



Proposed Commercial/ Retail Development, 1535 Highway 7A, Port Perry, Ontario

Traffic Impact Study

Paradigm Transportation Solutions Limited

2026-06
260084

Project Summary



Project Number:

260084

Date and Version:

2026-06

1.0.0

Client:

Calloway REIT (Port Perry) Inc.

3200 Highway 7

Vaughan, ON

Client Contact:

Daniel Branzea

Development Manager

Consultant Project Team

Adrian Soo, P.Eng.

Paradigm Transportation Solutions Limited

5A-150 Pinebush Road

Cambridge ON N1R 8J8

p: 519.896.3163

905.381.2229

416.479.9684

www.ptsl.com

Proposed Commercial/Retail Development, 1535 Highway 7A, Port Perry, Ontario Traffic Impact Study



Adrian Soo, P.Eng.

Disclaimer

This document has been prepared for the titled project or named part thereof (the "project") and except for approval and commenting municipalities and agencies in their review and approval of this project, should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authorization of Paradigm Transportation Solutions Limited being obtained. Paradigm Transportation Solutions Limited accepts no responsibility or liability for the consequence of this document being used for a purpose other than the project for which it was commissioned. Any person using or relying on the document for such other purpose agrees and will by such use or reliance be taken to confirm their agreement to indemnify Paradigm Transportation Solutions Limited for all loss or damage resulting there from. Paradigm Transportation Solutions Limited accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned and the approval and commenting municipalities and agencies for the project.

To the extent that this report is based on information supplied by other parties, Paradigm Transportation Solutions Limited accepts no liability for any loss or damage suffered by the client, whether through contract or tort, stemming from any conclusions based on data supplied by parties other than Paradigm Transportation Solutions Limited and used by Paradigm Transportation Solutions Limited in preparing this report.

© 1998 Paradigm Transportation Solutions Limited. All rights reserved.

Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Traffic Impact Study for the proposed remaining build-out of the SmartCentres site located at the municipal address of 1535 Highway 7A in the community of Port Perry, Township of Scugog. The study is in support of rezoning and site plan approval applications.

The study provides an assessment of the existing transportation networks, a description of the proposed remaining development, the development and analysis of future traffic forecasts, recommendations for future transportation requirements and/or considerations, if any, and a review of the site access and circulation design.

This study assesses the 2028, 2033, and 2038 horizon years which represent the anticipated full build-out year and a period of five- and ten-years beyond full build-out, respectively.

The findings, conclusions, and recommendations of this study are summarized below and outlined further in detail within the body of the report.

Proposed Development

A master Traffic Impact Study (TIS) was previously prepared for the site dated April 2010 which assessed the full development of the lands based upon the development concept at that time.

Based upon the current proposed development plan, there are several retail buildings to be constructed. This study assesses the final build-out of the property including Buildings C1, C2, G2, G3, and J.

Details regarding the remaining buildings are as follows:

- ▶ Building C1
 - Proposed Supermarket
 - 2,696 SM (29,020.6 SF) Gross Floor Area (GFA)
- ▶ Building C2
 - Proposed Retail
 - 511 SM (5,500 SF) GFA
- ▶ Building G2



- Proposed Retail
- 199 SM (2,140 SF) GFA
- ▶ Building G3
 - Proposed Retail
 - 195 SM (2,100 SF) GFA
- ▶ Building J
 - Proposed Future Retail
 - 743 SM (8,000 SF) GFA

Aforementioned, this study assesses the remaining build-out of the site.

Vehicular access to the SmartCentres is currently provided via a signalized access with Highway 7A, and a right-in/left-out only driveway with Scugog Line 6. Upon construction/development of the remainder of the site, two (2) driveways with Scugog Line 6 are proposed. The existing restricted right-in/left-out only access is proposed to be reconfigured to a full-movement access. Additionally, a second full-movement access is proposed. As we understand, the intent and purpose of the access driveways with Scugog Line 6 are to provide functionality; that is, facilitate truck deliveries for the existing Walmart site, in addition to serving the new proposed supermarket as these two sites are/will be served by larger tractor trailer trucks.

The Scugog Line 6 access driveways are not intended nor planned to function as a gateway or main access entrance/exit to the SmartCentres site. Furthermore, given the existing configuration of the access with Scugog Line 6 (right-in/left-out only), there is the precedent that little to no trips would be to/from the east via Scugog Line 6. Furthermore, given the configuration of how Scugog Line 6 connects to Highway 7A, use of the Scugog Line 6 access connections is not a direct route and requires additional movements if arriving from the east.

A total of 836 parking spaces are proposed to serve the overall site. This supply satisfies the municipal zoning requirements as currently planned.

Conclusions

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



- ▶ **Existing (2026) Traffic Conditions:** the study area intersections are operating at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours;
- ▶ **Existing Site Trip Generation:** The existing SmartCentres is observed to generate a total of 215 AM, 766 PM, 845 Saturday, and 722 Sunday peak hour vehicular trips;
- ▶ **Background Traffic (without proposed development) Conditions:** The signalized intersection of Highway 7A and Site Access/Taylor Ford Driveway and its associated traffic movements are forecast to continue operating at acceptable levels of service, and well within capacity up to the 2038 horizon;
- ▶ **Development Trip Generation:** The proposed remaining build-out of the SmartCentres development is forecast to generate a net total of 155 AM, 262 PM, 317 Saturday, and 265 Sunday peak hour vehicular trips;
- ▶ **Total Traffic (with proposed development) Conditions:** The net impact of the proposed development is found to be minor. The study area intersection and associated traffic movements are forecast to continue operating at acceptable levels of service and well within capacity during all peak periods.

Under projected summer traffic conditions, 2038 total traffic operations would be accommodated by the existing transportation network without the need for any intersection geometric improvements or traffic control upgrades.

No intersection geometric improvements or traffic control upgrades are determined to be required at Highway 7A and Site Access/Taylor Ford Driveway to accommodate the proposed remaining build-out of the SmartCentres development; and

- ▶ **Site Circulation Assessment:** An AutoTURN assessment was conducted to review vehicular swept paths. It is confirmed anticipated design vehicles expected on-site can enter, exit, and traverse the site without conflict.

Recommendations

Based on the findings of the study, the following are recommended:

- ▶ The review agencies recognize the conclusions drawn above; and



- ▶ From a transportation perspective, the required planning applications to allow the proposed development should be approved.



Contents

1	Introduction	1
2	Proposed Development	4
3	Existing Conditions	7
3.1	Roads and Traffic Control	7
3.2	Transit	10
3.3	Active Transportation	10
3.4	Traffic Volumes	12
3.5	Traffic Operations	16
4	Forecasts	22
4.1	Future Background Traffic	22
4.2	Site Trip Generation	30
4.3	Site Trip Distribution and Assignment	33
4.4	Future Total Traffic.....	34
5	Traffic Impact Assessment	47
5.1	2028 Traffic Operations.....	47
5.1.1	2028 Background	47
5.1.2	2028 Total	52
5.1.3	2028 Operations Summary.....	57
5.2	2033 Traffic Operations.....	58
5.2.1	2033 Background	58
5.2.2	2033 Total	63
5.2.3	2033 Operations Summary.....	68
5.3	2038 Traffic Operations.....	69
5.3.1	2038 Background	69
5.3.2	2038 Total	74
5.3.3	2038 Operations Summary.....	79
5.4	Summer Conditions	80
5.5	Impact Assessment Summary	86
6	Vehicle Manoeuvring	87
7	Conclusions and Recommendations	88
7.1	Conclusions	88
7.2	Recommendations	89



Appendices

Appendix A	Pre-Study Consultation
Appendix B	Traffic Data
Appendix C	2026 Synchro Outputs
Appendix D	Background Forecast Components
Appendix E	2028 Synchro Outputs
Appendix F	2033 Synchro Outputs
Appendix G	2038 Synchro Outputs
Appendix H	AutoTURN Outputs

Figures

Figure 1.1: Site Location	3
Figure 2.1: Concept Sit Plan	6
Figure 3.1: Existing Lane Configurations and Traffic Control	9
Figure 3.2: Existing Transit Service	11
Figure 3.3A: Existing (2026) Traffic Volumes – Weekday	14
Figure 3.3B: Existing (2026) Traffic Volumes – Weekend	15
Figure 4.1: Background Developments Location	23
Figure 4.2A: 2028 Background Traffic Forecasts – Weekday.....	24
Figure 4.2B: 2028 Background Traffic Forecasts – Weekend	25
Figure 4.3A: 2033 Background Traffic Forecasts – Weekday.....	26
Figure 4.3B: 2033 Background Traffic Forecasts – Weekend	27
Figure 4.4A: 2038 Background Traffic Forecasts – Weekday.....	28
Figure 4.4B: 2038 Background Traffic Forecasts – Weekend	29
Figure 4.5A: Net Site-Generated Traffic Forecasts – Weekday	35
Figure 4.5B: Net Site-Generated Traffic Forecasts – Weekend	36
Figure 4.6A: Pass-by Traffic Forecasts – Weekday.....	37
Figure 4.6B: Pass-by Traffic Forecasts – Weekend	38
Figure 4.7A: Total Site Traffic Forecasts – Weekday	39
Figure 4.7B: Total Site Traffic Forecasts – Weekend	40
Figure 4.8A: 2028 Total Traffic Forecasts – Weekday	41
Figure 4.8B: 2028 Total Traffic Forecasts – Weekend.....	42
Figure 4.9A: 2033 Total Traffic Forecasts – Weekday.....	43
Figure 4.9B: 2033 Total Traffic Forecasts – Weekend.....	44
Figure 4.10A: 2038 Total Traffic Forecasts – Weekday	45
Figure 4.10B: 2038 Total Traffic Forecasts – Weekend.....	46

Tables

Table 3.1A: Existing Site Trip Generation – Weekday Peak Hours	12
Table 3.1B: Existing Site Trip Generation – Weekend Peak Hours	12



Table 3.2A: Existing (2026) Traffic Operations – Weekday	18
Table 3.2B: Existing (2026) Traffic Operations – Weekend	18
Table 3.3A: 2026 Left Turn & Through Movement Queues – Weekday	19
Table 3.3B: 2026 Left Turn & Through Movement Queues – Weekend.....	20
Table 3.4A: 2026 Right Turn Queues – Weekday.....	21
Table 3.4B: 2026 Right Turn Queues – Weekend	21
Table 4.1A: Site Trip Generation – Weekday	31
Table 4.1B: Site Trip Generation – Weekend	32
Table 4.2A: Trip Distribution – Weekday	33
Table 4.2A: Trip Distribution – Weekend.....	33
Table 5.1A: 2028 Background Traffic Operations – Weekday	48
Table 5.1B: 2028 Background Traffic Operations – Weekend....	48
Table 5.2A: 2028 Background LT & Th Movement Queues – Weekday	49
Table 5.2B: 2028 Background LT & Th Movement Queues – Weekend.....	50
Table 5.3A: 2028 Background Rt Queues – Weekday	51
Table 5.3B: 2028 Background Rt Queues – Weekend.....	51
Table 5.4A: 2028 Total Traffic Operations – Weekday	53
Table 5.4B: 2028 Total Traffic Operations – Weekend	53
Table 5.5A: 2028 Total LT & Th Movement Queues – Weekday .	54
Table 5.5B: 2028 Total LT & Th Movement Queues – Weekend .	55
Table 5.6A: 2028 Total Rt Queues – Weekday	56
Table 5.6B: 2028 Total Rt Queues – Weekend	56
Table 5.7A: 2033 Background Traffic Operations – Weekday	59
Table 5.7B: 2033 Background Traffic Operations – Weekend....	59
Table 5.8A: 2033 Background LT & Th Movement Queues – Weekday	60
Table 5.8B: 2033 Background LT & Th Movement Queues – Weekend.....	61
Table 5.9A: 2033 Background Rt Queues – Weekday	62
Table 5.9B: 2033 Background Rt Queues – Weekend.....	62
Table 5.10A: 2033 Total Traffic Operations – Weekday	64
Table 5.10B: 2033 Total Traffic Operations – Weekend	64
Table 5.11A: 2033 Total LT & Th Movement Queues – Weekday ..	65
Table 5.11B: 2033 Total LT & Th Movement Queues – Weekend..	66
Table 5.12A: 2033 Total Rt Queues – Weekday	67
Table 5.12B: 2033 Total Rt Queues – Weekend.....	67
Table 5.13A: 2038 Background Traffic Operations – Weekday .	70
Table 5.13B: 2038 Background Traffic Operations – Weekend .	70
Table 5.14A: 2038 Background LT & Th Movement Queues – Weekday	71



Table 5.14B:	2038 Background LT & Th Movement Queues – Weekend.....	72
Table 5.15A:	2038 Background Rt Queues – Weekday	73
Table 5.15B:	2038 Background Rt Queues – Weekend	73
Table 5.16A:	2038 Total Traffic Operations – Weekday	75
Table 5.16B:	2038 Total Traffic Operations – Weekend	75
Table 5.17A:	2038 Total LT & Th Movement Queues – Weekday ..	76
Table 5.17B:	2038 Total LT & Th Movement Queues – Weekend..	77
Table 5.18A:	2038 Total Rt Queues – Weekday	78
Table 5.18B:	2038 Total Rt Queues – Weekend	78
Table 5.19:	Summer Seasonal Factor	80
Table 5.20A:	2038 Summer Total Traffic Operations – Weekday ..	82
Table 5.20B:	2038 Summer Total Traffic Operations – Weekend..	82
Table 5.21A:	2038 Summer Total LT & Th Movement Queues – Weekday.....	83
Table 5.21B:	2038 Summer Total LT & Th Movement Queues – Weekend.....	84
Table 5.22A:	2038 Summer Total Rt Queues – Weekday.....	85
Table 5.22B:	2038 Summer Total Rt Queues – Weekend	85
Table 5.23:	Traffic Volume Increase.....	86



1 Introduction

This Traffic Impact Study (TIS) has been prepared in support of sought Zoning By-law Amendment (ZBA) and Site Plan Approval (SPA) applications. This study assesses the traffic impact of the build-out of the remainder of the SmartCentres development in the community of Port Perry, Township of Scugog.

Figure 1.1 illustrates the site location.

This study has been conducted in accordance with the terms of reference exchanged with Ministry of Transportation, Ontario (MTO) staff. **Appendix A** contains the correspondence for reference.

The scope of the study is as follows:

- ▶ A study area comprising the intersections of the existing SmartCentres access with Highway 7A and Scugog Line 6, in addition to the future access driveways proposed with Scugog Line 6.
- ▶ Traffic forecasts for 2028 (anticipated full build-out), 2033 and 2038 (five- and ten-years beyond full build-out).
- ▶ Analysis time periods – weekday AM and PM peak hours, Saturday peak hour, and Sunday peak hour.

The methodology used in the study is summarized below:

- ▶ Estimate the future peak hour background traffic for the horizon years by applying a growth rate to the existing volumes and adding any additional traffic attributable to other nearby developments (approved, not yet built).
- ▶ Estimate the net increase in traffic due to the planned development.
- ▶ Analyze the future peak hour intersection operations for the future background (without site traffic) and total (with site traffic) traffic conditions.
- ▶ Determine the net impact on operational performance due to the site traffic and the need for road and/or traffic control improvements to address any identified impacts.
- ▶ Review of the site access connections and internal circulation to ensure anticipated design vehicles can navigate the site without conflicts.



This study has been carried out in general accordance with the MTO General Guidelines for the Preparation of Traffic Impact Studies (March 2023), and per the requirements identified by MTO staff during pre-study consultation. **Appendix A** contains the correspondence for reference.





Site Location

2 Proposed Development

The subject site is located at the municipal address of 1535 Highway 7A in the community of Port Perry, Township of Scugog.

A master Traffic Impact Study (TIS) was previously prepared for the site dated April 2010 which assessed the full development of the lands based upon the development concept at that time.

Based upon the current proposed development plan, there are several retail buildings to be constructed. This study assesses the final build-out of the property including Buildings C1, C2, G2, G3, and J.

Details regarding the remaining buildings are as follows:

- ▶ Building C1
 - Proposed Supermarket
 - 2,696 SM (29,020.6 SF) Gross Floor Area (GFA)
- ▶ Building C2
 - Proposed Retail
 - 511 SM (5,500 SF) GFA
- ▶ Building G2
 - Proposed Retail
 - 199 SM (2,140 SF) GFA
- ▶ Building G3
 - Proposed Retail
 - 195 SM (2,100 SF) GFA
- ▶ Building J
 - Proposed Future Retail
 - 743 SM (8,000 SF) GFA

Aforementioned, this study assesses the remaining build-out of the site.

Vehicular access to the SmartCentres is currently provided via a signalized access with Highway 7A, and a right-in/left-out only driveway with Scugog Line 6. Upon construction/development of the remainder of the site, two (2) driveways with Scugog Line 6 are



proposed. The existing restricted right-in/left-out only access is proposed to be reconfigured to a full-movement access. Additionally, a second full-movement access is proposed. As we understand, the intent and purpose of the access driveways with Scugog Line 6 are to provide functionality; that is, facilitate truck deliveries for the existing Walmart site, in addition to serving the new proposed supermarket as these two sites are/will be served by larger tractor trailer trucks.

