90	53	0	46	61	0	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	custom		custom	custom		custom
Protected Phases		6			2							
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Effective Green, g (s)	77.0	77.0	77.0	77.0	77.0	77.0	30.0		30.0	30.0		30.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64	0.64	0.25		0.25	0.25		0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0		6.0	6.0		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
Lane Grp Cap (vph)	200	2342	1048	168	2342	1048	456		408	456		408
v/s Ratio Prot		0.38			0.35							
v/s Ratio Perm	c0.56		0.02	0.38		0.06	0.03		0.03	c0.03		0.00
v/c Ratio	0.87	0.60	0.04	0.59	0.55	0.09	0.12		0.11	0.13		0.01
Uniform Delay, d1	17.4	12.5	7.9	12.4	11.9	8.2	34.8		34.7	34.9		33.9
Progression Factor	1.18	0.54	0.38	1.00	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2	23.7	0.6	0.0	14.3	0.9	0.2	0.5		0.6	0.1		0.0
Delay (s)	44.2	7.3	3.0	26.7	12.8	8.3	35.3		35.3	35.1		33.9
Level of Service	D	A	A	C	B	A	D		D	D		C
Approach Delay (s)		11.1			13.3			35.3			34.8	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	20	1431	105	106	1455	177	58	0	90	0
Lane Group Flow (vph)	20	1431	105	106	1455	177	58	61	90	10
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	
Protected Phases		4			8			2		6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	4	4	4	8	8	8	2	2	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (s)	65.0	65.0	65.0	65.0	65.0	65.0	25.0	25.0	25.0	25.0
Total Split (%)	72.2%	72.2%	72.2%	72.2%	72.2%	72.2%	27.8%	27.8%	27.8%	27.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	Max	Max
v/c Ratio	0.16	0.67	0.11	0.81	0.68	0.17	0.15	0.13	0.24	0.02
Control Delay	10.2	14.1	1.5	58.7	14.4	1.4	29.5	10.3	30.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	14.1	1.5	58.7	14.4	1.4	29.5	10.3	30.7	0.1
Queue Length 50th (m)	1.3	74.1	0.0	12.1	76.2	0.0	8.0	0.7	12.8	0.0
Queue Length 95th (m)	4.6	86.2	5.0	#43.7	88.8	6.3	18.5	10.3	26.7	0.0
Internal Link Dist (m)		427.9			290.8			144.5		83.9
Turn Bay Length (m)										
Base Capacity (vph)	136	2352	1090	144	2352	1115	391	483	373	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.61	0.10	0.74	0.62	0.16	0.15	0.13	0.24	0.02

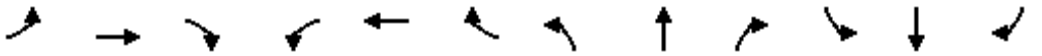
Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 103: Davis Dr W &

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	1431	105	106	1455	177	58	0	61	90	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1633		1825	1633	
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	211	3650	1633	222	3650	1633	1443	1633		1378	1633	
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)	20	1431	105	106	1455	177	58	0	61	90	0	10
RTOR Reduction (vph)	0	0	44	0	0	74	0	41	0	0	7	0
Lane Group Flow (vph)	20	1431	61	106	1455	103	58	20	0	90	3	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	52.6	52.6	52.6	52.6	52.6	52.6	24.4	24.4		24.4	24.4	
Effective Green, g (s)	52.6	52.6	52.6	52.6	52.6	52.6	24.4	24.4		24.4	24.4	
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.58	0.58	0.27	0.27		0.27	0.27	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.0	6.0		6.0	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	
Lane Grp Cap (vph)	123	2133	954	130	2133	954	391	443		374	443	
v/s Ratio Prot		0.39			0.40			0.01			0.00	
v/s Ratio Perm	0.09		0.04	c0.48		0.06	0.04			c0.07		
v/c Ratio	0.16	0.67	0.06	0.82	0.68	0.11	0.15	0.05		0.24	0.01	
Uniform Delay, d1	8.6	12.8	8.1	14.8	12.9	8.3	24.9	24.2		25.6	23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.8	0.0	31.0	0.9	0.1	0.8	0.2		1.5	0.0	
Delay (s)	9.2	13.6	8.1	45.8	13.8	8.3	25.7	24.4		27.1	24.0	
Level of Service	A	B	A	D	B	A	C	C		C	C	
Approach Delay (s)		13.2			15.2			25.0			26.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

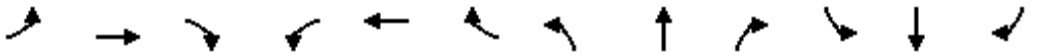


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	229	1347	6	7	1554	6	5	0	9	0	0	179
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	229	1347	6	7	1554	6	5	0	9	0	0	179
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		315			205							
pX, platoon unblocked	0.75			0.75			0.87	0.87	0.75	0.87	0.87	0.75
vC, conflicting volume	1560			1353			2599	3382	676	2708	3379	777
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1070			790			1231	2129	0	1356	2125	21
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	53			99			91	100	99	100	100	77
cM capacity (veh/h)	492			625			58	23	813	60	23	790

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1
Volume Total	229	898	455	7	777	777	6	5	9	179
Volume Left	229	0	0	7	0	0	0	5	0	0
Volume Right	0	0	6	0	0	0	6	0	9	179
cSH	492	1700	1700	625	1700	1700	1700	58	813	790
Volume to Capacity	0.47	0.53	0.27	0.01	0.46	0.46	0.00	0.09	0.01	0.23
Queue Length 95th (m)	18.5	0.0	0.0	0.3	0.0	0.0	0.0	2.1	0.3	6.6
Control Delay (s)	18.5	0.0	0.0	10.8	0.0	0.0	0.0	73.3	9.5	10.9
Lane LOS	C			B				F	A	B
Approach Delay (s)	2.7			0.0				32.3		10.9
Approach LOS								D		B

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	69.0%	ICU Level of Service	C	
Analysis Period (min)	15			