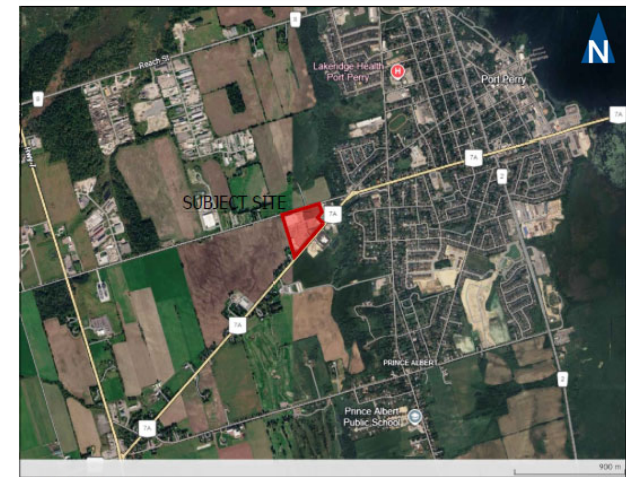
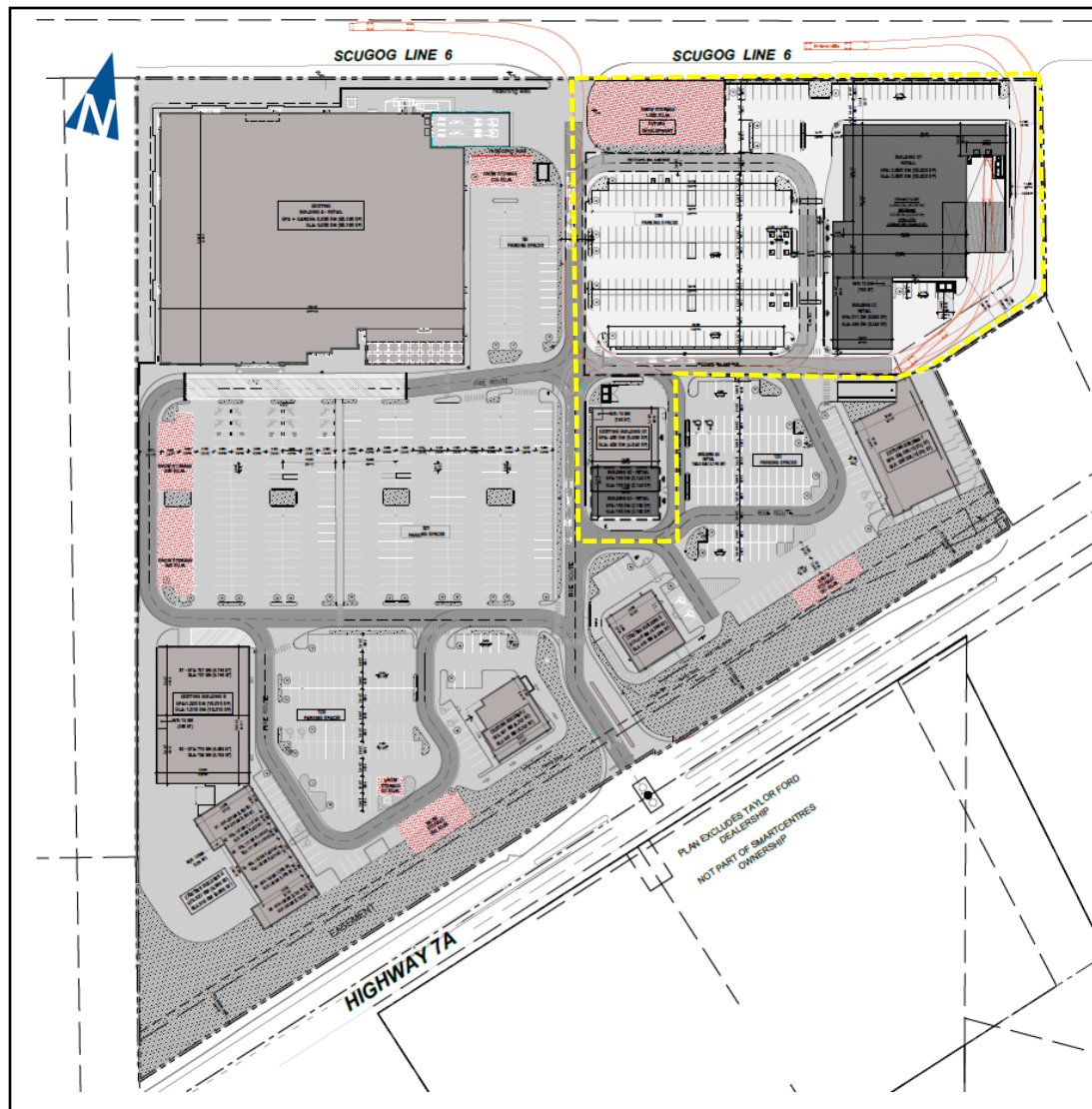
The Scugog Line 6 access driveways are not intended nor planned to function as a gateway or main access entrance/exit to the SmartCentres site. Furthermore, given the existing configuration of the access with Scugog Line 6 (right-in/left-out only), there is the precedent that little to no trips would be to/from the east via Scugog Line 6. Furthermore, given the configuration of how Scugog Line 6 connects to Highway 7A, use of the Scugog Line 6 access connections is not a direct route and requires additional movements if arriving from the east.

A total of 836 parking spaces are proposed to serve the overall site. This supply satisfies the municipal zoning requirements as currently planned.

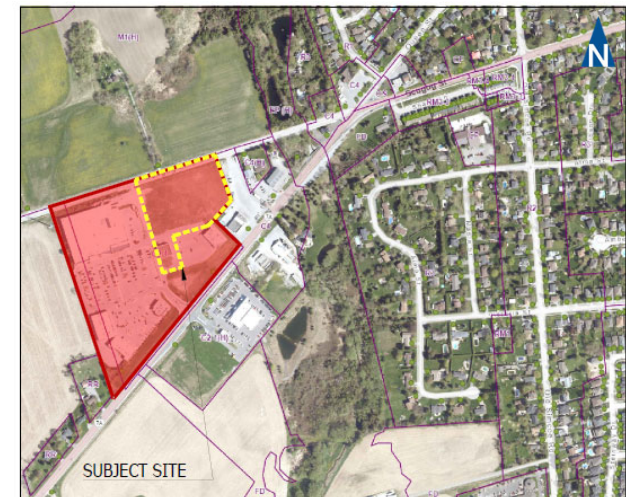
For assessment purposes, it is assumed full build-out and opening of the remaining buildings will occur by 2028.

Figure 2.1 illustrates the proposed overall development concept site plan for the SmartCentres development.





CONTEXT PLAN



KEY PLAN

3 Existing Conditions

3.1 Roads and Traffic Control

The characteristics of the roads and intersections near the subject site are described below. Reference is made to the Township of Scugog Official Plan (OP) Schedule C-1¹.

- ▶ **Provincial Highway 7A** is classified as a “Type A” Arterial roadway. The OP also identifies this roadway as a “Transit Spine” and part of the “Strategic Goods Movement Network”.

The two-lane roadway provides one travel lane in each direction. Immediately east of Highway 7/12 the posted speed limit is 60 km/h. Approximately 565 metres east of Highway 7/12 the posted speed limit transitions to 80 km/h. A 1.48 km section operates under the 80 km/h speed limit before transitions down to a 50 km/h speed limit to Scugog Street.

The roadway provides a paved asphalt surface with narrow gravel shoulders. White edge of pavement line markings and double yellow centreline markings are present. Within vicinity of the subject site, the double yellow centreline markings transition to a single yellow centreline marking;

- ▶ **Scugog Line 6** is classified as a “Type C” Arterial roadway. The two-lane roadway provides one travel lane in each direction with a posted speed limit of 50 km/h. The roadway provides a paved asphalt surface with curbs. A solid yellow centreline marking is present between the two travel lanes;
- ▶ **SmartCentres Access (Site Access)** is a commercial access that provides a full-movement access connection with Highway 7A, and a right-in/left-out only connection with Scugog Line 6. The access with Highway 7A operates under traffic signal control and auxiliary left and right turn lanes are provided on Highway 7A, while the access with Scugog Line 6 operates under stop control and no auxiliary turn lanes provided on Scugog Line 6; and
- ▶ **Taylor Ford Driveway** is a commercial access for the existing Taylor Ford dealership aligned across from the SmartCentres access driveway. The driveway provides a full-movement access connection with Highway 7A.

¹ Township of Scugog, Official Plan, Schedule C-1 – Port Perry Urban Area Transportation System, September 2017.



Figure 3.1 illustrates the existing lane configurations and traffic control devices for the study area intersections.





3.2 Transit

Durham Region Transit (DRT) is the public transit operator within the community of Port Perry. Based on the *Durham Region Transit System Map* (Effective April 13, 2026)², two transit routes currently operate in proximity to the subject site.

- ▶ **Route 905c** operates along Highway 7A across the site frontage and terminates at the Walmart Supercentre entrance within the SmartCentres retail plaza. The route operates with headways in the order of 90 minutes on weekdays and weekends.
- ▶ **Route 618** operates along Highway 7A and with a stop within the SmartCentres retail plaza. This transit route operates between Port Perry and Beaverton. The route operates with headways in the order of 90 minutes on weekdays.

Figure 3.2 illustrates the existing transit service within Port Perry.

3.3 Active Transportation

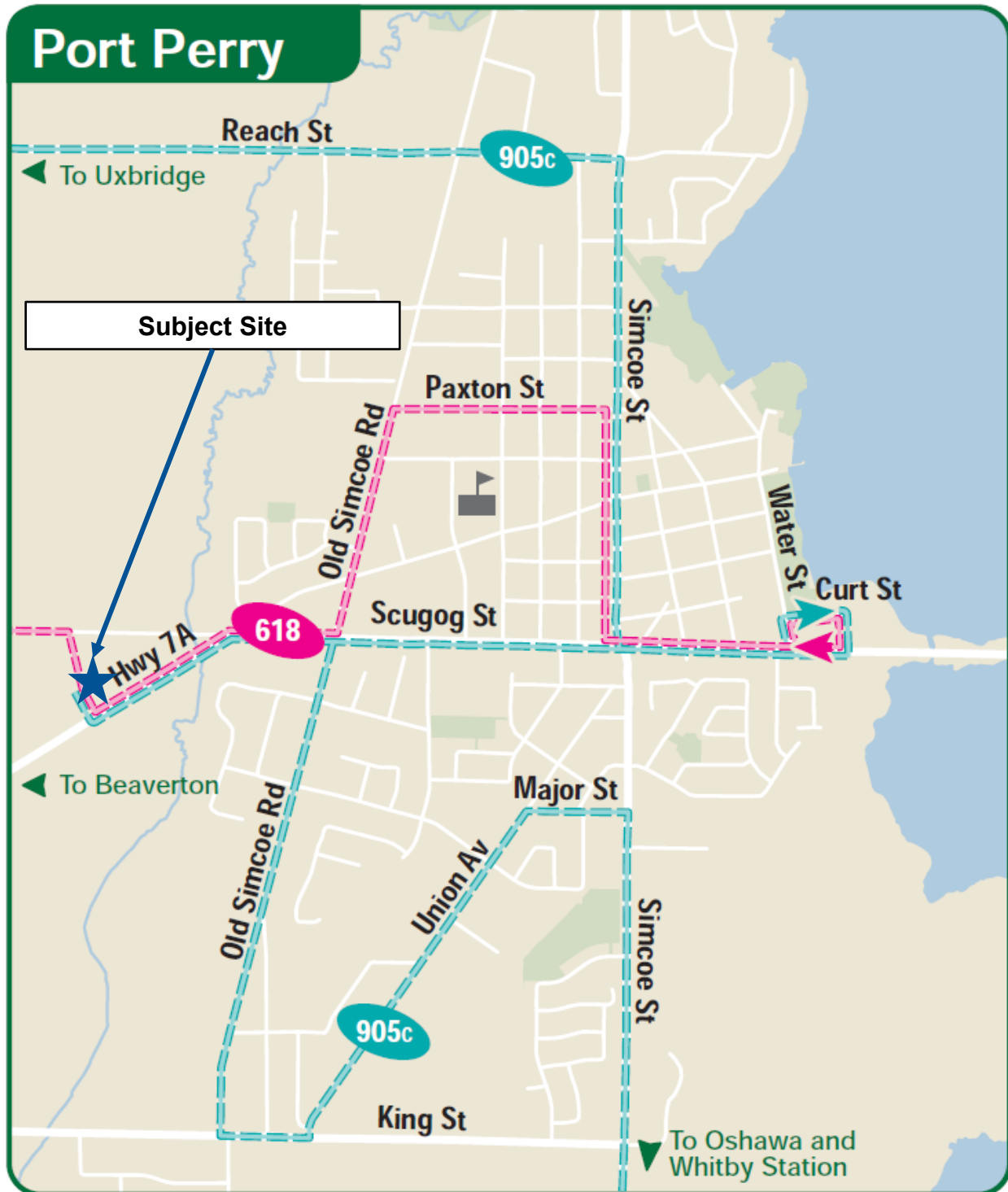
Sidewalk infrastructure is not provided along Highway 7A. Limited sidewalk infrastructure is Scugog Line 6, provided on the south side of the roadway between the existing SmartCentres access and the intersection of Queen Street/Highway 7A.

At the signalized intersection of Highway 7A and Site Access/Taylor Ford Driveway, delineated crosswalks and pedestrian signal heads are provided across the north intersection leg (i.e., SmartCentres driveway). Pedestrian crossing facilities are not provided across the remaining intersection legs.

Dedicated on-street bike lanes are provided on both sides of Scugog Line 6. The remaining study area roadways do not provide designated or shared cycling facilities, meaning cycling trips would be accommodated within the travelled sections of the existing roadways.

² Durham Region Transit, *Transit System Map*, Effective April 2026.





NTS

Image Source: Durham Region Transit System Map (Effective April 2026)



Existing Transit Service

3.4 Traffic Volumes

To assess intersection operations, turning movement counts (TMCs) are used to quantify the movement of vehicles, pedestrians, trucks, buses, and cyclists through an intersection. Existing traffic data at an intersection or on a road section forms the foundation for operational analysis. The counts are usually collected during peak periods to complete level of service (LOS) analysis under its worst-case operating conditions.

Paradigm collected TMCs at the study area intersections on Thursday, June 4, 2026, Saturday, June 6, 2026, and Sunday, June 7, 2026. The TMC data was counted in 15-minute intervals and vehicles were classified by type.

The existing SmartCentres retail development is observed to generate a total of 215 vehicular trips during the AM peak hour, 766 vehicular trips during the PM peak hour, 845 vehicular trips during the Saturday peak hour, and 722 vehicular trips during the Sunday peak hour. Over 80% of the existing site traffic is observed to access the site via the Highway 7A site access. **Table 3.1** summarizes the existing site traffic generation.

TABLE 3.1A: EXISTING SITE TRIP GENERATION – WEEKDAY PEAK HOURS

Site Access	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Site Access with Scugog Line 6	15	14	29	80	44	124
Site Access with Highway 7A	107	79	186	290	352	642
Total	122	93	215	370	396	766

TABLE 3.1B: EXISTING SITE TRIP GENERATION – WEEKEND PEAK HOURS

Site Access	Saturday Peak Hour			Sunday Peak Hour		
	In	Out	Total	In	Out	Total
Site Access with Scugog Line 6	40	49	89	40	33	73
Site Access with Highway 7A	378	378	756	328	321	649
Total	418	427	845	368	354	722



Figure 3.3A illustrates the existing (2026) weekday AM and PM peak hour traffic volumes.

Figure 3.3B illustrates the existing (2026) weekend Saturday and Sunday peak hour traffic volumes.

Appendix B contains the raw traffic data for reference.





AM Peak Hour 123
PM Peak Hour 123

Site Access

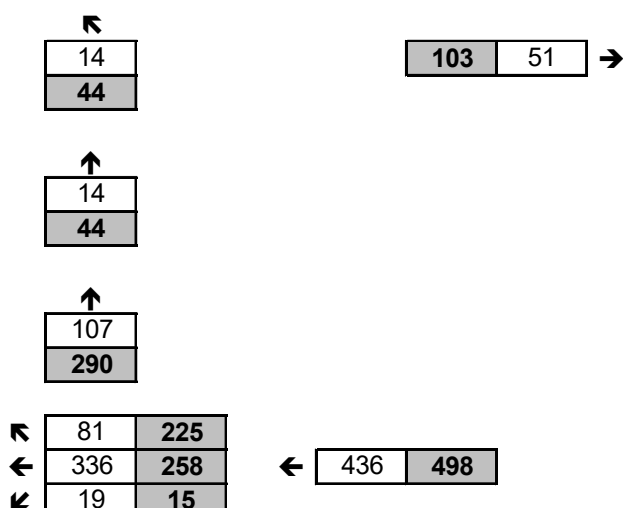
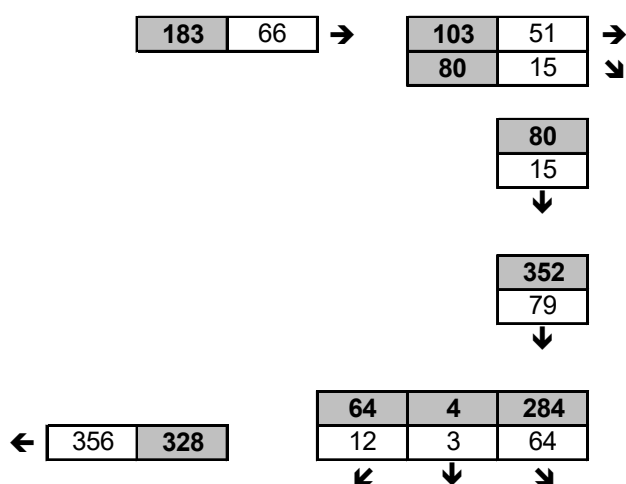
← 176 172

← 162 128

← 162 128

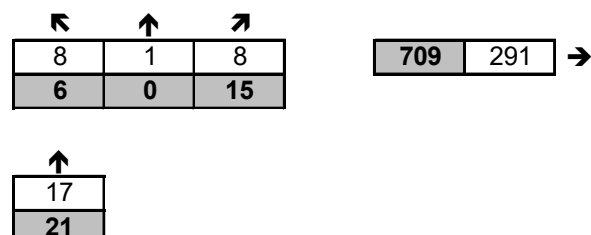
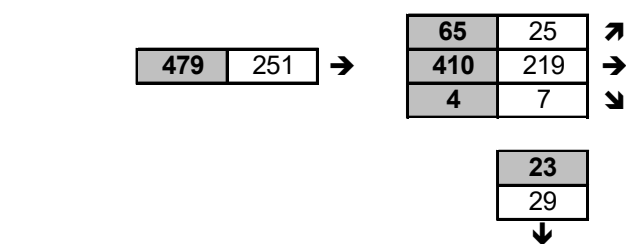
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Existing (2026) Traffic Volumes Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

← 131 123

← 82 90

← 82 90

Scugog Line 6

Scugog Line 6

109 114 → 69 74 →
40 40 ↘

40
40
↓

321
378
↓

← 374 371

55 2 264
69 4 305
↙ ↓ ↘

↖
49
33

↑
49
33

↑
378
328

↖ 303 271
← 301 314
↙ 16 4

← 620 589

69 74 →

Highway 7A

Highway 7A

432 406 → 53 68 ↗
374 333 →
5 5 ↘

11
25
↓

↖ ↑ ↗
4 7 19
2 4 9

↑
30
15

647 657 →

NTS



Existing (2026) Traffic Volumes Weekend

3.5 Traffic Operations

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

The quality of intersection operations at signalized and unsignalized intersections is evaluated in terms of level of service (LOS) and volume-to-capacity (v/c) as defined by the Highway Capacity Manual (HCM). LOS is evaluated based on average control delay per vehicle and includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS ranges from LOS A for 10 seconds or less average delay to LOS F for average delay greater than 80 seconds. For unsignalized intersections, the LOS ranges from LOS A for 10 seconds or less average delay to LOS F for average delay greater than 50 seconds. Capacity is evaluated in terms of the ratio of demand flow to capacity with an at capacity condition represented by a v/c ratio of 1.00 (i.e. volume demand equals capacity).

The determination of the potential need for capacity improvements is based on MTO criteria for critical movements (i.e. v/c ratios of 0.85 or higher for typical signalized intersections).

To assess existing peak hour conditions, an operational analysis was conducted for the weekday AM and PM, Saturday, and Sunday peak hour traffic volumes at the study area intersections using Synchro software, which implements the methods of the Highway Capacity Manual. The key parameters used in the analysis include:

- ▶ Existing lane configurations;
- ▶ Heavy vehicle percentages derived from existing traffic count data;
- ▶ Calculated intersection peak hour factors (PHF), which facilitates an assessment of the busiest 15-minute periods within the peak hours;
- ▶ Signal timing plans as received from Durham Region.
Appendix B contains the signal timing plan data for reference; and
- ▶ Synchro default values for all other inputs.

Vehicular queues and storage lengths for left turn and through movements for signalized intersections under MTO's jurisdiction are



calculated using the arrival rate method as documented within MTO's Signal Timing Policy. For left turn and through movements, trucks have been converted to passenger vehicles via a factor of 2.0 per MTO correspondence.

Vehicular queue and storage lengths for right turn movements are based upon Chapter 9³ of the TAC Guide, per MTO correspondence.

Table 3.2 presents the operational analysis results including level of service (LOS), average vehicle delay in seconds, volume-to-capacity (v/c) ratio, and the 95th percentile queue lengths output via Synchro. Any critical movements relative to the MTO criteria are highlighted in yellow. **Appendix C** contains the Synchro analysis outputs for reference.

Table 3.3 and **Table 3.4** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

The results of the analysis indicate the study area intersections are operating at acceptable levels of service, and all movements are reported to be well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

³ Transportation Association of Canada, Geometric Design Guide for Canadian Roads: Section 9.14.4, (Ottawa: TAC, 2017)



TABLE 3.2A: EXISTING (2026) TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	7	0.05	5	B	12	0.13	11
		Thru	A	8	0.22	9	B	16	0.48	69
		Right	A	7	0.00	< 1	B	11	0.00	< 1
	WB	Left	A	7	0.03	4	B	16	0.04	6
		Thru	A	9	0.34	43	C	20	0.39	54
		Right	A	7	0.05	5	B	17	0.15	14
	NB	Left/Thru	C	23	0.03	5	B	16	0.02	3
		Right	C	22	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	25	0.21	20	C	26	0.60	66
		Right	C	22	0.01	< 1	B	17	0.04	5
<i>Overall Intersection</i>		<i>B</i>	<i>11</i>	<i>0.30</i>	<i>-</i>	<i>B</i>	<i>19</i>	<i>0.56</i>	<i>-</i>	
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	10	0.02	1	B	11	0.08	2

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 3.2B: EXISTING (2026) TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	12	0.14	11	B	12	0.13	10
		Thru	B	15	0.38	53	B	16	0.44	62
		Right	B	11	0.00	< 1	B	11	0.00	< 1
	WB	Left	B	16	0.04	6	B	15	0.01	2
		Thru	C	21	0.45	61	C	20	0.46	66
		Right	B	18	0.19	16	B	17	0.18	16
	NB	Left/Thru	B	16	0.02	4	B	16	0.01	3
		Right	B	16	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	27	0.63	69	C	25	0.56	60
		Right	B	17	0.04	6	B	17	0.04	4
<i>Overall Intersection</i>			<i>B</i>	<i>19</i>	<i>0.53</i>	<i>-</i>	<i>B</i>	<i>19</i>	<i>0.52</i>	<i>-</i>
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	A	10	0.07	2	A	10	0.05	1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres



TABLE 3.3A: 2026 LEFT TURN & THROUGH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	25	219	19	336	9	67
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	26	233	20	357	11	71
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.6	5.2	0.4	7.9	0.2	1.6
		Queue (vehicles) ¹	2	9	2	13	1	4
		Queue (m)	15	68	15	98	8	30
		Storage (m)	125	-	60	-	-	-
		Available (m)	110	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	65	410	15	258	6	288
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	65	415	15	258	6	288
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.4	9.2	0.3	5.7	0.1	6.4
		Queue (vehicles) ¹	4	14	1	10	1	11
		Queue (m)	30	105	8	75	8	83
		Storage (m)	125	-	60	-	-	-
		Available (m)	95	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 3.3B: 2026 LEFT TURN & THROUGH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	68	333	16	301	11	309
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	68	337	16	308	11	309
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.5	7.5	0.4	6.8	0.2	6.9
		Queue (vehicles) ¹	4	12	2	11	1	11
		Queue (m)	30	90	15	83	8	83
		Storage (m)	125	-	60	-	-	-
		Available (m)	95	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	53	374	4	314	6	266
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	55	378	4	318	6	266
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.2	8.4	0.1	7.1	0.1	5.9
		Queue (vehicles) ¹	3	13	1	12	1	10
		Queue (m)	23	98	8	90	8	75
		Storage (m)	125	-	60	-	-	-
		Available (m)	102	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 3.4A: 2026 RIGHT TURN QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	81	8	12
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	21	2	3
		Storage (m)	55	80	30	50
		Available (m)	53	59	28	47
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	225	15	64
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	57	4	16
		Storage (m)	55	80	30	50
		Available (m)	54	23	26	34

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 3.4B: 2026 RIGHT TURN QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	303	19	69
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	76	5	18
		Storage (m)	55	80	30	50
		Available (m)	53	4	25	32
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	271	9	55
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	68	3	14
		Storage (m)	55	80	30	50
		Available (m)	53	12	27	36

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



4 Forecasts

4.1 Future Background Traffic

To estimate the background traffic growth for the future horizon years, a 2.0% per annum linear growth rate was applied to the existing (2026) traffic volumes. This growth rate and the linear application were specified by MTO during pre-study consultation. The growth rate was applied to the through movements along Highway 7A along Scugog Line 6.

A proposed hotel development was identified as a background development to be included in future background traffic forecasts. The proposed hotel development is approximately one kilometre southwest of the subject site. The development is forecast to generate a total of 31 AM, 28 PM, and 54 Saturday peak hour vehicular trips⁴.

Additionally, Building D (Financial Institution) on-site is currently being constructed. The site traffic contributions of this development are included within the background traffic forecasts. The development is forecast to generate a total of 33 AM, 63 PM, and 75 Saturday peak hour vehicular trips⁵.

Figure 4.1 illustrates the location of the background developments. **Appendix D** provides the excerpts of the background development site traffic.

Figure 4.2 illustrates the 2028 background traffic forecasts for the peak hours.

Figure 4.3 illustrates the 2033 background traffic forecasts for the peak hours.

Figure 4.4 illustrates the 2038 background traffic forecasts for the peak hours.

⁴ Paradigm Transportation Solutions Limited, *Proposed Hotel Development, Traffic Impact Study*, November 2019, p19.

⁵ Paradigm Transportation Solutions Limited, *Proposed Financial Institution, Traffic Impact Brief*, March 2025, p22.







AM Peak Hour 123
PM Peak Hour 123

Site Access

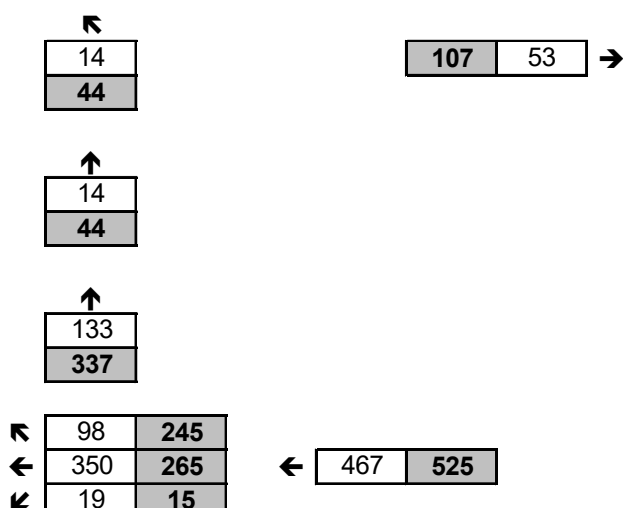
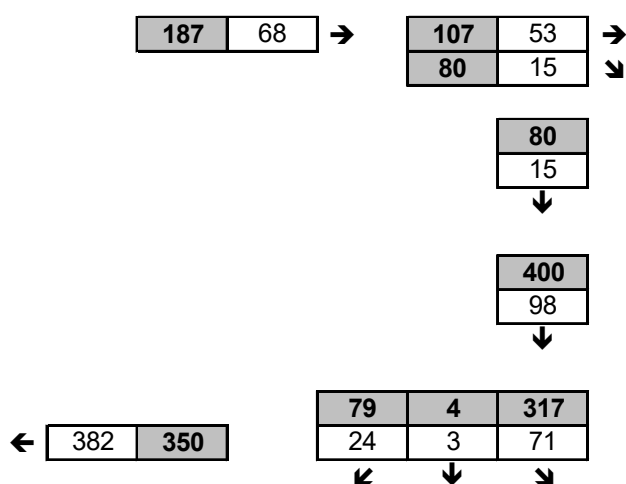
← 182 177

← 168 133

← 168 133

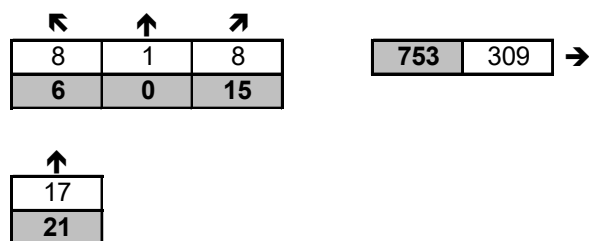
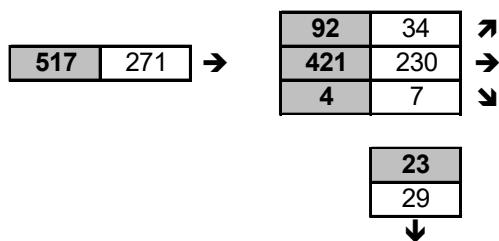
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2028 Background Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

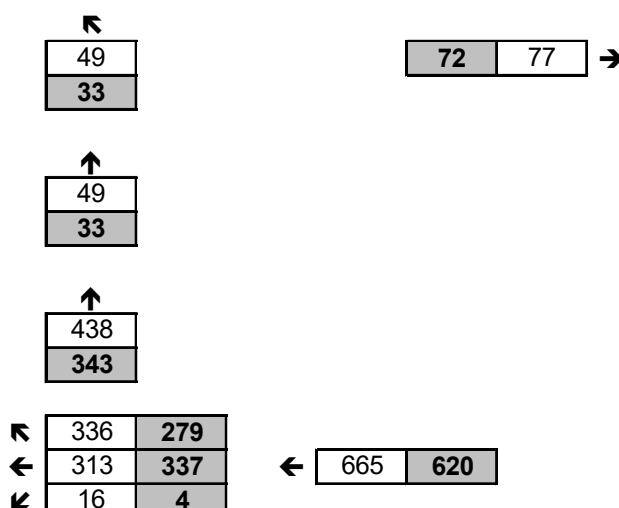
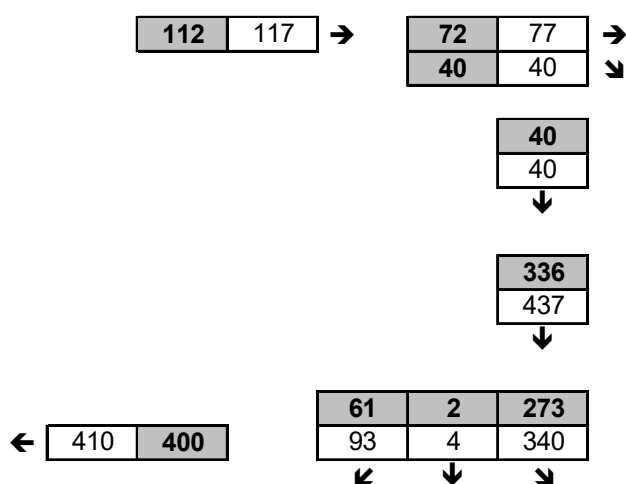
← 134 127

← 85 94

← 85 94

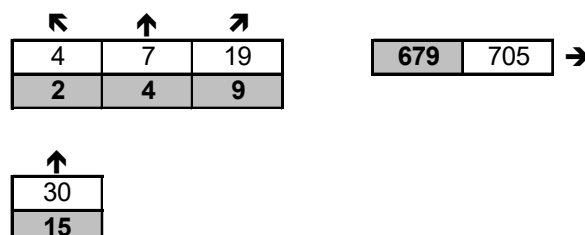
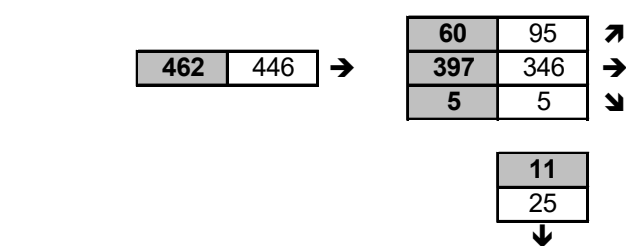
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2028 Background Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

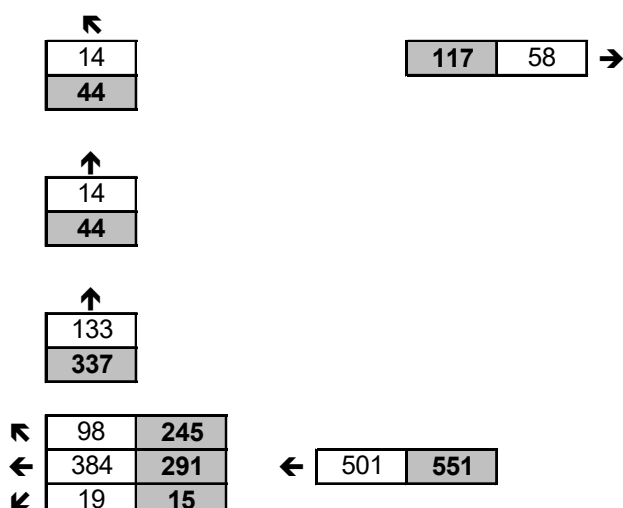
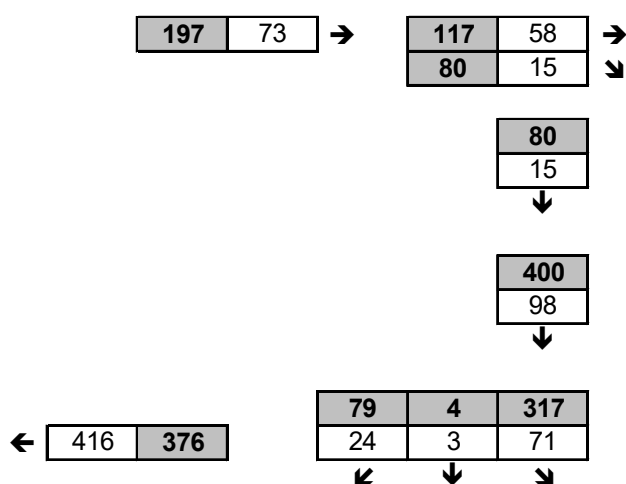
← 199 190

← 185 146

← 185 146

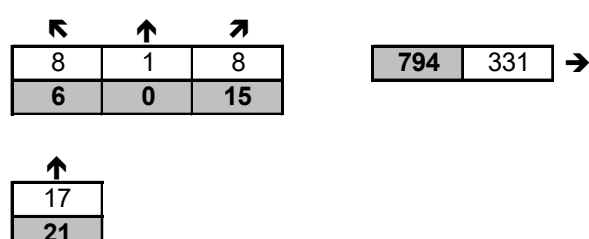
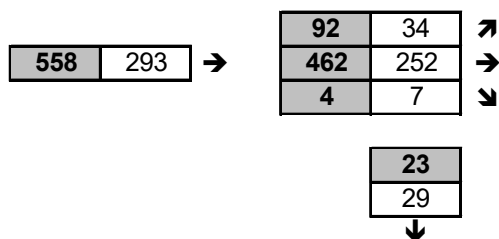
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

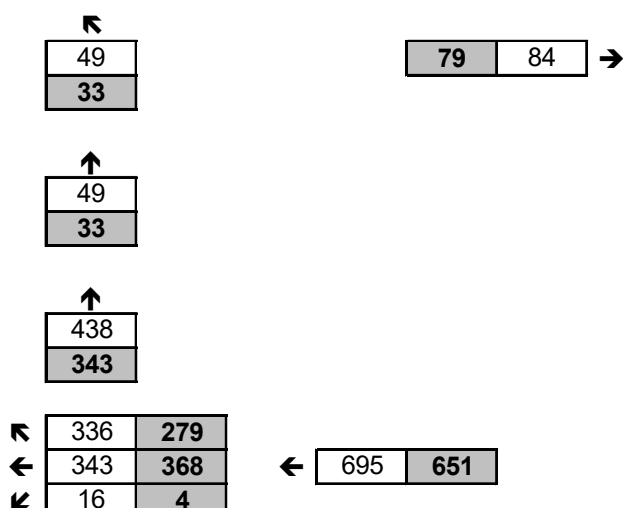
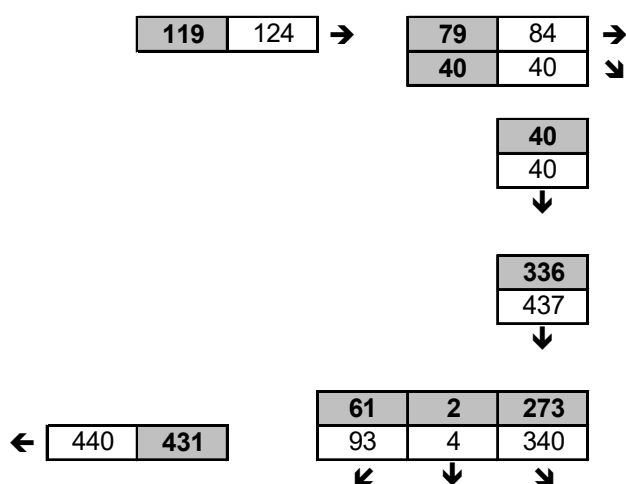
← 142 136

← 93 103

← 93 103

Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A

NTS



2033 Background Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

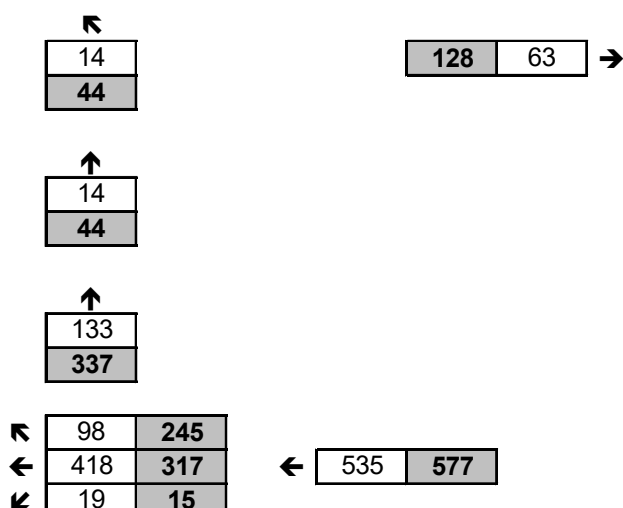
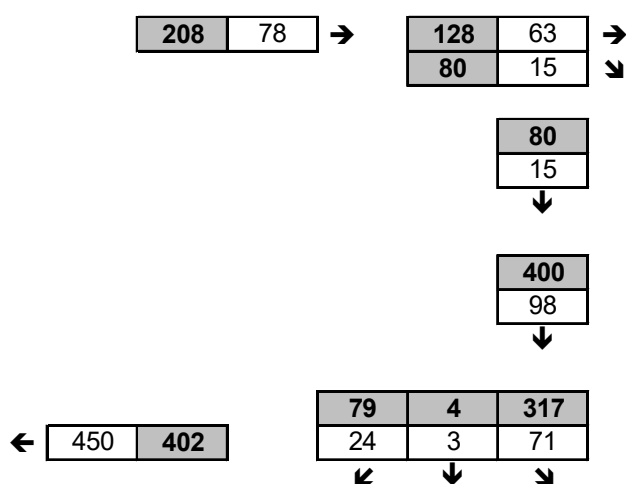
← 215 203

← 201 159

← 201 159

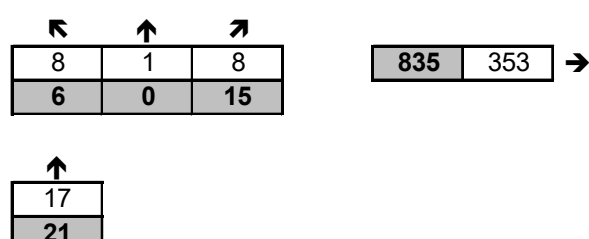
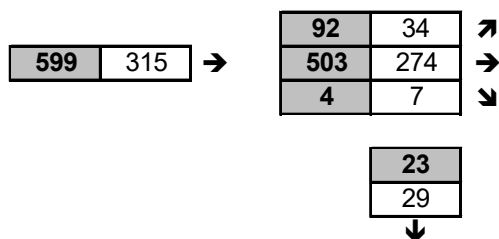
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2038 Background Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