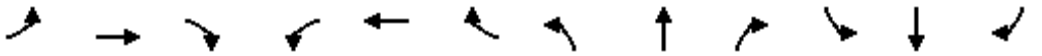
105: Davis Dr W & Upper Canada Mall



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1096	197	153	1268	84	286	178	111	138	148	27
Lane Group Flow (vph)	63	1096	197	153	1268	84	286	178	111	138	148	27
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Detector Phase	1	6	4	5	2	8	3	8	2	7	4	6
Switch Phase												
Minimum Initial (s)	7.0	30.0	10.0	7.0	30.0	10.0	7.0	10.0	30.0	7.0	10.0	30.0
Minimum Split (s)	14.0	37.0	35.0	14.0	37.0	35.0	14.0	35.0	37.0	14.0	35.0	37.0
Total Split (s)	14.0	50.0	42.0	14.0	50.0	42.0	14.0	42.0	50.0	14.0	42.0	50.0
Total Split (%)	11.7%	41.7%	35.0%	11.7%	41.7%	35.0%	11.7%	35.0%	41.7%	11.7%	35.0%	41.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	C-Max	None	None	C-Max
v/c Ratio	0.24	0.59	0.55	0.46	0.63	0.28	0.87	0.66	0.12	0.46	0.56	0.03
Control Delay	11.1	23.4	17.6	13.2	21.7	11.3	65.1	60.7	3.4	38.2	56.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	23.4	17.6	13.2	21.7	11.3	65.1	60.7	3.4	38.2	56.0	6.9
Queue Length 50th (m)	4.9	90.7	8.4	12.5	106.8	0.0	57.6	40.4	0.0	25.4	33.0	0.0
Queue Length 95th (m)	11.4	134.6	29.1	23.9	149.5	13.3	#83.4	60.2	9.4	39.4	51.1	5.5
Internal Link Dist (m)		181.2			395.0			190.0			148.1	
Turn Bay Length (m)	75.0		75.0	200.0		230.0			50.0			50.0
Base Capacity (vph)	301	1866	588	344	2018	536	329	560	952	303	560	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.59	0.34	0.44	0.63	0.16	0.87	0.32	0.12	0.46	0.26	0.03

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 105: Davis Dr W & Upper Canada Mall

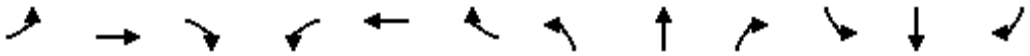


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	1096	197	153	1268	84	286	178	111	138	148	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	1921	1633	1825	1921	1633
Flt Permitted	0.14	1.00	1.00	0.16	1.00	1.00	0.56	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	277	3650	1633	311	3650	1633	1077	1921	1633	934	1921	1633
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)	63	1096	197	153	1268	84	286	178	111	138	148	27
RTOR Reduction (vph)	0	0	136	0	0	72	0	0	50	0	0	13
Lane Group Flow (vph)	63	1096	61	153	1268	12	286	178	61	138	148	14
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		custom	pm+pt		custom	pm+pt		custom	pm+pt		custom
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		4	2		8	8		2	4		6
Actuated Green, G (s)	67.4	61.3	16.4	75.6	65.5	16.7	26.7	16.7	65.5	26.1	16.4	61.3
Effective Green, g (s)	67.4	61.3	16.4	75.6	65.5	16.7	26.7	16.7	65.5	26.1	16.4	61.3
Actuated g/C Ratio	0.56	0.51	0.14	0.63	0.55	0.14	0.22	0.14	0.55	0.22	0.14	0.51
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	234	1865	223	326	1992	227	302	267	891	275	263	834
v/s Ratio Prot	0.01	0.30		c0.04	c0.35		c0.08	0.09		0.04	0.08	
v/s Ratio Perm	0.14		0.04	0.26		0.01	c0.13		0.04	0.07		0.01
v/c Ratio	0.27	0.59	0.28	0.47	0.64	0.05	0.95	0.67	0.07	0.50	0.56	0.02
Uniform Delay, d1	14.1	20.5	46.5	12.6	19.0	44.8	44.8	49.0	12.9	39.8	48.4	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.4	0.7	1.1	1.6	0.1	37.5	6.2	0.1	1.4	2.7	0.0
Delay (s)	14.7	21.9	47.1	13.7	20.5	44.9	82.3	55.2	13.0	41.3	51.2	14.5
Level of Service	B	C	D	B	C	D	F	E	B	D	D	B
Approach Delay (s)		25.2			21.2			60.5			43.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

107: Davis Dr W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	792	222	323	934	255	320	1330	254	293	874	244
Lane Group Flow (vph)	331	792	222	323	934	255	320	1330	254	293	874	244
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Detector Phase	7	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0	13.0	42.0	42.0
Total Split (s)	28.0	42.0	42.0	28.0	42.0	42.0	20.0	47.0	50.0	23.0	50.0	47.0
Total Split (%)	20.0%	30.0%	30.0%	20.0%	30.0%	30.0%	14.3%	33.6%	35.7%	16.4%	35.7%	33.6%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
v/c Ratio	1.06	0.87	0.39	1.03	1.02	0.48	1.11	1.28	0.41	0.96	0.78	0.38
Control Delay	121.3	61.4	7.1	115.1	86.9	20.1	107.1	178.6	33.5	80.0	50.0	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.3	61.4	7.1	115.1	86.9	20.1	107.1	178.6	33.5	80.0	50.0	6.2
Queue Length 50th (m)	~100.3	111.2	0.0	~95.7	~144.4	21.7	~95.9	~242.3	37.6	64.1	116.2	0.0
Queue Length 95th (m)	#160.0	#138.4	19.7	#154.9	#185.5	48.3m	#106.9m	#262.6	m44.9	#120.5	141.0	19.6
Internal Link Dist (m)		395.0			190.7			409.7			172.3	
Turn Bay Length (m)	145.0		115.0	60.0		60.0	90.0		85.0	85.0		105.0
Base Capacity (vph)	313	913	575	313	913	527	289	1043	615	306	1121	641
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.87	0.39	1.03	1.02	0.48	1.11	1.28	0.41	0.96	0.78	0.38

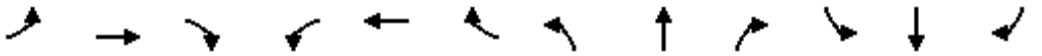
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated

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

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

m Volume for 95th percentile queue is metered by upstream signal.