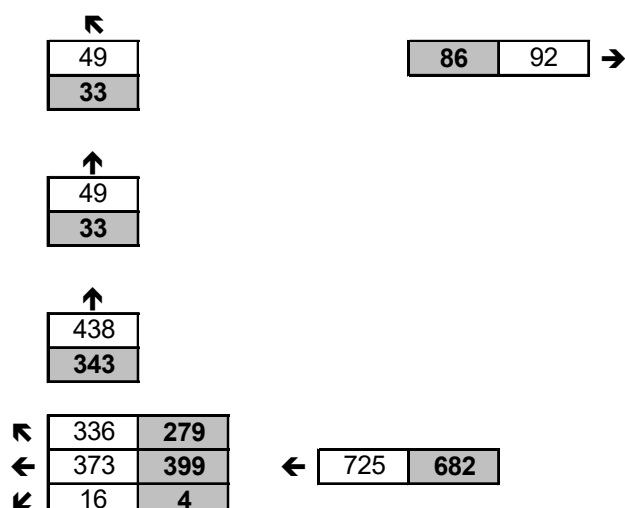
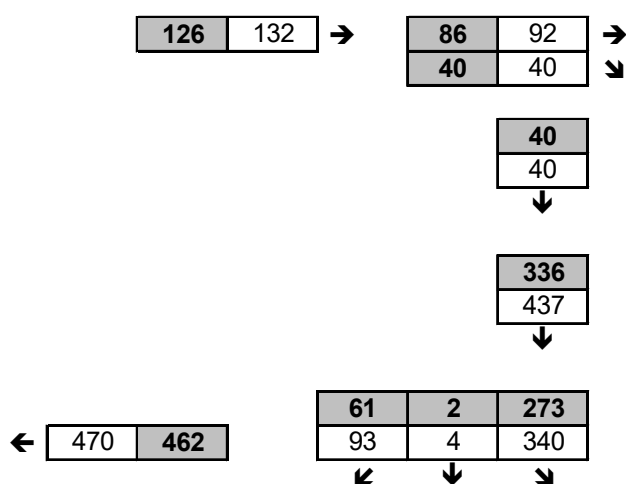
← 151 145

← 102 112

← 102 112

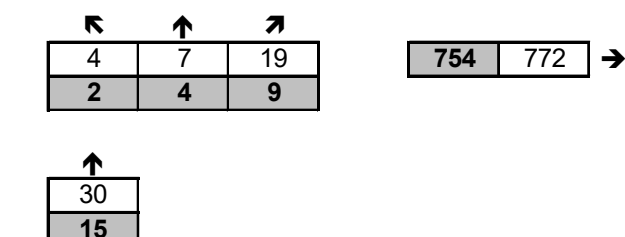
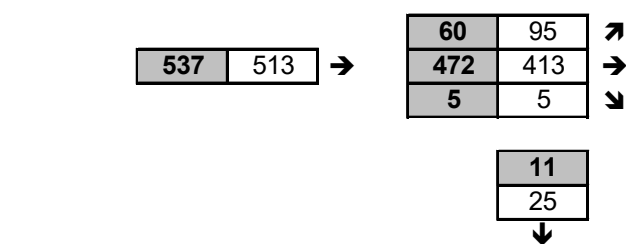
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS

4.2 Site Trip Generation

The weekday AM and PM, Saturday, and Sunday peak hour trip estimates for the proposed commercial/retail development is based on data from the Institute of Transportation Engineers (ITE) publication, Trip Generation Manual (12th Edition). Specifically, Land Use Code (LUC) 850 – Supermarket, and LUC 222 – Strip Retail Plaza with their associated trip rates were used.

It is noted that for LUC 222, trip generation data is not published for a Sunday peak hour period; it is assumed that Saturday peak hour trip data is applicable and has been utilized to estimate Sunday vehicular trip generation.

Due to the nature of the land use, a portion of site-related trips would be drawn from pass-by traffic. Pass-by trips represent an intermediate stop at the subject site on the way from an origin to a primary trip destination without a route diversion. These trips do not add new traffic to the adjacent street system. The pass-by trip percentages were obtained from the ITE *Trip Generation Appendices (2025 Pass-by Tables)*. It is noted that pass-by data is not available for LUC 222; therefore, LUC 221 pass-by data was determined to be applicable for use.

Table 4.1 provides a summary of the proposed development site trip generation.

The proposed remaining commercial/retail development of the SmartCentres site is estimated to generate 155 vehicular trips during the AM peak hour, 262 trips during the PM peak hour, 317 trips during the Saturday peak hour, and 265 trips during the Sunday peak hour.



TABLE 4.1A: SITE TRIP GENERATION – WEEKDAY

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Building C1 Supermarket (29,020.6 SF)	Base Trip Generation ¹					
	51	35	86	128	127	255
	Pass-by Trips ²					
	-	-	-	-31	-31	-62
Net Total	51	35	86	97	96	193
Building C2 Retail (5,500 SF)	Base Trip Generation ³					
	12	10	22	17	18	35
	Pass-by Trips ⁴					
	0	0	0	-7	-7	-14
Net Total	12	10	22	10	11	21
Building G2 Retail (2,140 SF)	Base Trip Generation ³					
	5	3	8	7	6	13
	Pass-by Trips ⁴					
	0	0	0	-2	-2	-4
Net Total	5	3	8	5	4	9
Building G3 Retail (2,100 SF)	Base Trip Generation ³					
	5	3	8	7	6	13
	Pass-by Trips ⁴					
	0	0	0	-2	-2	-4
Net Total	5	3	8	5	4	9
Building J Future Retail (8,000 SF)	Base Trip Generation ³					
	17	14	31	25	25	50
	Pass-by Trips ⁴					
	0	0	0	-10	-10	-20
Net Total	17	14	31	15	15	30
Grand Total	90	65	155	132	130	262
¹ : AM peak hour trip rate: 2.95 per 1,000 SF of GFA (59% in/41% out); PM peak hour trip rate: 8.79 per 1,000 SF of GFA (50% in/50% out); ² : AM peak hour pass-by rate = N/A; PM peak hour pass-by rate = 24%; ³ : AM peak hour trip rate: 3.93 per 1,000 SF of GLA (55% in/45% out); PM peak hour trip rate: 6.29 per 1,000 SF of GLA (50% in/50% out); ⁴ : AM peak hour pass-by rate = N/A; PM peak hour pass-by rate = 40%						



TABLE 4.1B: SITE TRIP GENERATION – WEEKEND

Land Use	Saturday Peak Hour			Sunday Peak Hour		
	In	Out	Total	In	Out	Total
Building C1 Supermarket (29,020.6 SF)	Base Trip Generation ¹					
	144	144	288	119	105	224
	Pass-by Trips ²					
	-27	-27	-54	-21	-21	-42
<i>Net Total</i>	117	117	234	98	84	182
Building C2 Retail (5,500 SF)	Base Trip Generation ³					
	19	17	36	19	17	36
	Pass-by Trips ⁴					
	-5	-5	-10	-5	-5	-10
<i>Net Total</i>	14	12	26	14	12	26
Building G2 Retail (2,140 SF)	Base Trip Generation ³					
	7	7	14	7	7	14
	Pass-by Trips ⁴					
	-2	-2	-4	-2	-2	-4
<i>Net Total</i>	5	5	10	5	5	10
Building G3 Retail (2,100 SF)	Base Trip Generation ³					
	7	7	14	7	7	14
	Pass-by Trips ⁴					
	-2	-2	-4	-2	-2	-4
<i>Net Total</i>	5	5	10	5	5	10
Building J Future Retail (8,000 SF)	Base Trip Generation ³					
	27	26	53	27	26	53
	Pass-by Trips ⁴					
	-8	-8	-16	-8	-8	-16
<i>Net Total</i>	19	18	37	19	18	37
Grand Total	160	157	317	141	124	265
1: Saturday peak hour trip rate: 9.94 per 1,000 SF of GFA (50% in/50% out); Sunday peak hour trip rate: 7.73 per 1,000 SF of GFA (50% in/50% out); 2: Saturday peak hour pass-by rate = 19%; Sunday peak hour pass-by rate = 19%; 3: Saturday peak hour trip rate: 6.63 per 1,000 SF of GLA (51% in/49% out); Sunday peak hour trip rate: 6.63 per 1,000 SF of GLA (51% in/49% out); 4: Saturday peak hour pass-by rate = 31%; Sunday peak hour pass-by rate = 31%						



4.3 Site Trip Distribution and Assignment

The directional distribution for the site-generated trips was based on a review of existing weekday AM and PM, Saturday, and Sunday peak hour traffic patterns and consideration of the location of the site in proximity to the community of Port Perry. **Table 4.2** presents the estimated distribution for all site trips.

The estimated site-generated traffic is assigned to the road network based on the noted trip distribution patterns.

TABLE 4.2A: TRIP DISTRIBUTION – WEEKDAY

To/From	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
East via Highway 7A	67%	71%	61%	72%
West via Highway 7A	21%	13%	18%	17%
West via Scugog Line 6	12%	16%	21%	11%
Total	100%	100%	100%	100%

TABLE 4.2A: TRIP DISTRIBUTION – WEEKEND

To/From	Saturday Peak Hour		Sunday Peak Hour	
	In	Out	In	Out
East via Highway 7A	74%	72%	74%	75%
West via Highway 7A	17%	16%	15%	16%
West via Scugog Line 6	9%	12%	11%	9%
Total	100%	100%	100%	100%

Figure 4.5A and **Figure 4.5B** illustrate the trip assignments for the net site-generated trips during the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.

Figure 4.6A and **Figure 4.6B** illustrate the trip assignments for the pass-by trips during the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.

Figure 4.7A and **Figure 4.7B** illustrate the total site trips assigned to the road network for the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.



4.4 Future Total Traffic

The future weekday AM and PM, and the weekend Saturday and Sunday peak hour background traffic forecasts were combined with the total site traffic assignments to determine the total traffic forecasts for the future horizons.

Figure 4.8A and **Figure 4.8B** illustrate the 2028 total traffic forecasts for the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.

Figure 4.9A and **Figure 4.9B** illustrate the 2033 total traffic forecasts for the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.

Figure 4.10A and **Figure 4.10B** illustrate the 2038 total traffic forecasts for the weekday AM and PM peak hours, and the weekend Saturday and Sunday peak hours, respectively.





AM Peak Hour 123
PM Peak Hour 123

Site Access

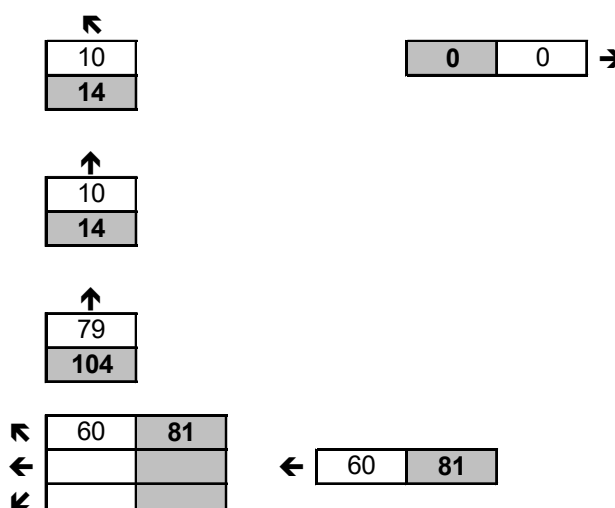
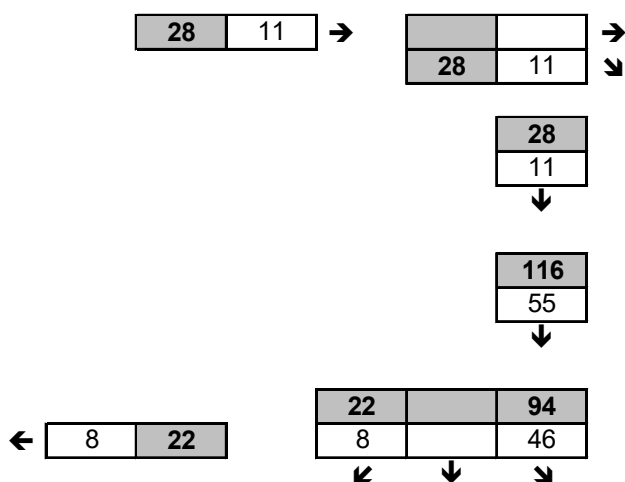
← 10 14

←

← 0 0

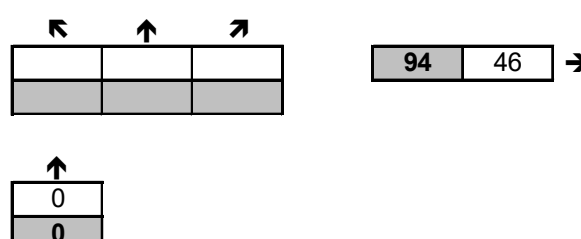
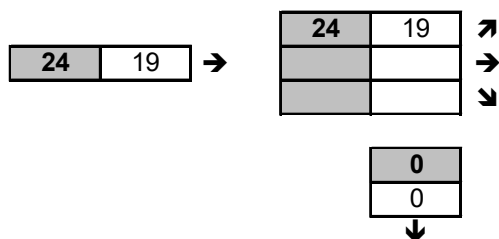
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Net Site-Generated Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

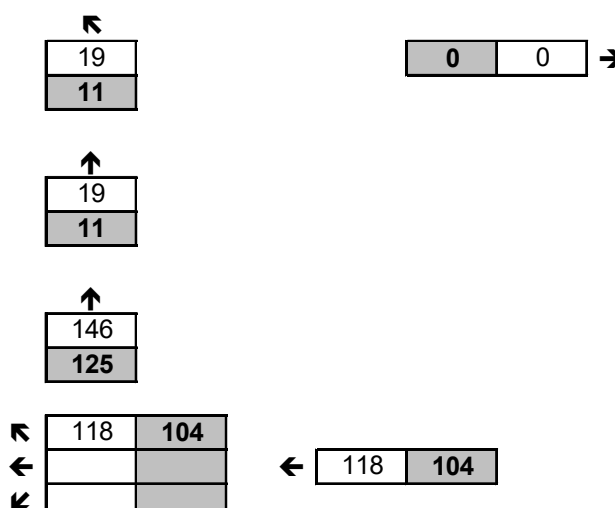
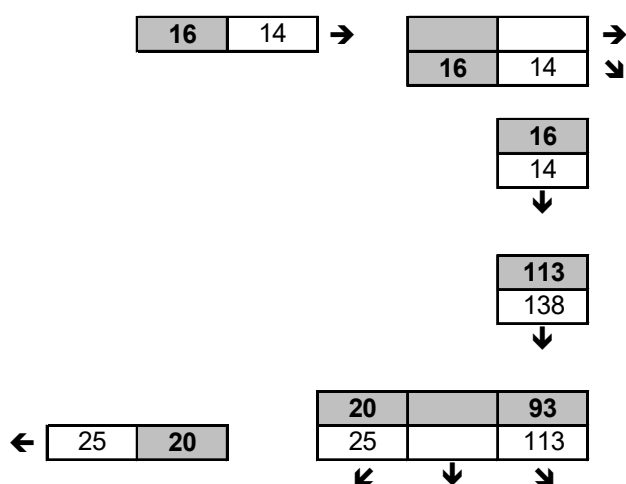
← 19 11

←

← 0 0

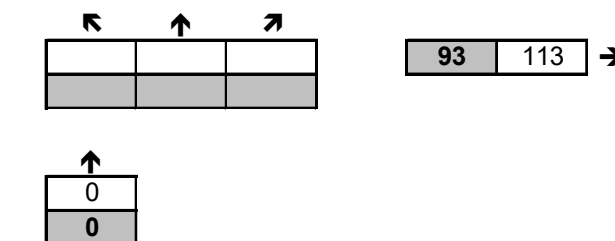
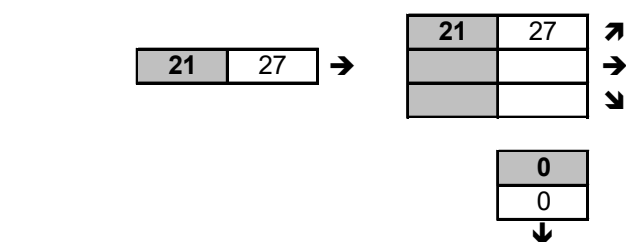
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Net Site-Generated Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

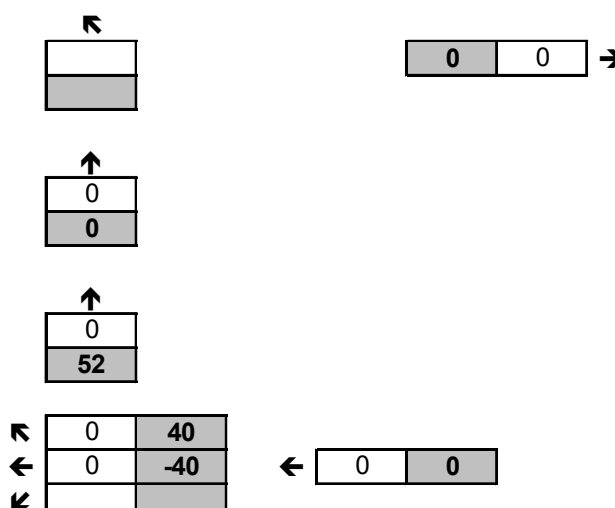
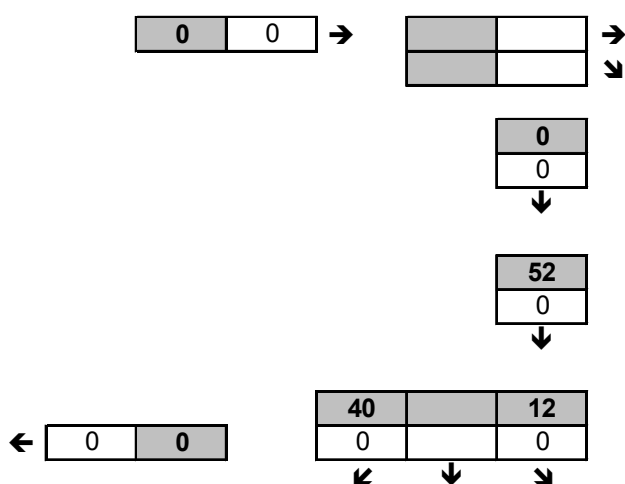
← 0 0

←

← 0 0

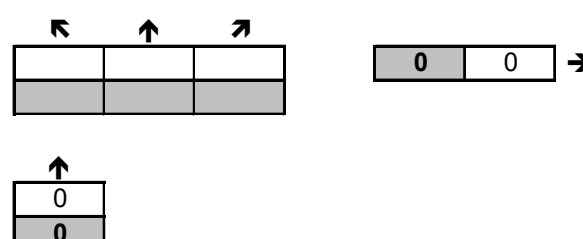
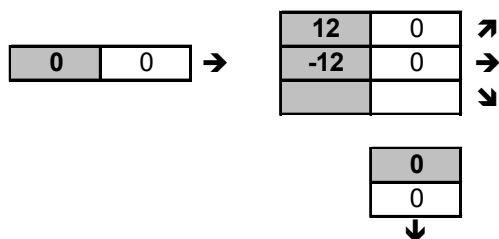
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Pass-by Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

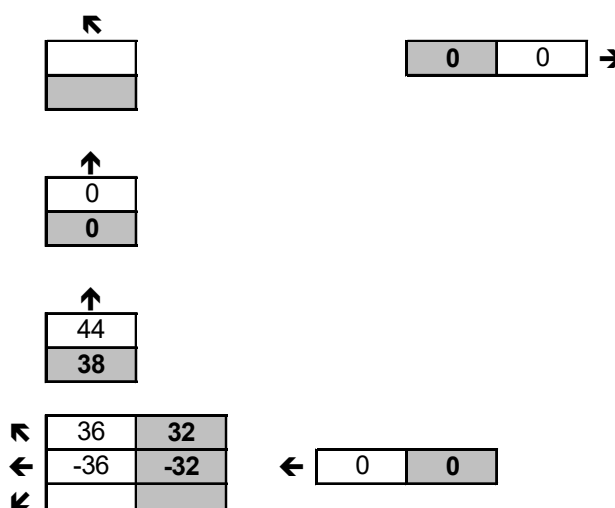
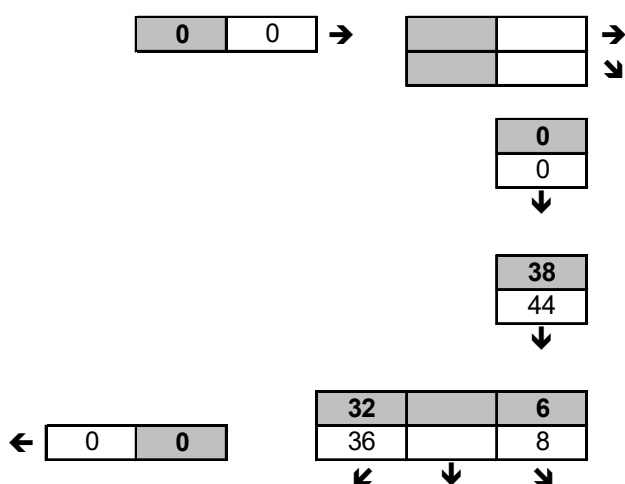
← 0 0

←

← 0 0

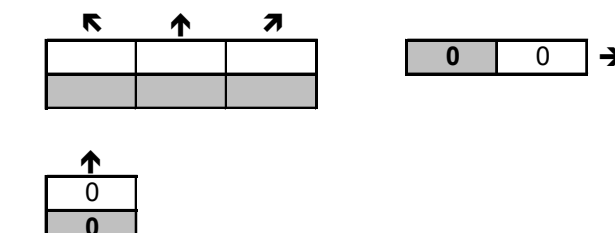
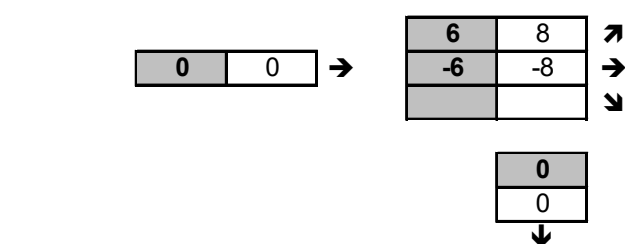
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Pass-by Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

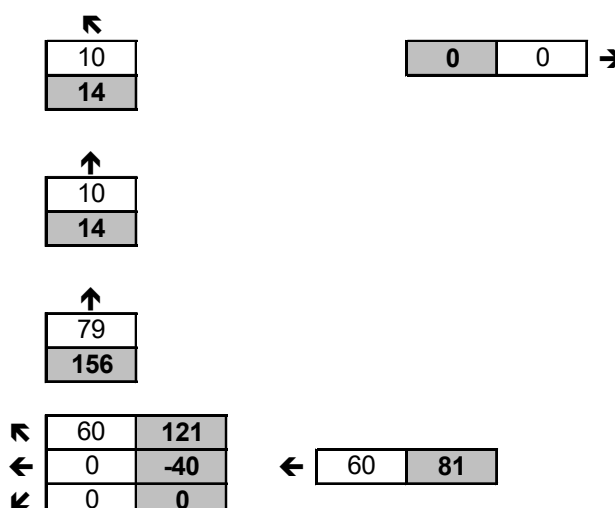
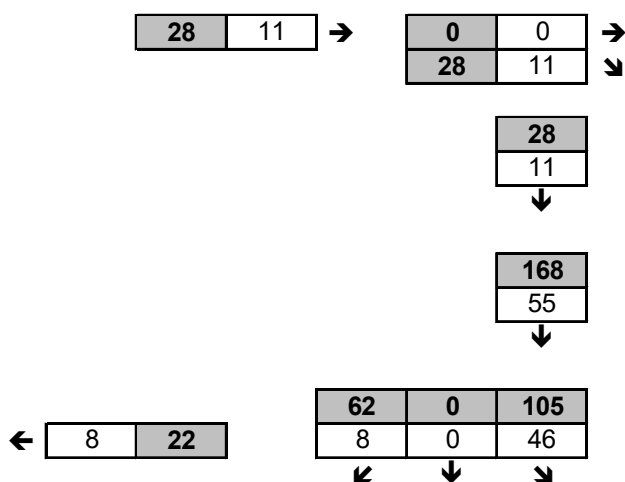
← 10 14

← 0 0

← 0 0

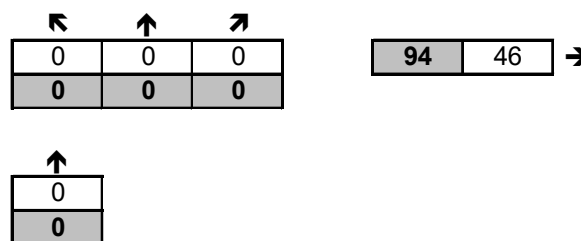
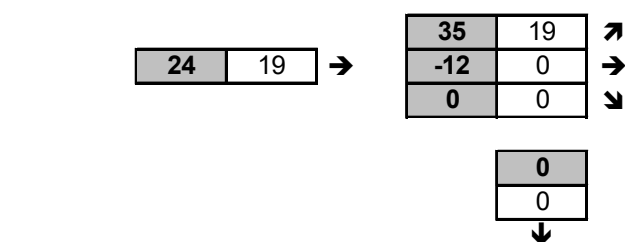
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

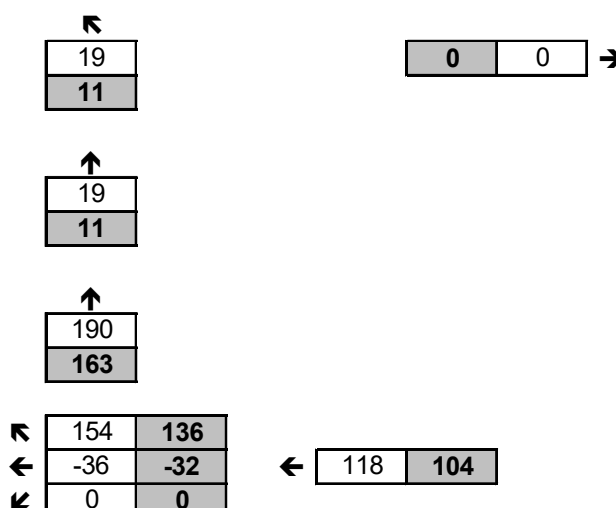
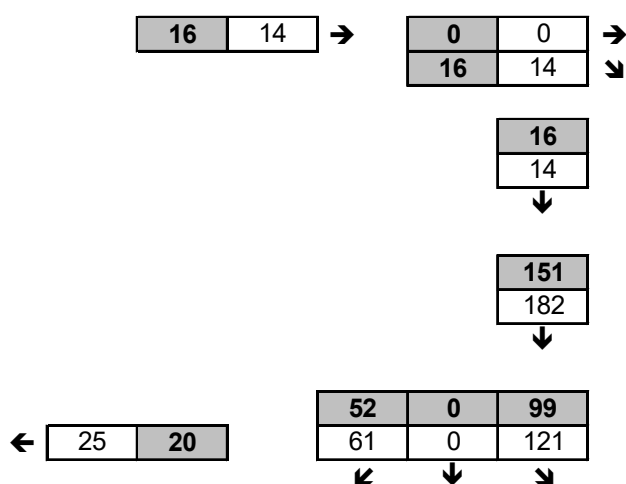
← 19 11

← 0 0

← 0 0

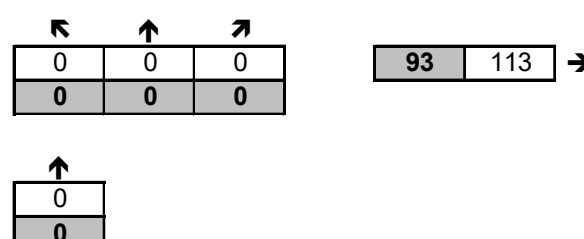
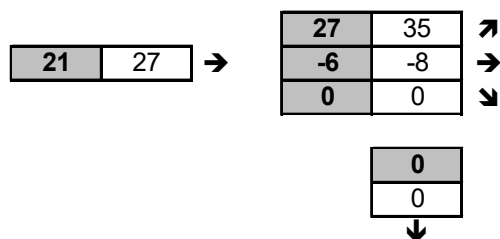
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



Total Site Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

← 193 191

← 168 133

← 168 133

Scugog Line 6

Scugog Line 6

215 79 → 107 53 →
108 26 ↘

108
26
↓

568
153
↓

← 391 372

141 4 422
32 3 117
↙ ↓ ↘

↖
24
58

↑
24
58

↑
212
493

↖ 158 366
← 350 225
↙ 19 15

← 528 606

107 53 →

Highway 7A

Highway 7A

541 290 → 127 53 ↗
410 230 →
4 7 ↘

23
29
↓

↖ ↑ ↗
8 1 8
6 0 15

↑
17
21

847 355 →

NTS



2028 Total Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

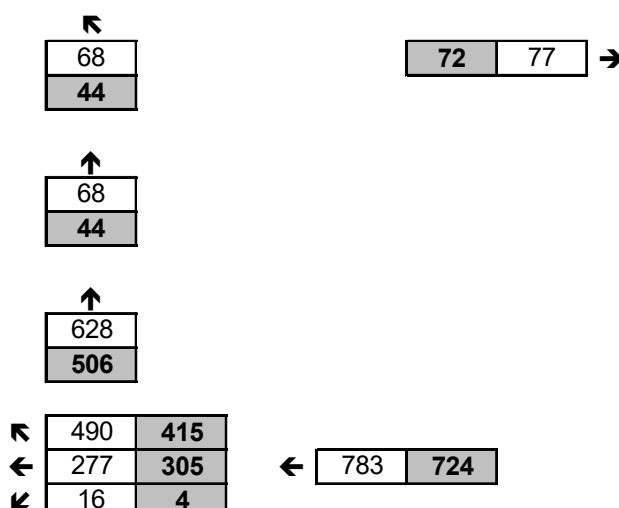
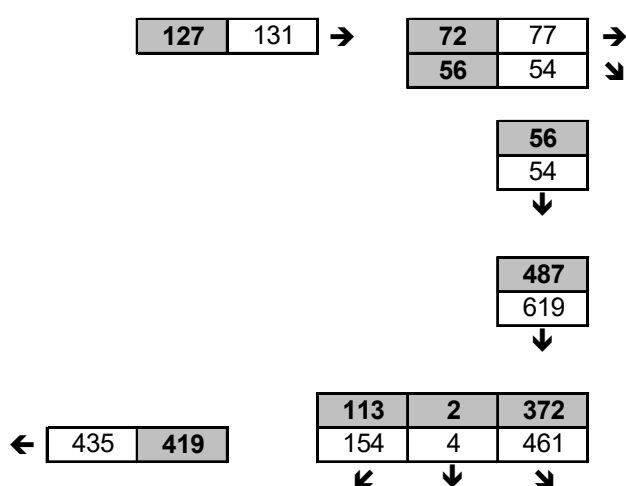
← 153 138

← 85 94

← 85 94

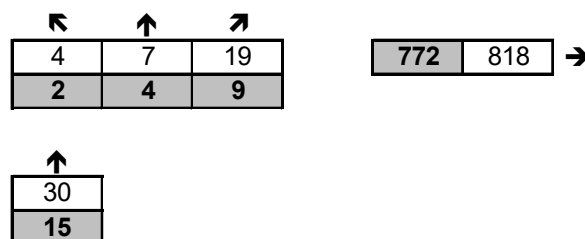
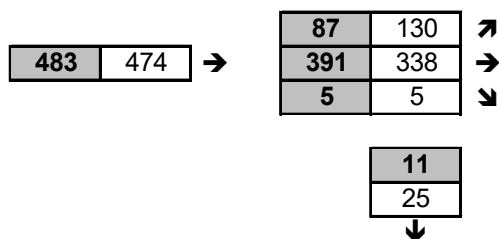
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2028 Total Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

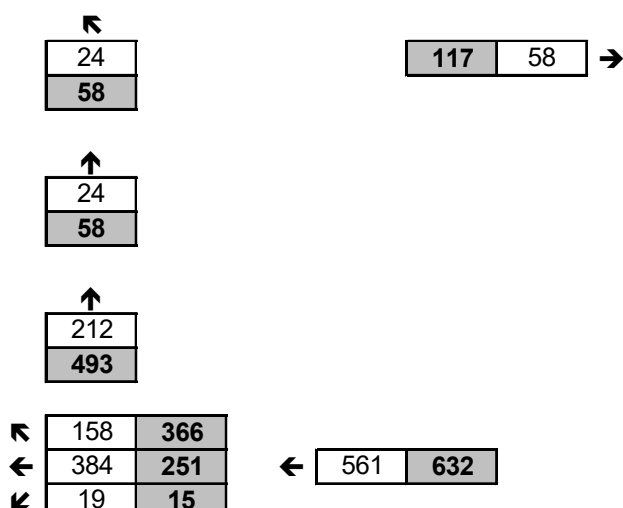
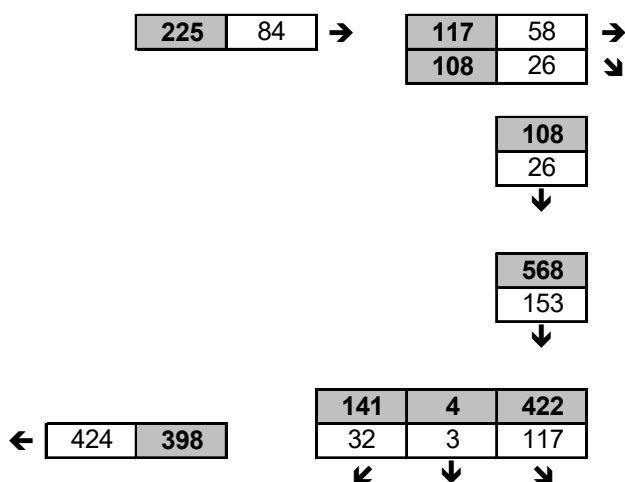
← 209 204

← 185 146

← 185 146

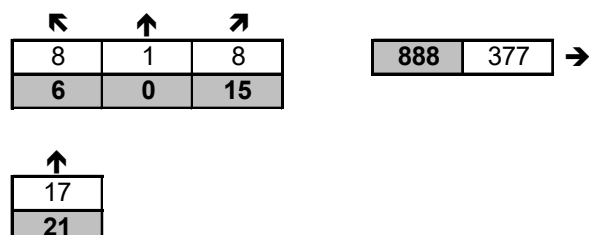
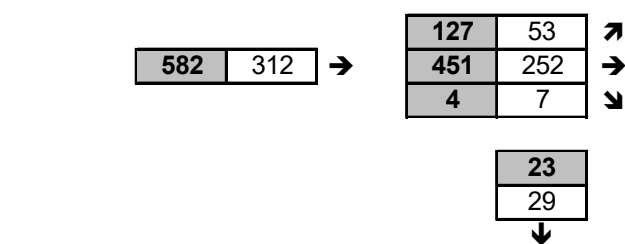
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2033 Total Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

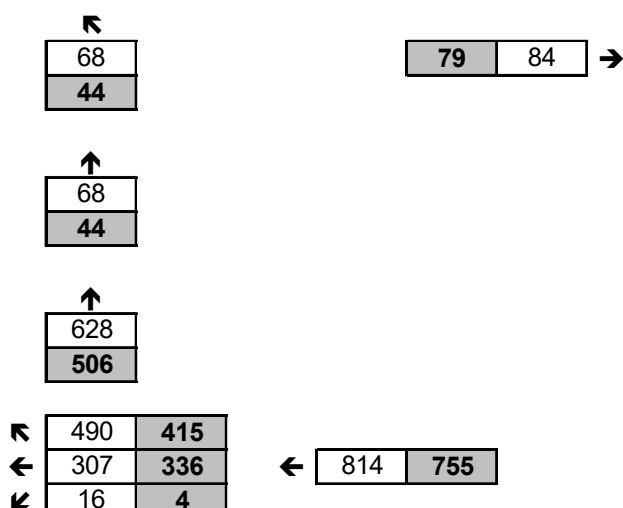
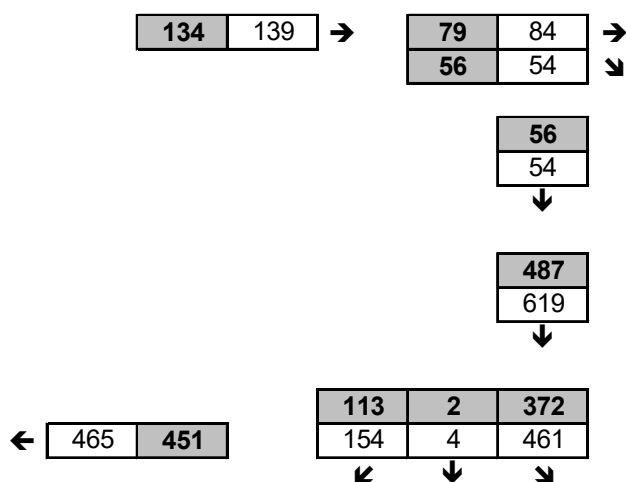
← 161 147

← 93 103

← 93 103

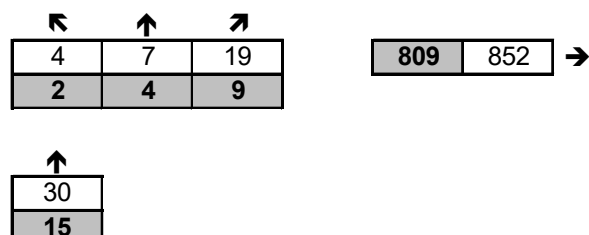
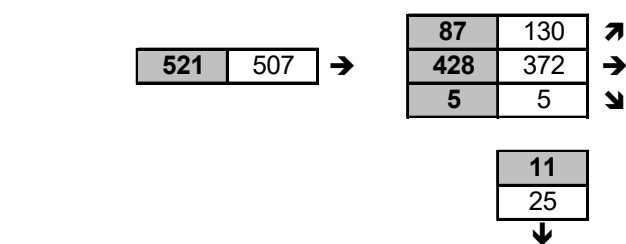
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2033 Total Traffic Forecasts Weekend