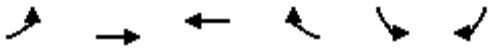
Splits and Phases: 107: Davis Dr W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	792	222	323	934	255	320	1330	254	293	874	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3650	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.14	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1825	3650	1633	1825	3650	1633	260	3650	1633	179	3650	1633
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)	331	792	222	323	934	255	320	1330	254	293	874	244
RTOR Reduction (vph)	0	0	167	0	0	119	0	0	114	0	0	174
Lane Group Flow (vph)	331	792	56	323	934	137	320	1330	140	293	874	70
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot		Perm	Prot		Perm	pm+pt		custom	pm+pt		custom
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			4			8	6		2	2		6
Actuated Green, G (s)	24.0	35.0	35.0	24.0	35.0	35.0	56.0	40.0	43.0	62.0	43.0	40.0
Effective Green, g (s)	24.0	35.0	35.0	24.0	35.0	35.0	56.0	40.0	43.0	62.0	43.0	40.0
Actuated g/C Ratio	0.17	0.25	0.25	0.17	0.25	0.25	0.40	0.29	0.31	0.44	0.31	0.29
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	313	913	408	313	913	408	283	1043	502	303	1121	467
v/s Ratio Prot	c0.18	0.22		0.18	c0.26		c0.13	c0.36		c0.13	0.24	
v/s Ratio Perm			0.03			0.08	0.32		0.09	0.30		0.04
v/c Ratio	1.06	0.87	0.14	1.03	1.02	0.33	1.13	1.28	0.28	0.97	0.78	0.15
Uniform Delay, d1	58.0	50.3	40.8	58.0	52.5	43.0	35.6	50.0	36.8	43.4	44.2	37.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.43	1.37	2.42	1.00	1.00	1.00
Incremental Delay, d2	66.8	8.7	0.2	59.4	35.7	0.5	73.6	126.5	0.5	42.3	5.4	0.7
Delay (s)	124.8	59.0	40.9	117.4	88.2	43.5	124.6	194.8	89.3	85.8	49.6	38.0
Level of Service	F	E	D	F	F	D	F	F	F	F	D	D
Approach Delay (s)		72.2			86.9			168.9			55.1	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM Average Control Delay	101.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		

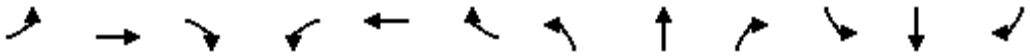
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	16	17	79	114	16
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	16	17	79	114	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)					64	
pX, platoon unblocked						
vC, conflicting volume	316	228	244	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	316	228	244	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	96	97	97	93	93	
cM capacity (veh/h)	551	628	615	1091	1636	

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	38	96	114	16
Volume Left	22	0	114	0
Volume Right	0	79	0	16
cSH	581	960	1636	1700
Volume to Capacity	0.07	0.10	0.07	0.01
Queue Length 95th (m)	1.6	2.5	1.7	0.0
Control Delay (s)	11.6	9.2	7.4	0.0
Lane LOS	B	A	A	
Approach Delay (s)	11.6	9.2	6.5	
Approach LOS	B	A		

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	94	0	178	0	349	71	112	311	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	0	94	0	178	0	349	71	112	311	0

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	0	94	178	420	423
Volume Left (vph)	0	94	0	0	112
Volume Right (vph)	0	0	178	71	0
Hadj (s)	0.00	0.50	-0.70	-0.10	0.05
Departure Headway (s)	6.9	7.2	5.9	5.3	5.4
Degree Utilization, x	0.00	0.19	0.29	0.61	0.63
Capacity (veh/h)	421	462	555	657	647
Control Delay (s)	9.9	10.6	10.2	16.2	17.2
Approach Delay (s)	0.0	10.3		16.2	17.2
Approach LOS	A	B		C	C

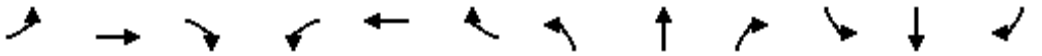
Intersection Summary				
Delay	15.2			
HCM Level of Service	C			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	136	138	75	146	108	1938	120	1141	80
Lane Group Flow (vph)	136	266	75	223	108	2038	120	1141	80
Turn Type	pm+pt		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	1	6	5	2	
Permitted Phases	4		8		6		2		Free
Detector Phase	7	4	8	8	1	6	5	2	
Switch Phase									
Minimum Initial (s)	7.0	10.0	10.0	10.0	7.0	30.0	7.0	30.0	
Minimum Split (s)	11.0	36.0	36.0	36.0	11.0	37.0	11.0	37.0	
Total Split (s)	11.0	47.0	36.0	36.0	12.0	82.0	11.0	81.0	0.0
Total Split (%)	7.9%	33.6%	25.7%	25.7%	8.6%	58.6%	7.9%	57.9%	0.0%
Yellow Time (s)	3.0	5.0	5.0	5.0	3.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	4.0	7.0	4.0	7.0	4.0
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Min	None	C-Min	
v/c Ratio	0.68	0.61	0.45	0.76	0.34	0.98	0.68	0.54	0.05
Control Delay	59.5	47.4	60.9	68.9	13.3	34.6	60.3	7.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	47.4	60.9	68.9	13.3	34.6	60.3	7.6	0.0
Queue Length 50th (m)	30.7	58.4	19.2	55.7	11.8	156.0	20.9	26.8	0.0
Queue Length 95th (m)	45.6	81.4	33.2	79.0	m12.8	m#149.8	m#31.3	m35.9	m0.0
Internal Link Dist (m)		356.1		145.0		598.7		409.7	
Turn Bay Length (m)	150.0		50.0		70.0		100.0		100.0
Base Capacity (vph)	201	533	229	391	319	2089	176	2132	1633
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	0.68	0.50	0.33	0.57	0.34	0.98	0.68	0.54	0.05

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 307: Millard Ave & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	138	128	75	146	77	108	1938	100	120	1141	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.95		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	1782		1825	1822		1825	3623		1825	3650	1633
Flt Permitted	0.28	1.00		0.58	1.00		0.18	1.00		0.05	1.00	1.00
Satd. Flow (perm)	541	1782		1107	1822		354	3623		94	3650	1633
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)	136	138	128	75	146	77	108	1938	100	120	1141	80
RTOR Reduction (vph)	0	25	0	0	14	0	0	3	0	0	0	0
Lane Group Flow (vph)	136	241	0	75	209	0	108	2035	0	120	1141	80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		1	6		5	2	
Permitted Phases	4			8			6			2		Free
Actuated Green, G (s)	32.3	32.3		21.3	21.3		88.5	80.6		90.9	81.8	140.0
Effective Green, g (s)	32.3	32.3		21.3	21.3		88.5	80.6		90.9	81.8	140.0
Actuated g/C Ratio	0.23	0.23		0.15	0.15		0.63	0.58		0.65	0.58	1.00
Clearance Time (s)	4.0	7.0		7.0	7.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	411		168	277		307	2086		174	2133	1633
v/s Ratio Prot	c0.04	0.13			0.11		0.02	c0.56		c0.04	0.31	
v/s Ratio Perm	c0.13			0.07			0.20			0.40		c0.05
v/c Ratio	0.72	0.59		0.45	0.75		0.35	0.98		0.69	0.53	0.05
Uniform Delay, d1	47.9	47.9		54.0	56.8		12.1	28.8		38.9	17.6	0.0
Progression Factor	1.00	1.00		1.00	1.00		1.50	0.95		2.10	0.37	1.00
Incremental Delay, d2	12.3	2.1		1.9	11.0		0.2	6.6		6.8	0.6	0.0
Delay (s)	60.2	50.0		55.9	67.8		18.3	33.9		88.7	7.2	0.0
Level of Service	E	D		E	E		B	C		F	A	A
Approach Delay (s)		53.5			64.8			33.1			14.0	
Approach LOS		D			E			C			B	

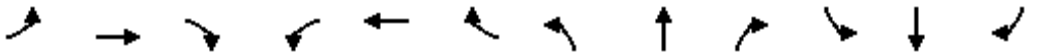
Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBT	NBL	NBT	SBL	SBT	ø4
Lane Configurations							
Volume (vph)	30	0	1	2111	60	691	
Lane Group Flow (vph)	30	54	0	2194	60	691	
Turn Type	Perm		Perm		Perm		
Protected Phases		8		6		2	4
Permitted Phases	8		6		2		
Detector Phase	8	8	6	6	2	2	
Switch Phase							
Minimum Initial (s)	10.0	10.0	40.0	40.0	40.0	40.0	10.0
Minimum Split (s)	32.0	32.0	47.0	47.0	47.0	47.0	32.0
Total Split (s)	32.0	32.0	88.0	88.0	88.0	88.0	32.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	27%
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max	None
v/c Ratio	0.24	0.35		0.75	0.64	0.22	
Control Delay	55.7	45.8		7.7	52.6	6.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	
Total Delay	55.7	45.8		7.7	52.6	6.2	
Queue Length 50th (m)	6.7	8.8		112.5	13.1	42.2	
Queue Length 95th (m)	16.1	21.2		155.5	m#30.2	m49.8	
Internal Link Dist (m)		137.2		253.8		409.6	
Turn Bay Length (m)	30.0				50.0		
Base Capacity (vph)	315	366		2923	94	3077	
Starvation Cap Reductn	0	0		0	0	0	
Spillback Cap Reductn	0	0		0	0	0	
Storage Cap Reductn	0	0		0	0	0	
Reduced v/c Ratio	0.10	0.15		0.75	0.64	0.22	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

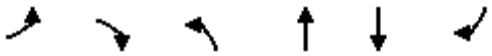
Splits and Phases: 401: Sykes Rd & Bathurst St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	30	0	54	1	2111	82	60	691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0			7.0		7.0	7.0	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
Frt				1.00	0.85			0.99		1.00	1.00	
Flt Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1825	1633			3630		1825	3650	
Flt Permitted				0.76	1.00			0.95		0.06	1.00	
Satd. Flow (perm)				1455	1633			3466		111	3650	
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)	0	0	0	30	0	54	1	2111	82	60	691	0
RTOR Reduction (vph)	0	0	0	0	14	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	30	40	0	0	2193	0	60	691	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)				8.4	8.4			98.6		98.6	98.6	
Effective Green, g (s)				8.4	8.4			98.6		98.6	98.6	
Actuated g/C Ratio				0.07	0.07			0.82		0.82	0.82	
Clearance Time (s)				6.0	6.0			7.0		7.0	7.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				102	114			2848		91	2999	
v/s Ratio Prot					c0.02						0.19	
v/s Ratio Perm				0.02				c0.63		0.54		
v/c Ratio				0.29	0.35			0.77		0.66	0.23	
Uniform Delay, d1				53.0	53.2			5.2		4.2	2.4	
Progression Factor				1.00	1.00			1.00		2.83	2.42	
Incremental Delay, d2				1.6	1.9			2.1		29.0	0.2	
Delay (s)				54.6	55.1			7.3		40.8	5.8	
Level of Service				D	E			A		D	A	
Approach Delay (s)		0.0			54.9			7.3			8.6	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

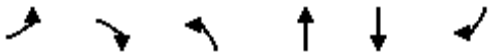
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	48	44	22	0	0	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	48	44	22	0	0	22

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	92	22	22
Volume Left (vph)	48	22	0
Volume Right (vph)	44	0	22
Hadj (s)	-0.18	0.20	-0.60
Departure Headway (s)	3.8	4.3	3.5
Degree Utilization, x	0.10	0.03	0.02
Capacity (veh/h)	929	807	993
Control Delay (s)	7.2	7.4	6.6
Approach Delay (s)	7.2	7.4	6.6
Approach LOS	A	A	A