AM Peak Hour 123
PM Peak Hour 123

Site Access

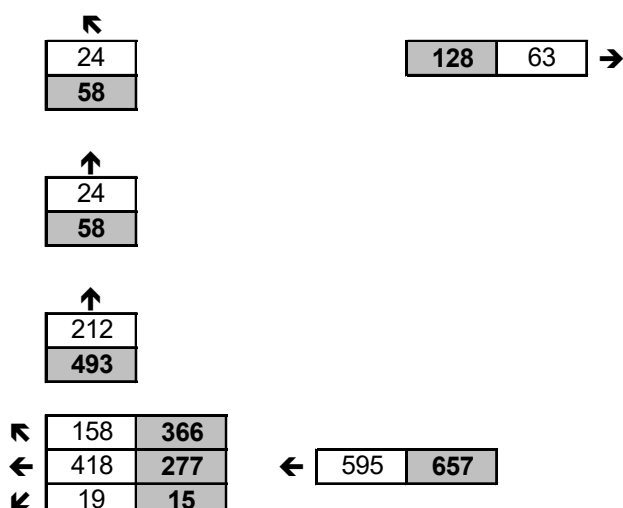
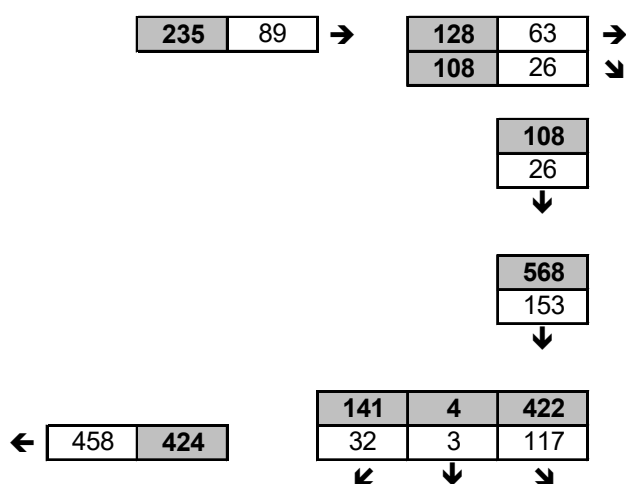
← 225 217

← 201 159

← 201 159

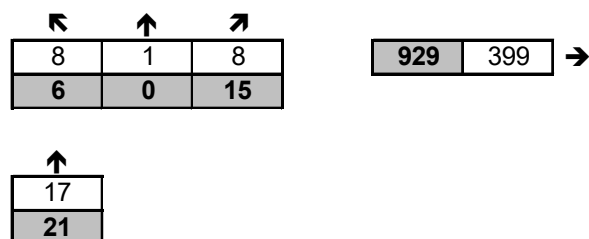
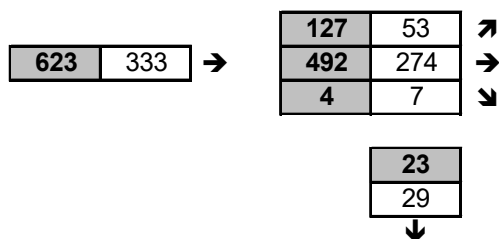
Scugog Line 6

Scugog Line 6



Highway 7A

Highway 7A



NTS



2038 Total Traffic Forecasts Weekday



SAT Peak Hour 123
SUN Peak Hour 123

Site Access

← 170 156

← 102 112

← 102 112

Scugog Line 6

Scugog Line 6

141 146 → 86 92 →
56 54 ↘

56
54
↓

487
619
↓

← 495 482

113 2 372
154 4 461
↙ ↓ ↘

↖
68
44

86 92 →

↑
68
44

↑
628
506

↖ 490 415
← 337 368
↙ 16 4

← 844 787

Highway 7A

Highway 7A

558 540 → 87 130 ↗
466 405 →
5 5 ↘

11
25
↓

↖ ↑ ↗
4 7 19
2 4 9

847 885 →

↑
30
15

NTS



2038 Total Traffic Forecasts Weekend

5 Traffic Impact Assessment

5.1 2028 Traffic Operations

To assess the operating conditions for the 2028 peak hour background and total traffic forecasts, operational analyses were undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of existing conditions. It is noted the existing signal timing data plans were maintained under the future operational analyses.

5.1.1 2028 Background

Table 5.1 presents the analysis results for 2028 background traffic conditions (without the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.2 and **Table 5.3** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix E** contains the Synchro analysis outputs for reference.

Under 2028 background traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the Saturday peak hour where the westbound right turn queue is projected to exceed the storage provision by 4 metres. This is not considered a critical issue as the minor exceedance would be accommodated by the turn lane taper provision.



TABLE 5.1A: 2028 BACKGROUND TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	7	0.06	6	B	12	0.19	15
		Thru	A	9	0.23	29	B	16	0.49	72
		Right	A	7	0.00	< 1	B	11	0.00	< 1
	WB	Left	A	7	0.03	4	B	17	0.05	6
		Thru	A	10	0.35	45	C	21	0.40	55
		Right	A	7	0.07	6	B	18	0.16	15
	NB	Left/Thru	C	23	0.03	5	B	16	0.02	3
		Right	C	22	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	25	0.24	22	C	29	0.68	75
		Right	C	23	0.02	3	B	17	0.05	8
	<i>Overall Intersection</i>		<i>B</i>	<i>11</i>	<i>0.32</i>	<i>-</i>	<i>B</i>	<i>20</i>	<i>0.60</i>	<i>-</i>
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	10	0.02	1	B	11	0.08	2

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.1B: 2028 BACKGROUND TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	12	0.21	15	B	12	0.15	11
		Thru	B	15	0.39	55	B	16	0.47	67
		Right	B	11	0.00	< 1	B	11	0.00	< 1
	WB	Left	B	17	0.04	6	B	16	0.01	2
		Thru	C	22	0.47	64	C	22	0.51	71
		Right	B	18	0.21	17	B	18	0.18	16
	NB	Left/Thru	B	16	0.02	4	B	16	0.01	3
		Right	B	16	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	30	0.70	80	C	25	0.58	62
		Right	B	17	0.06	9	B	17	0.04	5
	<i>Overall Intersection</i>		<i>C</i>	<i>20</i>	<i>0.57</i>	<i>-</i>	<i>B</i>	<i>20</i>	<i>0.54</i>	<i>-</i>
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	A	10	0.07	2	A	10	0.05	1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres



TABLE 5.2A: 2028 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	34	230	19	350	9	74
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	36	244	20	371	11	78
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.8	5.4	0.4	8.2	0.2	1.7
		Queue (vehicles) ¹	2	9	2	13	1	4
		Queue (m)	15	68	15	98	8	30
		Storage (m)	125	-	60	-	-	-
		Available (m)	110	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	92	421	15	265	6	321
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	92	426	15	265	6	321
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	9.5	0.3	5.9	0.1	7.1
		Queue (vehicles) ¹	5	15	1	10	1	12
		Queue (m)	38	113	8	75	8	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.2B: 2028 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	95	333	16	313	11	344
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	95	337	16	320	11	344
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.1	7.5	0.4	7.1	0.2	7.6
		Queue (vehicles) ¹	5	12	2	12	2	12
		Queue (m)	38	90	15	90	15	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	60	374	4	337	6	275
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	62	378	4	341	6	275
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.4	8.4	0.1	7.6	0.1	6.1
		Queue (vehicles) ¹	4	13	1	12	1	10
		Queue (m)	30	98	8	90	8	75
		Storage (m)	125	-	60	-	-	-
		Available (m)	95	-	52	-	-	-
¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).								



TABLE 5.3A: 2028 BACKGROUND RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	98	8	24
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	25	2	6
		Storage (m)	55	80	30	40
		Available (m)	53	55	28	34
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	245	15	79
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	62	4	20
		Storage (m)	55	80	30	40
		Available (m)	54	18	26	20

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.3B: 2028 BACKGROUND RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	336	19	93
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	84	5	24
		Storage (m)	55	80	30	40
		Available (m)	53	-4	25	16
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	279	9	61
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	70	3	16
		Storage (m)	55	80	30	40
		Available (m)	53	10	27	24

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.1.2 2028 Total

Table 5.4 presents the analysis results for 2028 total traffic conditions (with the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.5 and **Table 5.6** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix E** contains the Synchro analysis outputs for reference.

Under 2028 total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the weekday PM, Saturday, and Sunday peak hours where the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under this methodology, the existing storage provision is identified to be deficient; however, from the Synchro queue outputs, where signal timing is accounted the projected 95th percentile queues for the westbound right turn movement is determined to be accommodated by the existing storage provision.



TABLE 5.4A: 2028 TOTAL TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	8	0.10	9	B	15	0.28	22
		Thru	A	9	0.23	29	B	20	0.54	77
		Right	A	7	0.00	< 1	B	13	0.00	< 1
	WB	Left	A	7	0.03	4	C	20	0.05	6
		Thru	A	10	0.35	45	C	25	0.41	51
		Right	A	8	0.11	7	C	22	0.24	19
	NB	Left/Thru	C	23	0.03	5	B	14	0.02	3
		Right	C	22	0.01	< 1	B	14	0.01	< 1
	SB	Left/Thru	C	28	0.38	33	C	32	0.79	112
		Right	C	23	0.02	5	B	15	0.09	10
<i>Overall Intersection</i>		<i>B</i>	<i>12</i>	<i>0.36</i>	<i>-</i>	<i>C</i>	<i>23</i>	<i>0.69</i>	<i>-</i>	
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	11	0.04	1	B	11	0.10	3
Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.4B: 2028 TOTAL TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	17	0.34	23	B	12	0.20	14
		Thru	C	20	0.47	64	B	16	0.46	66
		Right	B	15	0.00	< 1	B	11	0.00	< 1
	WB	Left	C	22	0.06	7	B	16	0.01	2
		Thru	C	30	0.58	65	C	22	0.47	64
		Right	C	26	0.31	23	B	19	0.27	19
	NB	Left/Thru	B	12	0.01	4	B	16	0.01	3
		Right	B	12	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	28	0.77	114	C	35	0.79	102
		Right	B	13	0.10	10	B	17	0.07	10
	<i>Overall Intersection</i>		<i>C</i>	<i>24</i>	<i>0.68</i>	<i>-</i>	<i>C</i>	<i>22</i>	<i>0.63</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	10	0.07	2	A	10	0.07	2



Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.5A: 2028 TOTAL LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	53	230	19	350	9	120
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	56	244	20	371	11	126
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.2	5.4	0.4	8.2	0.2	2.8
		Queue (vehicles) ¹	3	9	2	13	1	5
		Queue (m)	23	68	15	98	8	38
		Storage (m)	125	-	60	-	-	-
		Available (m)	102	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	127	410	15	225	6	426
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	127	415	15	225	6	4226
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.8	9.2	0.3	5.0	0.1	9.5
		Queue (vehicles) ¹	5	14	1	9	1	15
		Queue (m)	38	105	8	68	8	113
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.5B: 2028 TOTAL LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	130	338	16	277	11	465
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	130	342	16	283	11	465
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.9	7.6	0.4	6.3	0.2	10.3
		Queue (vehicles) ¹	6	12	2	11	1	16
		Queue (m)	45	90	15	83	8	120
		Storage (m)	125	-	60	-	-	-
		Available (m)	80	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	87	391	4	305	6	374
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	89	395	4	309	6	374
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	8.8	0.1	6.9	0.1	8.3
		Queue (vehicles) ¹	5	14	1	11	1	13
		Queue (m)	38	105	8	83	8	98
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.6A: 2028 TOTAL RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	158	8	32
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	40	2	8
		Storage (m)	55	80	30	40
		Available (m)	53	40	28	32
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	366	15	141
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	92	4	36
		Storage (m)	55	80	30	40
		Available (m)	54	-12	26	4

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.6B: 2028 TOTAL RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	490	19	154
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	123	5	39
		Storage (m)	55	80	30	40
		Available (m)	53	-43	25	1
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	415	9	113
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	104	3	29
		Storage (m)	55	80	30	40
		Available (m)	53	-24	27	11

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.1.3 2028 Operations Summary

Under 2028 background and total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception noted would be the westbound right-turn movement at the signalized intersection of Highway 7A and the SmartCentres access. Under the weekday PM, Saturday, and Sunday peak hours the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology. Where the storage length is calculated based upon the volume and length of right turning vehicles.

Under the TAC methodology, the existing storage provision is identified to be deficient. Whereas, from the Synchro queue outputs, when signal timing is accounted, the projected 95th percentile queues for the westbound right turn movement are determined to be accommodated by the existing storage provision.

In comparing operations with and without the proposed remaining build-out of the site, there is relatively minor difference in operating conditions between the background and total traffic conditions, that is, all movements continue to be within capacity, with minor changes in vehicular delay experienced.

It is concluded the proposed remaining build-out of the site would have minimal impact on traffic operations at the study area intersections. That is, the intersection configuration and traffic control would accommodate the remaining build-out of the SmartCentres site under the 2028 horizon without the need for geometric improvements.



5.2 2033 Traffic Operations

To assess the operating conditions for the 2033 peak hour background and total traffic forecasts, operational analyses were undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of existing conditions. It is noted the existing signal timing data plans were optimized as necessary.

5.2.1 2033 Background

Table 5.7 presents the analysis results for 2028 background traffic conditions (without the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.8 and **Table 5.9** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix F** contains the Synchro analysis outputs for reference.

Under 2033 background traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the Saturday peak hour where the westbound right turn queue is projected to exceed the storage provision by 4 metres. This is not considered a critical issue as the minor exceedance would be accommodated by the turn lane taper provision.



TABLE 5.7A: 2033 BACKGROUND TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	7	0.07	6	B	12	0.20	15
		Thru	A	9	0.26	32	B	17	0.54	80
		Right	A	7	0.00	< 1	B	11	0.00	< 1
	WB	Left	A	7	0.03	4	B	17	0.05	6
		Thru	A	10	0.39	50	C	21	0.44	61
		Right	A	7	0.07	6	B	18	0.16	15
	NB	Left/Thru	C	23	0.03	5	B	16	0.02	3
		Right	C	22	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	25	0.24	22	C	29	0.68	75
		Right	C	23	0.02	3	B	17	0.05	8
	Overall Intersection		B	11	0.34	-	C	20	0.63	-
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	11	0.02	1	B	11	0.08	2

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.7B: 2033 BACKGROUND TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	12	0.22	15	B	12	0.16	11
		Thru	B	15	0.43	61	B	17	0.51	75
		Right	B	11	0.00	< 1	B	11	0.00	< 1
	WB	Left	B	17	0.04	6	B	16	0.01	2
		Thru	C	23	0.51	70	C	23	0.56	79
		Right	B	18	0.21	17	B	18	0.18	16
	NB	Left/Thru	B	16	0.02	4	B	16	0.01	3
		Right	B	16	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	30	0.70	80	C	25	0.58	62
		Right	B	17	0.06	9	B	17	0.04	5
	Overall Intersection		C	20	0.60	-	B	20	0.57	-
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	10	0.07	2	A	10	0.05	1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres



TABLE 5.8A: 2033 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	34	252	19	384	9	74
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	36	268	20	408	11	78
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.8	6.0	0.4	9.1	0.2	1.7
		Queue (vehicles) ¹	2	10	2	14	1	4
		Queue (m)	15	75	15	105	8	30
		Storage (m)	125	-	60	-	-	-
		Available (m)	110	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	92	462	15	291	6	321
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	92	467	15	291	6	321
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	10.4	0.3	6.5	0.1	7.1
		Queue (vehicles) ¹	5	16	1	11	1	12
		Queue (m)	38	120	8	83	8	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.8B: 2033 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	95	372	16	343	11	344
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	95	376	16	350	11	344
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.1	8.4	0.4	7.8	0.2	7.6
		Queue (vehicles) ¹	5	13	2	13	2	12
		Queue (m)	38	98	15	98	15	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	60	428	4	368	6	275
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	62	433	4	372	6	275
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.4	9.6	0.1	8.3	0.1	6.1
		Queue (vehicles) ¹	4	15	1	13	1	10
		Queue (m)	30	113	8	98	8	75
		Storage (m)	125	-	60	-	-	-
		Available (m)	95	-	52	-	-	-
¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).								



TABLE 5.9A: 2033 BACKGROUND RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	98	8	24
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	25	2	6
		Storage (m)	55	80	30	40
		Available (m)	53	55	28	34
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	245	15	79
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	62	4	20
		Storage (m)	55	80	30	40
		Available (m)	54	18	26	20

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.9B: 2033 BACKGROUND RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	336	19	93
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	84	5	24
		Storage (m)	55	80	30	40
		Available (m)	53	-4	25	16
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	279	9	61
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	70	3	16
		Storage (m)	55	80	30	40
		Available (m)	53	10	27	24

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.2.2 2033 Total

Table 5.10 presents the analysis results for 2033 total traffic conditions (with the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.11 and **Table 5.12** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix F** contains the Synchro analysis outputs for reference.

Under 2033 total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the weekday PM, Saturday, and Sunday peak hours where the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under this methodology, the existing storage provision is identified to be deficient; however, from the Synchro queue outputs, where signal timing is accounted the projected 95th percentile queues for the westbound right turn movement is determined to be accommodated by the existing storage provision.



TABLE 5.10A: 2033 TOTAL TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	8	0.11	9	B	15	0.29	22
		Thru	A	9	0.26	32	C	21	0.59	86
		Right	A	7	0.00	< 1	B	13	0.00	< 1
	WB	Left	A	7	0.03	4	C	20	0.06	6
		Thru	A	10	0.39	50	C	25	0.46	56
		Right	A	8	0.11	7	C	22	0.24	19
	NB	Left/Thru	C	23	0.03	5	B	14	0.02	3
		Right	C	22	0.01	< 1	B	14	0.01	< 1
	SB	Left/Thru	C	28	0.38	33	C	32	0.79	112
		Right	C	23	0.02	5	B	15	0.09	10
<i>Overall Intersection</i>			<i>B</i>	<i>12</i>	<i>0.39</i>	<i>-</i>	<i>C</i>	<i>23</i>	<i>0.72</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	11	0.04	1	B	11	0.11	3
Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.10B: 2033 TOTAL TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	17	0.36	23	B	12	0.21	14
		Thru	C	21	0.52	71	B	17	0.50	73
		Right	B	15	0.00	< 1	B	11	0.00	< 1
	WB	Left	C	23	0.06	7	B	16	0.01	2
		Thru	C	32	0.64	72	C	23	0.51	71
		Right	C	26	0.31	23	B	19	0.27	19
	NB	Left/Thru	B	12	0.01	4	B	16	0.01	3
		Right	B	12	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	28	0.77	114	C	35	0.79	102
		Right	B	13	0.10	10	B	17	0.07	10
	<i>Overall Intersection</i>		<i>C</i>	<i>25</i>	<i>0.70</i>	<i>-</i>	<i>C</i>	<i>22</i>	<i>0.66</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	10	0.10	3	B	10	0.07	2



Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.11A: 2033 TOTAL LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	53	252	19	384	9	120
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	56	268	20	408	11	126
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.2	6.0	0.4	9.1	0.2	2.8
		Queue (vehicles) ¹	3	10	2	14	1	5
		Queue (m)	23	75	15	105	8	38
		Storage (m)	125	-	60	-	-	-
		Available (m)	102	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	127	451	15	251	6	426
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	127	456	15	251	6	4226
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.8	10.1	0.3	5.6	0.1	9.5
		Queue (vehicles) ¹	5	16	1	10	1	15
		Queue (m)	38	120	8	75	8	113
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.11B: 2033 TOTAL LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	130	372	16	307	11	465
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	130	376	16	314	11	465
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.9	8.4	0.4	7.0	0.2	10.3
		Queue (vehicles) ¹	6	13	2	12	1	16
		Queue (m)	45	98	15	90	8	120
		Storage (m)	125	-	60	-	-	-
		Available (m)	80	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	87	428	4	336	6	374
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	89	433	4	340	6	374
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	9.6	0.1	7.6	0.1	8.3
		Queue (vehicles) ¹	5	15	1	12	1	13
		Queue (m)	38	113	8	90	8	98
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.12A: 2033 TOTAL RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	158	8	32
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	40	2	8
		Storage (m)	55	80	30	40
		Available (m)	53	40	28	32
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	366	15	141
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	92	4	36
		Storage (m)	55	80	30	40
		Available (m)	54	-12	26	4

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.12B: 2033 TOTAL RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	490	19	154
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	123	5	39
		Storage (m)	55	80	30	40
		Available (m)	53	-43	25	1
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	415	9	113
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	104	3	29
		Storage (m)	55	80	30	40
		Available (m)	53	-24	27	11

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.2.3 2033 Operations Summary

Under 2033 background and total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception noted would be the westbound right-turn movement at the signalized intersection of Highway 7A and the SmartCentres access. Under the weekday PM, Saturday, and Sunday peak hours the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under the TAC methodology, the existing storage provision is identified to be deficient. Whereas, from the Synchro queue outputs, when signal timing is accounted the projected 95th percentile queues for the westbound right turn movement are determined to be accommodated by the existing storage provision.