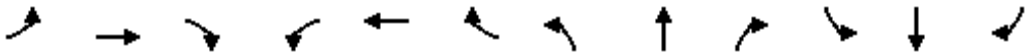
Intersection Summary			
Delay	7.1		
HCM Level of Service	A		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	10	59	98	48	33	11
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	59	98	48	33	11

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	69	146	44
Volume Left (vph)	10	98	0
Volume Right (vph)	59	0	11
Hadj (s)	-0.48	0.13	-0.15
Departure Headway (s)	3.8	4.2	4.0
Degree Utilization, x	0.07	0.17	0.05
Capacity (veh/h)	893	831	867
Control Delay (s)	7.1	8.1	7.2
Approach Delay (s)	7.1	8.1	7.2
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

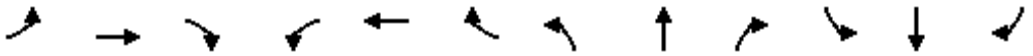


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	33	7	68	10	1	0	117	442	13	3	375	62
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	33	7	68	10	1	0	117	442	13	3	375	62

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	108	11	572	440
Volume Left (vph)	33	10	117	3
Volume Right (vph)	68	0	13	62
Hadj (s)	-0.32	0.18	0.03	-0.08
Departure Headway (s)	6.0	6.8	4.9	4.9
Degree Utilization, x	0.18	0.02	0.77	0.60
Capacity (veh/h)	544	459	726	715
Control Delay (s)	10.3	9.9	22.3	15.0
Approach Delay (s)	10.3	9.9	22.3	15.0
Approach LOS	B	A	C	B

Intersection Summary				
Delay		18.1		
HCM Level of Service		C		
Intersection Capacity Utilization		70.1%	ICU Level of Service	C
Analysis Period (min)		15		

707: Eagle St W & Yonge St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1927	188	180	1357	43
Lane Group Flow (vph)	78	236	272	184	178	105	305	1927	188	180	1357	43
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Detector Phase	4	4	4	3	8	8	1	6	2	5	2	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	30.0	30.0	7.0	30.0	30.0
Minimum Split (s)	41.0	41.0	41.0	11.0	41.0	41.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (s)	41.0	41.0	41.0	11.0	52.0	52.0	22.0	77.0	66.0	11.0	66.0	77.0
Total Split (%)	29.3%	29.3%	29.3%	7.9%	37.1%	37.1%	15.7%	55.0%	47.1%	7.9%	47.1%	55.0%
Yellow Time (s)	5.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	C-Min	C-Max	Min	C-Max	C-Min
v/c Ratio	0.38	0.73	0.60	0.87	0.38	0.22	0.78	1.05	0.24	0.65	0.84	0.05
Control Delay	55.2	68.1	17.4	80.0	45.0	7.5	51.9	68.5	14.7	44.2	37.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	68.1	17.4	80.0	45.0	7.5	51.9	68.5	14.7	44.2	37.4	7.8
Queue Length 50th (m)	19.4	62.9	13.3	41.7	41.3	0.0	62.0	~306.7	17.6	33.2	132.8	0.4
Queue Length 95th (m)	33.2	85.2	38.8	#65.4	57.8	13.2	#127.0	#348.1	34.4	#85.6	137.8	m5.4
Internal Link Dist (m)		591.6			208.4			176.6			598.7	
Turn Bay Length (m)	60.0		60.0	70.0		50.0	90.0		70.0	70.0		225.0
Base Capacity (vph)	301	467	561	211	617	596	392	1841	768	279	1613	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.51	0.48	0.87	0.29	0.18	0.78	1.05	0.24	0.65	0.84	0.05

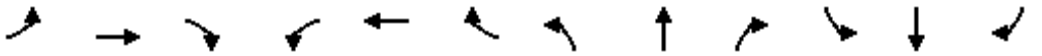
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 22 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 707: Eagle St W & Yonge St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	236	272	184	178	105	305	1927	188	180	1357	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	1921	1633	1825	1921	1633	1825	3650	1633	1825	3650	1633
Flt Permitted	0.64	1.00	1.00	0.29	1.00	1.00	0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1239	1921	1633	552	1921	1633	117	3650	1633	124	3650	1633
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)	78	236	272	184	178	105	305	1927	188	180	1357	43
RTOR Reduction (vph)	0	0	181	0	0	79	0	0	47	0	0	21
Lane Group Flow (vph)	78	236	91	184	178	26	305	1927	141	180	1357	22
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm		Perm	pm+pt		Perm	pm+pt		custom	pm+pt		custom
Protected Phases		4		3	8		1	6		5	2	
Permitted Phases	4		4	8		8	6		2	2		6
Actuated Green, G (s)	23.5	23.5	23.5	34.5	34.5	34.5	91.5	70.6	61.8	78.7	61.8	70.6
Effective Green, g (s)	23.5	23.5	23.5	34.5	34.5	34.5	91.5	70.6	61.8	78.7	61.8	70.6
Actuated g/C Ratio	0.17	0.17	0.17	0.25	0.25	0.25	0.65	0.50	0.44	0.56	0.44	0.50
Clearance Time (s)	7.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0
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	3.0
Lane Grp Cap (vph)	208	322	274	200	473	402	390	1841	721	275	1611	823
v/s Ratio Prot		0.12		c0.05	0.09		c0.14	c0.53		0.08	0.37	
v/s Ratio Perm	0.06		0.06	c0.18		0.02	0.37		0.09	0.29		0.01
v/c Ratio	0.38	0.73	0.33	0.92	0.38	0.06	0.78	1.05	0.20	0.65	0.84	0.03
Uniform Delay, d1	51.7	55.3	51.3	50.9	43.8	40.4	42.1	34.7	23.9	37.3	34.8	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	0.90	1.55
Incremental Delay, d2	1.1	8.3	0.7	41.8	0.5	0.1	9.8	34.4	0.6	5.0	5.1	0.1
Delay (s)	52.9	63.6	52.1	92.7	44.3	40.5	51.9	69.1	24.5	43.2	36.5	27.1
Level of Service	D	E	D	F	D	D	D	E	C	D	D	C
Approach Delay (s)		56.8			62.5			63.5			37.0	
Approach LOS		E			E			E			D	

Intersection Summary			
HCM Average Control Delay	54.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX M
Sensitivity Analysis
Level Of Service Calculations

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	373	1218	219	210	1112	701	1108	356	79	322	255
Lane Group Flow (vph)	373	1218	219	210	1179	701	1108	356	79	322	255
Turn Type	pm+pt		pm+ov	pm+pt		Prot		Perm	Perm		Perm
Protected Phases	1	6	3	5	2	3	8			4	
Permitted Phases	6		6	2				8	4		4
Detector Phase	1	6	3	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	7.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	14.0	14.0	38.0	14.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	18.0	47.0	21.0	14.0	43.0	21.0	59.0	59.0	38.0	38.0	38.0
Total Split (%)	15.0%	39.2%	17.5%	11.7%	35.8%	17.5%	49.2%	49.2%	31.7%	31.7%	31.7%
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None
v/c Ratio	1.04	0.92	0.22	0.85	1.08	1.40	0.76	0.45	0.99	0.39	0.51
Control Delay	91.9	50.2	3.2	62.1	108.6	227.4	28.2	6.3	145.2	40.1	15.7
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	91.9	50.2	3.2	62.1	108.6	227.4	28.2	6.3	145.2	40.1	15.7
Queue Length 50th (m)	~92.8	~150.7	2.3	50.4	~168.3	~112.8	88.1	9.2	17.8	32.6	14.4
Queue Length 95th (m)	#156.4	#198.7	13.6	m#79.9	#211.1	#150.4	107.5	m23.5	#46.9	45.1	37.5
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	359	1318	1003	248	1089	502	1612	857	95	973	565
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	1.04	0.92	0.22	0.85	1.08	1.40	0.69	0.42	0.83	0.33	0.45

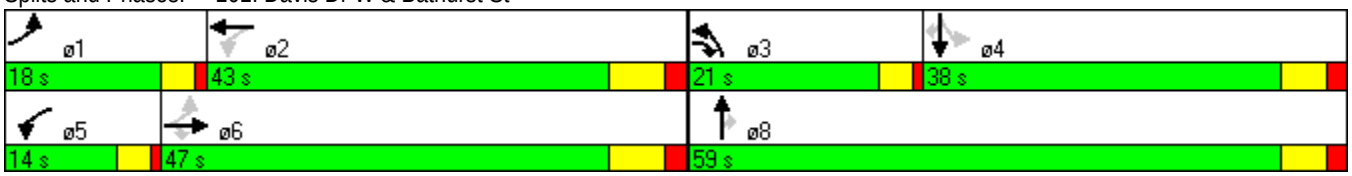
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

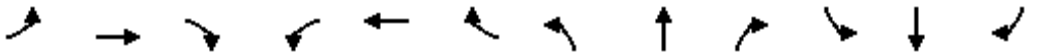
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	373	1218	219	210	1112	67	701	1108	356	79	322	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3619		3541	3650	1633	1825	3650	1633
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.95	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	192	3650	1633	213	3619		3541	3650	1633	356	3650	1633
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)	373	1218	219	210	1112	67	701	1108	356	79	322	255
RTOR Reduction (vph)	0	0	99	0	4	0	0	0	146	0	0	137
Lane Group Flow (vph)	373	1218	120	210	1176	0	701	1108	210	79	322	118
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		pm+ov	pm+pt			Prot		Perm	Perm		Perm
Protected Phases	1	6	3	5	2		3	8			4	
Permitted Phases	6		6	2					8	4		4
Actuated Green, G (s)	59.1	43.3	60.3	47.8	36.0		17.0	47.9	47.9	26.9	26.9	26.9
Effective Green, g (s)	59.1	43.3	60.3	47.8	36.0		17.0	47.9	47.9	26.9	26.9	26.9
Actuated g/C Ratio	0.49	0.36	0.50	0.40	0.30		0.14	0.40	0.40	0.22	0.22	0.22
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	354	1317	821	243	1086		502	1457	652	80	818	366
v/s Ratio Prot	c0.17	0.33	0.02	0.08	0.32		c0.20	0.30			0.09	
v/s Ratio Perm	c0.35		0.05	0.26					0.13	c0.22		0.07
v/c Ratio	1.05	0.92	0.15	0.86	1.08		1.40	0.76	0.32	0.99	0.39	0.32
Uniform Delay, d1	37.3	36.8	16.0	28.7	42.0		51.5	31.1	24.9	46.4	39.6	38.9
Progression Factor	1.00	1.00	1.00	1.57	1.56		1.11	0.84	0.71	1.00	1.00	1.00
Incremental Delay, d2	62.6	12.3	0.1	20.7	49.4		185.8	1.5	0.2	95.6	0.3	0.5
Delay (s)	100.0	49.1	16.1	65.7	114.9		243.1	27.6	17.9	142.0	39.9	39.4
Level of Service	F	D	B	E	F		F	C	B	F	D	D
Approach Delay (s)		55.6			107.4			95.8			52.0	
Approach LOS		E			F			F			D	

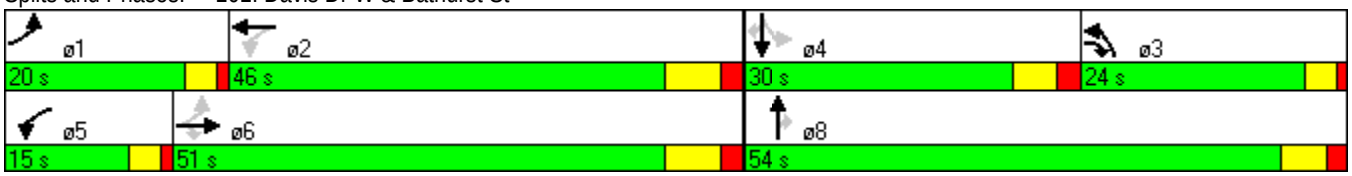
Intersection Summary			
HCM Average Control Delay	81.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	111.7%	ICU Level of Service	H
Analysis Period (min)	15		