In comparing operations with and without the proposed remaining build-out of the site, there is relatively minor difference in operating conditions between the background and total traffic conditions, that is, all movements continue to be within capacity, with minor changes in vehicular delay experienced.

It is concluded the proposed remaining build-out of the site would have minimal impact on traffic operations at the study area intersections. That is, the current intersection configuration and traffic control would accommodate the remaining build-out of the SmartCentres site under the 2033 horizon without the need for geometric improvements.



5.3 2038 Traffic Operations

To assess the operating conditions for the 2033 peak hour background and total traffic forecasts, operational analyses were undertaken using the same methodology, parameters, lane arrangements, and traffic control devices as in the analysis of existing conditions. It is noted the existing signal timing data plans were optimized as necessary.

5.3.1 2038 Background

Table 5.13 presents the analysis results for 2028 background traffic conditions (without the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.14 and **Table 5.15** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix G** contains the Synchro analysis outputs for reference.

Under 2038 background traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the Saturday peak hour where the westbound right turn queue is projected to exceed the storage provision by 4 metres. This is not considered a critical issue as the minor exceedance would be accommodated by the turn lane taper provision.



TABLE 5.13A: 2038 BACKGROUND TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	7	0.07	6	B	12	0.21	15
		Thru	A	9	0.28	34	B	18	0.59	90
		Right	A	7	0.00	< 1	B	11	0.00	< 1
	WB	Left	A	7	0.03	4	B	17	0.05	6
		Thru	B	10	0.42	56	C	22	0.48	67
		Right	A	7	0.07	6	B	18	0.16	15
	NB	Left/Thru	C	23	0.03	5	B	16	0.02	3
		Right	C	22	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	25	0.24	22	C	29	0.68	75
		Right	C	23	0.02	3	B	17	0.05	8
	Overall Intersection		B	11	0.37	-	C	21	0.66	-
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	11	0.02	1	B	11	0.08	2

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.13B: 2038 BACKGROUND TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	13	0.23	15	B	13	0.17	11
		Thru	B	16	0.47	67	B	18	0.56	83
		Right	B	11	0.00	< 1	B	11	0.00	< 1
	WB	Left	B	17	0.04	6	B	16	0.01	2
		Thru	C	24	0.56	78	C	24	0.61	87
		Right	B	18	0.21	17	B	18	0.18	16
	NB	Left/Thru	B	16	0.02	4	B	16	0.01	3
		Right	B	16	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	30	0.70	80	C	25	0.58	62
		Right	B	17	0.06	9	B	17	0.04	5
	Overall Intersection		C	21	0.62	-	C	20	0.59	-
Scugog Line 6 and Site Access <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Thru	Unopposed Movement				Unopposed Movement			
	NB	Left	B	10	0.07	2	B	10	0.05	1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres



TABLE 5.14A: 2038 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	34	274	19	418	9	74
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	36	291	20	444	11	78
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.8	6.5	0.4	9.9	0.2	1.7
		Queue (vehicles) ¹	2	11	2	15	1	4
		Queue (m)	15	83	15	113	8	30
		Storage (m)	125	-	60	-	-	-
		Available (m)	110	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	92	503	15	317	6	321
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	92	509	15	317	6	321
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	11.3	0.3	7.0	0.1	7.1
		Queue (vehicles) ¹	5	17	1	12	1	12
		Queue (m)	38	128	8	90	8	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.14B: 2038 BACKGROUND LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	95	413	16	373	11	344
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	95	418	16	381	11	344
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.1	9.3	0.4	8.5	0.2	7.6
		Queue (vehicles) ¹	5	15	2	14	2	12
		Queue (m)	38	113	15	105	15	90
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	60	472	4	399	6	275
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	62	477	4	403	6	275
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.4	10.6	0.1	9.0	0.1	6.1
		Queue (vehicles) ¹	4	16	1	14	1	10
		Queue (m)	30	120	8	105	8	75
		Storage (m)	125	-	60	-	-	-
		Available (m)	95	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.15A: 2038 BACKGROUND RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	98	8	24
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	25	2	6
		Storage (m)	55	80	30	40
		Available (m)	53	55	28	34
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	245	15	79
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	62	4	20
		Storage (m)	55	80	30	40
		Available (m)	54	18	26	20

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.15B: 2038 BACKGROUND RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	336	19	93
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	84	5	24
		Storage (m)	55	80	30	40
		Available (m)	53	-4	25	16
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	279	9	61
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	70	3	16
		Storage (m)	55	80	30	40
		Available (m)	53	10	27	24

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.3.2 2038 Total

Table 5.16 presents the analysis results for 2033 total traffic conditions (with the proposed build-out of the site) during the weekday AM, PM, Saturday, and Sunday peak hours.

Table 5.17 and **Table 5.18** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.

Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix G** contains the Synchro analysis outputs for reference.

Under 2038 total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the weekday PM, Saturday, and Sunday peak hours where the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under this methodology, the existing storage provision is identified to be deficient; however, from the Synchro queue outputs, where signal timing is accounted the projected 95th percentile queues for the westbound right turn movement is determined to be accommodated by the existing storage provision.



TABLE 5.16A: 2038 TOTAL TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	8	0.11	9	B	15	0.31	22
		Thru	A	9	0.28	34	C	22	0.64	97
		Right	A	7	0.00	< 1	B	13	0.00	< 1
	WB	Left	A	7	0.03	4	C	20	0.06	6
		Thru	B	10	0.42	56	C	26	0.51	62
		Right	A	8	0.11	7	C	22	0.24	19
	NB	Left/Thru	C	23	0.03	5	B	14	0.02	3
		Right	C	22	0.01	< 1	B	14	0.01	< 1
	SB	Left/Thru	C	28	0.38	33	C	32	0.79	112
		Right	C	23	0.02	5	B	15	0.09	10
<i>Overall Intersection</i>		<i>B</i>	<i>12</i>	<i>0.41</i>	<i>-</i>	<i>C</i>	<i>24</i>	<i>0.75</i>	<i>-</i>	
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	11	0.04	1	B	12	0.11	3
Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.16B: 2038 TOTAL TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	18	0.39	23	B	13	0.23	14
		Thru	C	22	0.56	78	B	17	0.55	82
		Right	B	15	0.00	< 1	B	11	0.00	< 1
	WB	Left	C	23	0.06	7	B	16	0.01	2
		Thru	C	35	0.64	81	C	24	0.56	79
		Right	C	26	0.31	23	B	19	0.27	19
	NB	Left/Thru	B	12	0.01	4	B	16	0.01	3
		Right	B	12	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	28	0.77	114	C	35	0.79	102
		Right	B	13	0.10	10	B	17	0.07	10
	<i>Overall Intersection</i>		<i>C</i>	<i>25</i>	<i>0.73</i>	<i>-</i>	<i>C</i>	<i>22</i>	<i>0.69</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	10	0.11	3	B	10	0.07	2



Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.17A: 2038 TOTAL LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	53	274	19	418	9	120
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	56	291	20	444	11	126
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.2	6.5	0.4	9.9	0.2	2.8
		Queue (vehicles) ¹	3	11	2	15	1	5
		Queue (m)	23	83	15	113	8	38
		Storage (m)	125	-	60	-	-	-
		Available (m)	102	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	127	492	15	277	6	426
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	127	497	15	277	6	4226
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.8	11.0	0.3	6.2	0.1	9.5
		Queue (vehicles) ¹	5	17	1	11	1	15
		Queue (m)	38	128	8	83	8	113
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.17B: 2038 TOTAL LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	130	405	16	337	11	465
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	130	410	16	344	11	465
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.9	9.1	0.4	7.6	0.2	10.3
		Queue (vehicles) ¹	6	14	2	12	1	16
		Queue (m)	45	105	15	90	8	120
		Storage (m)	125	-	60	-	-	-
		Available (m)	80	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	87	466	4	368	6	374
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	89	471	4	372	6	374
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.0	10.5	0.1	8.3	0.1	8.3
		Queue (vehicles) ¹	5	16	1	13	1	13
		Queue (m)	38	120	8	98	8	98
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.18A: 2038 TOTAL RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	7	158	8	32
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	40	2	8
		Storage (m)	55	80	30	40
		Available (m)	53	40	28	32
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	366	15	141
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	92	4	36
		Storage (m)	55	80	30	40
		Available (m)	54	-12	26	4

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.18B: 2038 TOTAL RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	490	19	154
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	123	5	39
		Storage (m)	55	80	30	40
		Available (m)	53	-43	25	1
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	5	415	9	113
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	104	3	29
		Storage (m)	55	80	30	40
		Available (m)	53	-24	27	11

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.3.3 2038 Operations Summary

Under 2038 background and total traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception noted would be the westbound right-turn movement at the signalized intersection of Highway 7A and the SmartCentres access. Under the weekday PM, Saturday, and Sunday peak hours the westbound right turn queue is projected to exceed the storage provision by 12, 43 and 34 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under the TAC methodology, the existing storage provision is identified to be deficient. Whereas, from the Synchro queue outputs, when signal timing is accounted the projected 95th percentile queues for the westbound right turn movement are determined to be accommodated by the existing storage provision.

In comparing operations with and without the proposed remaining build-out of the site, there is relatively minor difference in operating conditions between the background and total traffic conditions, that is, all movements continue to be within capacity, with minor changes in vehicular delay experienced.

It is concluded the proposed remaining build-out of the site would have minimal impact on traffic operations at the study area intersections. That is, the current intersection configuration and traffic control would accommodate the remaining build-out of the SmartCentres site under the 2038 horizon without the need for geometric improvements.



5.4 Summer Conditions

As intersection counts were collected in June 2026 and the study area does experience some seasonal variation, a summer condition was estimated by applying a calculated adjustment factor to the June 2026 TMC data (for all movements).

The factor was calculated based upon data extracted from the MTO publication “Provincial Highways, Traffic Volumes 1988 – 2019, 2021”, where the Average Annual Daily Traffic (AADT) and Summer Annual Daily Traffic (SADT) volumes were reviewed as a source of seasonal traffic variation for the subject section of Highway 7A.

Table 5.19 illustrates the most recent traffic data for the section of Highway 7A between Scugog Line 6 and Highway 7/12 and the calculated seasonal adjustment factor for a summer condition. The analysis of summer conditions is a conservative approach (i.e. worst case).

TABLE 5.19: SUMMER SEASONAL FACTOR

Year	AADT	SADT	Factor
2012	12,600	14,000	1.11
2013	12,800	14,100	1.10
2014	13,000	14,300	1.10
2015	13,200	14,500	1.10
2016	13,400	14,700	1.10
2017	13,600	14,900	1.10
2018	13,800	15,100	1.09
2019	14,000	15,300	1.09
2021	14,400	15,700	1.09
Average Factor			1.10

An average of the data indicates an adjustment factor of 1.10 would be appropriate to estimate summer traffic volumes, that is, summer traffic volumes are approximately 10 percent higher than average conditions.

Appendix B contains the MTO data excerpt for reference.

Table 5.20 presents the operational results for summer conditions under 2032 total traffic conditions, which represents the worst-case scenario.

Table 5.21 and **Table 5.22** presents the vehicular queues for the signalized MTO intersection of Highway 7A and SmartCentres Driveway/Taylor Ford Driveway, for left turn and through movements, and right turn movements, respectively.



Any critical movements relative to the MTO criteria are highlighted in the results tables. **Appendix G** contains the Synchro analysis outputs for reference.

Under 2038 total summer traffic conditions, the study area intersections are forecast to continue to operate at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours. No critical movements are identified.

The 95th percentile queue lengths were checked for all turn lanes against provided storage, and queue lengths for through movements were also checked. No spillback issues were identified.

The minor exception would be during the weekday PM, Saturday, and Sunday peak hours where the westbound right turn queue is projected to exceed the storage provision by 17, 51 and 31 metres, respectively. Noting, this projected queue is based upon the TAC Guide methodology where the storage length is calculated based upon the volume and length of right turning vehicles.

Under this methodology, the existing storage provision is identified to be deficient; however, from the Synchro queue outputs, where signal timing is accounted the projected 95th percentile queues for the westbound right turn movement is determined to be accommodated by the existing storage provision.



TABLE 5.20A: 2038 SUMMER TOTAL TRAFFIC OPERATIONS – WEEKDAY

Intersection	Approach/ Movement		Weekday AM Peak Hour				Weekday PM Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	A	8	0.13	9	B	16	0.36	23
		Thru	A	9	0.30	38	C	26	0.73	113
		Right	A	7	0.01	< 1	B	14	0.00	< 1
	WB	Left	A	7	0.04	4	C	22	0.09	7
		Thru	B	11	0.46	63	C	29	0.59	71
		Right	A	8	0.11	8	C	23	0.25	20
	NB	Left/Thru	C	23	0.04	5	B	14	0.03	3
		Right	C	22	0.01	< 1	B	13	0.01	< 1
	SB	Left/Thru	C	29	0.41	35	C	33	0.82	121
		Right	C	23	0.03d	5	B	14	0.10	10
<i>Overall Intersection</i>			<i>B</i>	<i>12</i>	<i>0.45</i>	<i>-</i>	<i>C</i>	<i>26</i>	<i>0.82</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	11	0.05	1	B	12	0.13	4
Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.20B: 2038 SUMMER TOTAL TRAFFIC OPERATIONS – WEEKEND

Intersection	Approach/ Movement		Saturday Peak Hour				Sunday Peak Hour			
			LOS ¹	Delay ₂	V/C ³	Q ⁴	LOS ¹	Delay ₂	V/C ³	Q ⁴
Highway 7A and Site Access/ Taylor Ford Driveway <i>Signalized</i>	EB	Left	B	18	0.45	25	B	13	0.27	15
		Thru	C	24	0.62	88	B	18	0.60	92
		Right	B	15	0.00	< 1	B	11	0.00	< 1
	WB	Left	C	23	0.07	7	B	16	0.01	2
		Thru	D	39	0.78	100	C	25	0.62	89
		Right	C	26	0.33	25	B	19	0.29	19
	NB	Left/Thru	B	12	0.02	4	B	16	0.01	3
		Right	B	12	0.01	< 1	B	16	0.01	< 1
	SB	Left/Thru	C	31	0.83	126	D	39	0.84	113
		Right	B	13	0.10	10	B	17	0.08	10
	<i>Overall Intersection</i>		<i>C</i>	<i>27</i>	<i>0.79</i>	<i>-</i>	<i>C</i>	<i>24</i>	<i>0.74</i>	<i>-</i>
Scugog Line 6 and Site Access #1 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	B	11	0.12	3	B	11	0.08	2



Scugog Line 6 and Site Access #2 <i>Unsignalized</i>	EB	Thru/Right	Unopposed Movement				Unopposed Movement			
	WB	Left/Thru	A	< 1	0.00	< 1	A	< 1	0.00	< 1
	NB	Left/Right	A	< 1	0.00	< 1	A	< 1	0.00	< 1

¹ Level of Service; ² Average vehicle delay, seconds; ³ Volume to capacity ratio; ⁴ 95th percentile queue, metres

TABLE 5.21A: 2038 SUMMER TOTAL LT & TH MOVEMENT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	55	301	21	459	10	127
		Heavy Vehicle %	4%	6%	5%	6%	2%	5%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	58	320	23	487	13	134
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	1.3	7.1	0.5	10.8	0.3	3.0
		Queue (vehicles) ¹	3	12	2	16	1	6
		Queue (m)	23	90	15	120	8	45
		Storage (m)	125	-	60	-	-	-
		Available (m)	92	-	45	-	-	-
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	134	543	17	309	7	455
		Heavy Vehicle %	0%	1%	0%	0%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	134	549	17	309	7	455
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	3.0	12.2	0.4	6.9	0.2	10.1
		Queue (vehicles) ¹	6	18	2	11	1	16
		Queue (m)	45	135	15	83	8	120
		Storage (m)	125	-	60	-	-	-
		Available (m)	80	-	45	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.21B: 2038 SUMMER TOTAL LT & TH MOVEMENT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement					
			EBL	EBT	WBL	WBT	NBLT	SBLT
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	137	446	18	375	12	496
		Heavy Vehicle %	0%	1%	0%	2%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	137	451	18	383	12	496
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	3.0	10.0	0.4	8.5	0.3	11.0
		Queue (vehicles) ¹	6	15	2	14	1	17
		Queue (m)	45	113	15	105	8	128
		Storage (m)	125	-	60	-	-	-
		Available (m)	80	-	45	-	-	-
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	93	512	4	407	6	401
		Heavy Vehicle %	2%	1%	0%	1%	0%	0%
		Cycle Length (s)	80	80	80	80	80	80
		Passenger Cars Per Hour	95	518	4	412	6	401
		Number of Lanes	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	2.1	11.5	0.1	9.2	0.1	8.9
		Queue (vehicles) ¹	5	17	1	14	1	14
		Queue (m)	38	128	8	105	8	105
		Storage (m)	125	-	60	-	-	-
		Available (m)	87	-	52	-	-	-

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



TABLE 5.22A: 2038 SUMMER TOTAL RT QUEUES – WEEKDAY

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Weekday AM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	8	166	9	34
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	42	3	9
		Storage (m)	55	80	30	40
		Available (m)	53	38	27	31
Weekday PM Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	4	388	17	148
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	1	97	5	37
		Storage (m)	55	80	30	40
		Available (m)	54	-17	25	3

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).

TABLE 5.22B: 2038 SUMMER TOTAL RT QUEUES – WEEKEND

Analysis Period	Intersection	Parameter	Movement			
			EBR	WBR	NBR	SBR
Saturday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	6	521	21	161
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	131	6	41
		Storage (m)	55	80	30	40
		Available (m)	53	-51	24	-1
Sunday Peak Hour	Highway 7A and Site Access/ Taylor Ford Driveway	Volume (vph)	6	442	10	118
		Cycle Length (s)	80	80	80	80
		Design Speed	60	60	60	60
		Queue (m)	2	111	3	30
		Storage (m)	55	80	30	40
		Available (m)	53	-31	27	10

¹ Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).



5.5 Impact Assessment Summary

Based on the future traffic operational results documented in Section 5, the incremental impact of the remaining build-out of the SmartCentres development on the adjacent transportation network is considered minimal from an operational perspective.

From a traffic volume perspective, **Table 5.23** provides a summary of how traffic volumes are anticipated to increase with the subject development.

Under summer traffic conditions, it is forecast the intersection of Highway 7A and Site Access/Taylor Ford Driveway will continue to operate at acceptable levels of service and within capacity with the proposed development under the 2038 horizon.