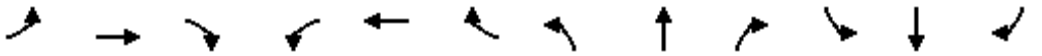
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	300	1218	219	210	1112	560	1108	356	79	322	255
Lane Group Flow (vph)	300	1218	219	210	1179	560	1108	356	79	322	255
Turn Type	pm+pt		pm+ov	pm+pt		Prot		Perm	Perm		Perm
Protected Phases	1	6	3	5	2	3	8			4	
Permitted Phases	6		6	2				8	4		4
Detector Phase	1	6	3	5	2	3	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	15.0	7.0	7.0	15.0	7.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	14.0	40.0	14.0	14.0	38.0	14.0	38.0	38.0	28.0	28.0	28.0
Total Split (s)	20.0	51.0	24.0	15.0	46.0	24.0	54.0	54.0	30.0	30.0	30.0
Total Split (%)	16.7%	42.5%	20.0%	12.5%	38.3%	20.0%	45.0%	45.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	5.0	3.0	3.0	5.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	2.0	1.0	1.0	2.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	4.0	4.0	7.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag			Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Recall Mode	None	C-Min	None	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.96	0.91	0.23	0.89	1.00	0.95	0.76	0.44	1.23	0.44	0.53
Control Delay	73.9	47.3	3.5	62.0	78.8	64.9	28.7	6.7	230.1	44.3	15.3
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	73.9	47.3	3.5	62.0	78.8	64.9	28.7	6.7	230.1	44.3	15.3
Queue Length 50th (m)	53.5	142.1	5.6	35.8	156.1	68.1	117.5	24.6	~23.0	35.3	11.2
Queue Length 95th (m)	#107.9	#183.0	12.5	#73.9	#199.1	#101.6	139.5	32.6	#54.4	49.5	36.0
Internal Link Dist (m)		178.7			751.2		409.6			193.2	
Turn Bay Length (m)	70.0		100.0	140.0		100.0		100.0	200.0		200.0
Base Capacity (vph)	312	1338	969	237	1179	590	1460	800	64	730	485
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	0.96	0.91	0.23	0.89	1.00	0.95	0.76	0.45	1.23	0.44	0.53

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Davis Dr W & Bathurst St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	300	1218	219	210	1112	67	560	1108	356	79	322	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	4.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1825	3650	1633	1825	3619		3541	3650	1633	1825	3650	1633
Flt Permitted	0.09	1.00	1.00	0.10	1.00		0.95	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	179	3650	1633	197	3619		3541	3650	1633	320	3650	1633
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)	300	1218	219	210	1112	67	560	1108	356	79	322	255
RTOR Reduction (vph)	0	0	61	0	3	0	0	0	146	0	0	158
Lane Group Flow (vph)	300	1218	158	210	1176	0	560	1108	210	79	322	97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt		pm+ov	pm+pt			Prot		Perm	Perm		Perm
Protected Phases	1	6	3	5	2		3	8			4	
Permitted Phases	6		6	2					8	4		4
Actuated Green, G (s)	59.0	44.0	64.0	50.0	39.0		20.0	48.0	48.0	24.0	24.0	24.0
Effective Green, g (s)	59.0	44.0	64.0	50.0	39.0		20.0	48.0	48.0	24.0	24.0	24.0
Actuated g/C Ratio	0.49	0.37	0.53	0.42	0.32		0.17	0.40	0.40	0.20	0.20	0.20
Clearance Time (s)	4.0	7.0	4.0	4.0	7.0		4.0	6.0	6.0	6.0	6.0	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)	307	1338	871	231	1176		590	1460	653	64	730	327
v/s Ratio Prot	c0.13	0.33	0.03	0.08	0.32		c0.16	0.30			0.09	
v/s Ratio Perm	c0.35		0.07	0.29					0.13	c0.25		0.06
v/c Ratio	0.98	0.91	0.18	0.91	1.00		0.95	0.76	0.32	1.23	0.44	0.30
Uniform Delay, d1	36.7	36.1	14.5	29.6	40.5		49.5	31.0	24.8	48.0	42.1	40.8
Progression Factor	1.00	1.00	1.00	1.09	1.37		0.89	0.83	0.68	1.00	1.00	1.00
Incremental Delay, d2	44.7	10.8	0.1	31.9	24.4		18.7	1.5	0.2	188.4	0.4	0.5
Delay (s)	81.3	46.9	14.6	64.1	80.0		63.0	27.4	17.0	236.4	42.5	41.3
Level of Service	F	D	B	E	E		E	C	B	F	D	D
Approach Delay (s)		48.8			77.6			35.4			65.4	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX N
Left Turn Lane Warrants And Storage Lane Lengths

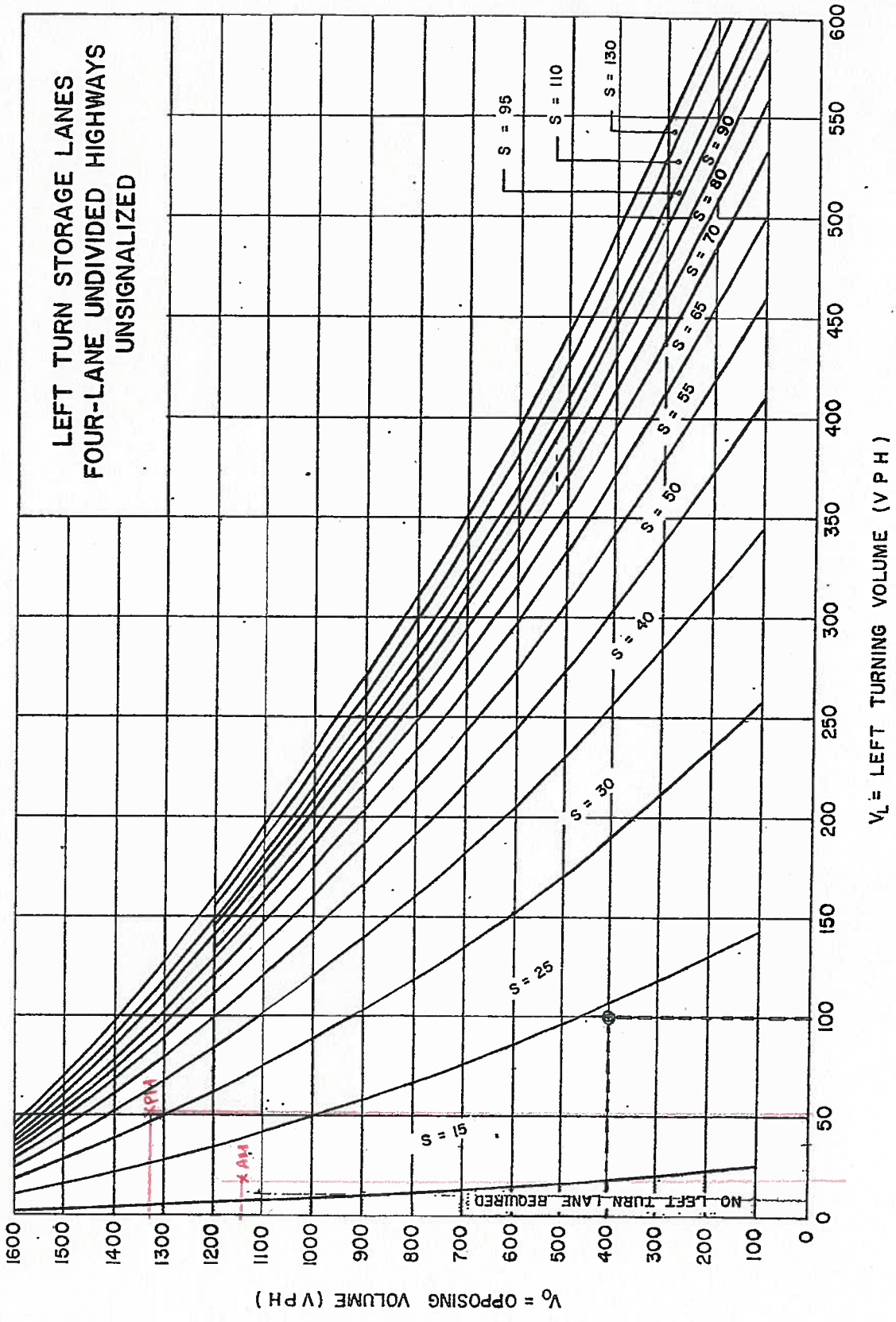

LEFT TURN STORAGE LANES
FOUR-LANE UNDIVIDED HIGHWAYS
UNSIGNALIZED
S = 95
S = 110
S = 130
S = 90
S = 80
S = 70
S = 65
S = 55
S = 50
S = 40
S = 30
S = 25
S = 15
NO LEFT TURN LANE REQUIRED
V_L = LEFT TURNING VOLUME (V P H)
V_O = OPPOSING VOLUME (V P H)

Figure EB-1

APPENDIX O
Statement Of Limiting Conditions And Assumptions

Statement of Limiting Conditions and Assumptions

1. This Report/Study (the "Work") has been prepared at the request of, and for the exclusive use of, the Owner, and its affiliates (the "Intended Users"). No one other than the Intended Users has the right to use and rely on the Work without first obtaining the written authorization of Cole Engineering Group Ltd. (Cole Engineering) and its Owner.

2. Cole Engineering expressly excludes liability to any party except the Intended Users for any use of, and/or reliance upon, the Work.

3. Cole Engineering notes that the following assumptions were made in completing the Work:

   a) the land use description(s) supplied to us are correct;
   b) the surveys and data supplied to Cole Engineering by the Owner are accurate;
   c) market timing, approval delivery and secondary source information is within the control of Parties other than Cole Engineering; and
   d) there are no encroachments, leases, covenants, binding agreements, restrictions, pledges, charges, liens or special assessments outstanding, or encumbrances which would significantly affect the use or servicing.

   Investigations have not been carried out to verify these assumptions. Cole Engineering deems the sources of data and statistical information contained herein to be reliable, but we extend no guarantee of accuracy in these respects.

4. Cole Engineering accepts no responsibility for legal interpretations, questions of survey, opinion of title, hidden or inconspicuous conditions of the property, toxic wastes or contaminated materials, soil or sub-soil conditions, environmental, engineering or other factual and technical matters disclosed by the Owner, the Client, or any public agency, which by their nature, may change the outcome of the Work. Such factors, beyond the scope of this Work, could affect the findings, conclusions and opinions rendered in the Work. We have made disclosure of related potential problems that have come to our attention. Responsibility for diligence with respect to all matters of fact reported herein rests with the Intended Users.

5. Cole Engineering practices engineering in the general areas of infrastructure and transportation. It is not qualified to and is not providing legal or planning advice in this Work.

6. The legal description of the property and the area of the site were based upon surveys and data supplied to us by the Owner. The plans, photographs, and sketches contained in this report are included solely to aide in visualizing the location of the property, the configuration and boundaries of the site, and the relative position of the improvements on the said lands.

7. We have made investigations from secondary sources as documented in the Work, but we have not checked for compliance with by-laws, codes, agency and governmental regulations, etc., unless specifically noted in the Work.

8. Because conditions, including capacity, allocation, economic, social, and political factors change rapidly and, on occasion, without notice or warning, the findings of the Work expressed herein, are as of the date of the Work and cannot necessarily be relied upon as of any other date without subsequent advice from Cole Engineering.

9. The value of proposed improvements should be applied only with regard to the purpose and function of the Work, as outlined in the body of this Work. Any cost estimates set out in the Work are based on construction averages and subject to change.

10. Neither possession of the Work, nor a copy of it, carries the right of publication. All copyright in the Work is reserved to Cole Engineering. The Work shall not be disclosed, produced or reproduced, quoted from, or referred to, in whole or in part, or published in any manner, without the express written consent of Cole Engineering and the Owner.

11. The Work is only valid if it bears the professional engineer's seal and original signature of the author, and if considered in its entirety. Responsibility for unauthorized alteration to the Work is denied.