It is noted at the signalized intersection, the storage provision for the auxiliary westbound right turn lane is projected to be exceeded based upon the TAC methodology, that is, from a volume perspective. It is noted there is a spatial constraint due to the adjacent driveway located just east which does not allow for the extension of the turn lane storage provision. However, this is not considered a critical issue. From an operational perspective, which accounts for the associated signal timing, the projected 95th percentile queues are forecast by Synchro would be accommodated by the existing storage provision.

No intersection geometric improvements or traffic control upgrades are determined to be required at Highway 7A and Site Access/Taylor Ford Driveway to accommodate the proposed remaining build-out of the SmartCentres development.

TABLE 5.23: TRAFFIC VOLUME INCREASE

Intersection	2038 Background vs. 2038 Total % Volume Increase (Total Entering)			
	AM Peak Hour	PM Peak Hour	SAT Peak Hour	SUN Peak Hour
Highway 7A and Site Access/Taylor Ford Driveway	12.7%	15.6%	17.6%	16.1%



6 Vehicle Manoeuvring

AutoTURN software was used to review and confirm the design of the site access, internal circulation, and parking layout will accommodate the design vehicles expected on-site. The analysis reviewed the following vehicles:

- ▶ Transportation Association of Canada (TAC) Passenger (P) Vehicle;
- ▶ TAC Heavy Single-Unit (HSU) Truck;
- ▶ WB-20 Tractor Trailer Truck; and
- ▶ Pumper Fire Truck.

No conflicts have been identified for the design vehicles. All vehicles will be able to ingress/egress the site and circulate the site without any conflicts.

Appendix H contains the vehicle manoeuvring diagrams for reference.



7 Conclusions and Recommendations

7.1 Conclusions

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

- ▶ **Existing (2026) Traffic Conditions:** the study area intersections are operating at acceptable levels of service and well within capacity during the weekday AM and PM, Saturday, and Sunday peak hours;
- ▶ **Existing Site Trip Generation:** The existing SmartCentres is observed to generate a total of 215 AM, 766 PM, 845 Saturday, and 722 Sunday peak hour vehicular trips;
- ▶ **Background Traffic (without proposed development) Conditions:** The signalized intersection of Highway 7A and Site Access/Taylor Ford Driveway and its associated traffic movements are forecast to continue operating at acceptable levels of service, and well within capacity up to the 2038 horizon;
- ▶ **Development Trip Generation:** The proposed remaining build-out of the SmartCentres development is forecast to generate a net total of 155 AM, 262 PM, 317 Saturday, and 265 Sunday peak hour vehicular trips;
- ▶ **Total Traffic (with proposed development) Conditions:** The net impact of the proposed development is found to be minor. The study area intersection and associated traffic movements are forecast to continue operating at acceptable levels of service and well within capacity during all peak periods.

Under projected summer traffic conditions, 2038 total traffic operations would be accommodated by the existing transportation network without the need for any intersection geometric improvements or traffic control upgrades.

No intersection geometric improvements or traffic control upgrades are determined to be required at Highway 7A and Site Access/Taylor Ford Driveway to accommodate the proposed remaining build-out of the SmartCentres development; and

- ▶ **Site Circulation Assessment:** An AutoTURN assessment was conducted to review vehicular swept paths. It is confirmed anticipated design vehicles expected on-site can enter, exit, and traverse the site without conflict.



7.2 Recommendations

Based on the findings of the study, the following are recommended:

- ▶ The review agencies recognize the conclusions drawn above;
and
- ▶ From a transportation perspective, the required planning applications to allow the proposed development should be approved.



Appendix A

Pre-Study Consultation



From: [Augurusa, Romeo \(MTO\)](#)
To: [Daniel Branzea](#)
Cc: [Adrian Soo](#)
Subject: RE: Meeting Request - SmartCentres Port Perry ToR for Proposed Retail Development
Date: May 13, 2026 9:40:41 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[HWY 7A @ WALMART.pdf](#)

Morning Daniel,

Please see MTO comments to the TOR below:

- [The trips do not match the numbers for a supermarket: AM 94, PM 281, SAT 361, SUN 283. Please ensure that the trips are using the correct rate \(Average vs fitted\) and ITE 12th edition.](#)
- A Master TIS should have been prepared for the entire site. Based on the site plan it looks like there are 2 more retail stores left, therefore a TIS should be prepared to include all the remaining development pieces.
- The signals would need to be reviewed as well as possibly extending the turn lanes.
- The scope of work would assess the weekday AM, PM, and Saturday peak hour conditions **Please include Sunday**. Analyze the anticipated build-out year of the supermarket, and a period of 5-years following full build-out, **MTO requires opening day/build out, 5 and 10 years from opening**. Similar to the previous study, a summer condition assessment would also be undertaken recognizing the seasonal variation experienced on Highway 7A **correct, summer volumes must be used, counts from the local municipality or RAQS qualified consultant collection counts may be considered acceptable, however, only data collected within 18 months of the submission date for the study will be accepted. see other comments.**
- This Terms of Reference (TOR) is valid for one year from the date of the email to the consultant. If the TIS or Brief is not submitted within this period, a new TOR must be resubmitted before work on a TIS or Brief can commence.
- MTO requires the submission of a full TIS (following MTO TIS guidelines and by a RAQS qualified consultant) to assess the future impact of the proposed development to identify if there are any warranted highway/road improvements. Digital Synchro version 12 files are required at the time of submission. Both editable/printable and locked/stamped and signed by P.Eng, version of the TIS is required. MTO will not review a TIS completed by a company that is not RAQS qualified, or that includes counts/data that is collected by a non RAQS qualified company. ITE 12th edition is the latest version and must be used.
- The consultant is responsible for thoroughly reading and adhering to the MTO TIS guidelines. If any reasonable requirements are missed, it is the consultant's obligation to provide them. The absence of a specific instruction in the TOR does not negate the necessity of fulfilling the reasonable requirement.
- Any data collected for the TIS must be by a RAQS qualified company/consultant. Counts from the local municipality or RAQS qualified consultant collection counts

may be considered acceptable, however, only data collected within 18 months of the submission date for the study will be accepted. Winter counts are not accepted. It is the consultant's responsibility to update and use proper data. Summer volumes must be used. Latest MTO data attached.

- Please refer to MTO TIS guidelines/policy, page 16 for Trip Distribution/Assignment.
- A summary of the key findings on the transportation impact of the proposed development on the highway corridor shall be presented, along with a summary of the recommended improvements.
- Any improvements identified in the TIS as warranted within the first five years of the development's operation shall be constructed prior to opening day. Please note that 'monitoring' is not an acceptable recommendation.
- Use linear growth rate for volume projections.
- Use a 2.0% growth rate for Hwy 7A.
- A site plan and site circulation plan is required to ensure that internal blockage does not occur or cause vehicle backups on the roadway. Include distances.
- As part of the TIS, the consultant must analyze the current turn lanes on Hwy 7A to ensure they are appropriate.
- Capacity analysis shall be performed at all proposed site access points and intersections in the study network in accordance with the methodology described in the latest edition of the Highway Capacity Manual (HCM). At signalized intersections, movements with a volume/capacity (v/c) ratio greater than 0.85 are deemed to be "critical" in terms of operations. Movements that experience a v/c ratio of 0.85 or greater shall be evaluated for possible operational improvements. For ramps, a v/c ratio for terminal ramp approaches with a value greater than 0.75 would be deemed critical and shall be evaluated for possible operational improvements.
- All intersection capacity analysis on impacted intersections or interchanges within MTO facilities must follow MTO/TAC protocols. When evaluating impacts at intersections please refer to the TAC's Geometric Design Guide for Canadian Roads, MTO Design Supplement for TAC's Geometric Design Guide for Canadian Roads and the OTM Books.
- The need for geometric improvements shall be reviewed at all locations in the study area and for each proposed development stage. The TIS shall clearly identify transportation impacts by movement, the transportation system improvements that are needed to mitigate these impacts, and the timing of any recommended improvements. A schematic representation of all geometric improvements shall be included as part of the TIS, identifying lane arrangements and intersection improvements for each horizon year.
- Queue and storage lengths for left turn and through movements for signalized intersections under MTO jurisdiction need to be calculated using the arrival rate method explained on MTO's Signal Timing Policy. For queues/storage lengths for right turn movements please refer to Chapter 9 of TAC's Geometric Design Guide

for Canadian Roads. Queue assessment shall include a review to determine if the thru queues impede access to auxiliary lanes or if they reach the adjacent intersection. For LT and thru, must convert trucks to passenger vehicles, use factor of 2.0.

- Provide the results in tabular form. For thru and left turn queues include: peak period, movement, volume, cycle length, %trucks, pcph, m value, number of vehicles and total length. For right turn storage length include: peak period, volume, cycle length, design speed, total length.
- Signal timing optimization can improve operations however, the resulting settings should still be consistent with our Signal Timing Policy.

In addition, MTO is available at the following times for a Teams meeting:

Wednesday, May 20: 1PM-2PM

Thursday, May 21: 1PM-2PM

Tuesday, May 26: 1PM-3PM

Please send a Teams invite at your earliest convenience and I will forward it internally.

Thanks,

Romeo Augurusa | Corridor Management Planner (Toronto/Durham)

Highway Corridor Management Section | Central Operations | Ministry of Transportation

159 Sir William Hearst Avenue, 7th Floor, Toronto, ON. M3M 0B7

Cell: 416-617-1915 | Email: romeo.augurusa@ontario.ca

Web: www.ontario.ca/page/highway-corridor-management



From: Daniel Branza <DBranza@smartcentres.com>

Sent: May 6, 2026 7:36 PM

To: Augurusa, Romeo (MTO) <Romeo.Augurusa@ontario.ca>; Hajjar, Alexander (He/Him) (MTO) <Alexander.Hajjar@ontario.ca>

Cc: Adrian Soo <asoo@ptsl.com>

Subject: Re: Meeting Request - SmartCentres Port Perry ToR for Proposed Retail Development

CAUTION -- EXTERNAL E-MAIL -- Do not click links or open attachments unless you recognize the sender.

Hi Romeo,

The attached Terms of Reference has been prepared by our traffic consultant, Adrian Soo, from Paradigm Transportation.

We are hoping that this will be acceptable to the MTO for our development approval.

Could you please let us know if you have time to meet this Friday afternoon or next Wednesday to speak about this in more detail? We look forward to hearing from you.

RE: Port Perry - SmartCentres ToR for MTO

From Adrian Soo <asoo@ptsl.com>
Date Tue 5/5/2026 4:23 PM
To Daniel Branzea <DBranzea@smartcentres.com>

EXTERNAL EMAIL - This email was sent by a person from outside your organization. Exercise caution when clicking links, opening attachments or taking further action, before validating its authenticity.

Afternoon Romeo and Alexander,

As requested, we are providing our proposed Terms of Reference for a Transportation Study in support of the sought SPA application for Building “C”, a proposed supermarket. Specifically, providing rationale and justification for a scoped study, more in line with a traffic brief. The information presented would facilitate further discussion/conversation with MTO staff.

Similar to the Traffic Brief study conducted in support of Building “D”, we are proposing to assess the signalized site access intersection with Highway 7A, and the site access intersections with Scugog Line 6. It is noted that the previous “Traffic Brief” conducted for Building “D” included operational analyses, rather than just detailing the site trips generated by the development.

The signalized site access on Highway 7A serves as the main gateway/entrance to the overall SmartCentres development, with limited trips to/from the rear access with Scugog Line 6. Based upon the previous Traffic Brief conducted, from 2025 count data collected, the use of the signalized access as the main site access was confirmed. During the AM, PM, and Saturday peak hours, 85%, 86%, and 91% of site traffic to/from the overall site utilized the Highway 7A access.

This data validates that the Scugog Line 6 (“rear site access”) is not the main access point for this development, nor was it ever envisioned as serving a role as a highly utilized access point. Based upon our review, this site access likely only serves patrons to/from areas north-west of the subject site based upon likely routing.

With the development of the final phase of commercial development (Building “C”) for the overall site, two driveways with Scugog Line 6 are proposed. The existing restricted right-in/left-out only access is proposed to be reconfigured as a full-movement access. Additionally, a second full-movement access is proposed. As we understand, the intent and purpose of the access driveways with Scugog Line 6 are to provide functionality; that is, facilitate truck deliveries for the existing Walmart site, in addition to serving the new proposed supermarket as these two sites are/will be served by larger tractor trailer trucks.

The Scugog Line 6 access driveways are not intended nor planned to function as a gateway or main access entrance/exit to the SmartCentres site. Furthermore, given the existing configuration of the access with Scugog Line 6 (right-in/left-out only), there is the precedent that little to no trips would be to/from the east via Scugog Line 6. Furthermore, given the configuration of how Scugog Line 6 connects to Highway 7A, use of the Scugog Line 6 access connections is not a direct route and requires additional movements if arriving from the east.

- In terms of vehicular trip generation, for the proposed 3,290 SM GFA supermarket, is anticipated to generate the following trips during the peak hours:
- Weekday AM: 104 trips (62 in/42 out)
 - Weekday PM: 311 trips (156 in/155 out)
 - Saturday: 352 trips (176 in/176 out)

In laymen’s terms, during the Saturday peak hour, the proposed supermarket

Based upon the operational analyses conducted in the Traffic Brief for Building “D”, the signalized site access intersection was determined to operate well within capacity under a 2032 horizon year (summer conditions). Currently, the signalized site access intersection is fully built-out, that is, it provides auxiliary turn lanes on Highway 7A to serve the site (Eastbound left, and westbound right).

With the signalized Highway 7A access as the main ingress/egress point, that is, all site traffic processes through this intersection.

Furthermore, the further external intersections of Highway 7A-Goodwood Road / Highway 12, and Highway 7A-Queen Street / Scugog Street are both signalized and are similarly built-out providing auxiliary turn lanes, and/or channelized movements (Highway 7A to Scugog Street) on movements where site traffic is likely to be added to.

Based upon the above points, we continue to propose a scoped traffic study (Traffic Brief), that provides an operational analysis of the Highway 7A/Site Access intersection, and the Scugog Line 6/Site Access intersections.

The scope of work would assess the weekday AM, PM, and Saturday peak hour conditions. Analyze the anticipated build-out year of the supermarket, and a period of 5-years following full build-out. Similar to the previous study, a summer condition assessment would also be undertaken recognizing the seasonal variation experienced on Highway 7A. We would continue to build upon the traffic forecasts previously developed from the assessment conducted for Building “D”.

Adrian Soo, P.Eng.
Operations Principal, GTA East



Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge ON, N1R 8J8
asoo@ptsl.com | 647.637.4946 | www.ptsl.com

Appendix B

Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Highway 7A & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 1

Turning Movement Data

Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	25	0	0	0	27	2	84	17	0	0	103	0	0	0	0	0	0	3	0	2	0	0	5	135
7:15 AM	4	36	0	0	0	40	1	82	7	0	0	90	0	0	0	0	0	0	8	1	1	0	0	10	140
7:30 AM	6	38	0	0	0	44	7	99	17	0	0	123	0	0	1	0	0	1	13	0	3	0	0	16	184
7:45 AM	4	50	1	0	0	55	7	102	11	0	0	120	0	0	1	0	0	1	12	1	1	0	0	14	190
Hourly Total	16	149	1	0	0	166	17	367	52	0	0	436	0	0	2	0	0	2	36	2	7	0	0	45	649
8:00 AM	5	55	2	0	0	62	3	97	11	0	0	111	1	0	1	0	0	2	11	0	2	0	0	13	188
8:15 AM	8	57	3	0	0	68	7	69	26	0	0	102	4	0	2	0	0	6	17	0	4	0	0	21	197
8:30 AM	8	57	1	0	0	66	2	68	33	0	0	103	3	1	4	0	0	8	24	2	5	0	0	31	208
8:45 AM	8	47	2	0	0	57	0	50	34	0	0	84	0	1	3	0	0	4	23	0	10	0	0	33	178
Hourly Total	29	216	8	0	0	253	12	284	104	0	0	400	8	2	10	0	0	20	75	2	21	0	0	98	771
9:00 AM	6	43	0	0	0	49	2	61	41	0	0	104	2	1	2	0	0	5	21	4	2	0	0	27	185
9:15 AM	7	56	1	0	0	64	5	75	47	0	0	127	1	0	4	0	0	5	19	1	3	0	0	23	219
9:30 AM	11	52	0	0	0	63	3	58	61	0	0	122	0	0	0	0	0	0	41	1	11	0	0	53	238
9:45 AM	9	62	1	0	0	72	6	65	50	0	0	121	3	0	5	0	0	8	43	0	11	0	0	54	255
Hourly Total	33	213	2	0	0	248	16	259	199	0	0	474	6	1	11	0	0	18	124	6	27	0	0	157	897
10:00 AM	10	47	0	0	0	57	4	63	58	0	0	125	1	0	3	0	0	4	38	0	12	0	0	50	236
10:15 AM	9	62	0	0	0	71	7	37	50	0	0	94	0	1	3	0	0	4	54	4	21	0	0	79	248
10:30 AM	10	67	0	0	0	77	2	49	68	0	0	119	2	3	3	0	0	8	54	2	7	0	0	63	267
10:45 AM	10	56	0	0	0	66	1	59	57	0	0	117	2	1	4	0	0	7	52	2	13	0	0	67	257
Hourly Total	39	232	0	0	0	271	14	208	233	0	0	455	5	5	13	0	0	23	198	8	53	0	0	259	1008
11:00 AM	14	71	1	0	0	86	5	62	44	0	0	111	1	2	3	0	0	6	59	0	9	0	0	68	271
11:15 AM	13	59	1	0	0	73	6	46	51	0	0	103	1	0	7	0	0	8	71	2	7	0	0	80	264
11:30 AM	8	80	3	0	0	91	4	67	38	0	0	109	3	0	3	0	0	6	57	0	11	0	0	68	274
11:45 AM	9	61	3	0	0	73	3	60	56	0	0	119	1	1	3	0	0	5	53	0	9	0	0	62	259
Hourly Total	44	271	8	0	0	323	18	235	189	0	0	442	6	3	16	0	0	25	240	2	36	0	0	278	1068
12:00 PM	11	82	1	0	0	94	6	61	76	0	0	143	5	1	8	0	0	14	49	3	10	0	0	62	313
12:15 PM	12	82	2	0	0	96	9	65	62	0	0	136	3	0	8	0	0	11	82	0	9	0	0	91	334
12:30 PM	10	74	0	0	0	84	3	64	54	0	0	121	1	3	3	0	0	7	70	2	12	0	1	84	296
12:45 PM	18	70	0	0	0	88	6	63	55	0	2	124	0	0	4	0	0	4	62	2	13	0	0	77	293
Hourly Total	51	308	3	0	0	362	24	253	247	0	2	524	9	4	23	0	0	36	263	7	44	0	1	314	1236
1:00 PM	17	72	4	0	0	93	2	46	65	0	0	113	2	0	9	0	0	11	59	2	10	0	0	71	288
1:15 PM	16	71	0	0	0	87	4	65	67	0	0	136	3	0	3	0	0	6	55	2	15	0	0	72	301
1:30 PM	13	77	3	0	0	93	7	71	51	0	0	129	0	2	8	0	0	10	75	2	16	0	0	93	325
1:45 PM	15	91	1	0	0	107	4	72	55	0	0	131	0	2	5	0	0	7	61	0	10	0	0	71	316
Hourly Total	61	311	8	0	0	380	17	254	238	0	0	509	5	4	25	0	0	34	250	6	51	0	0	307	1230

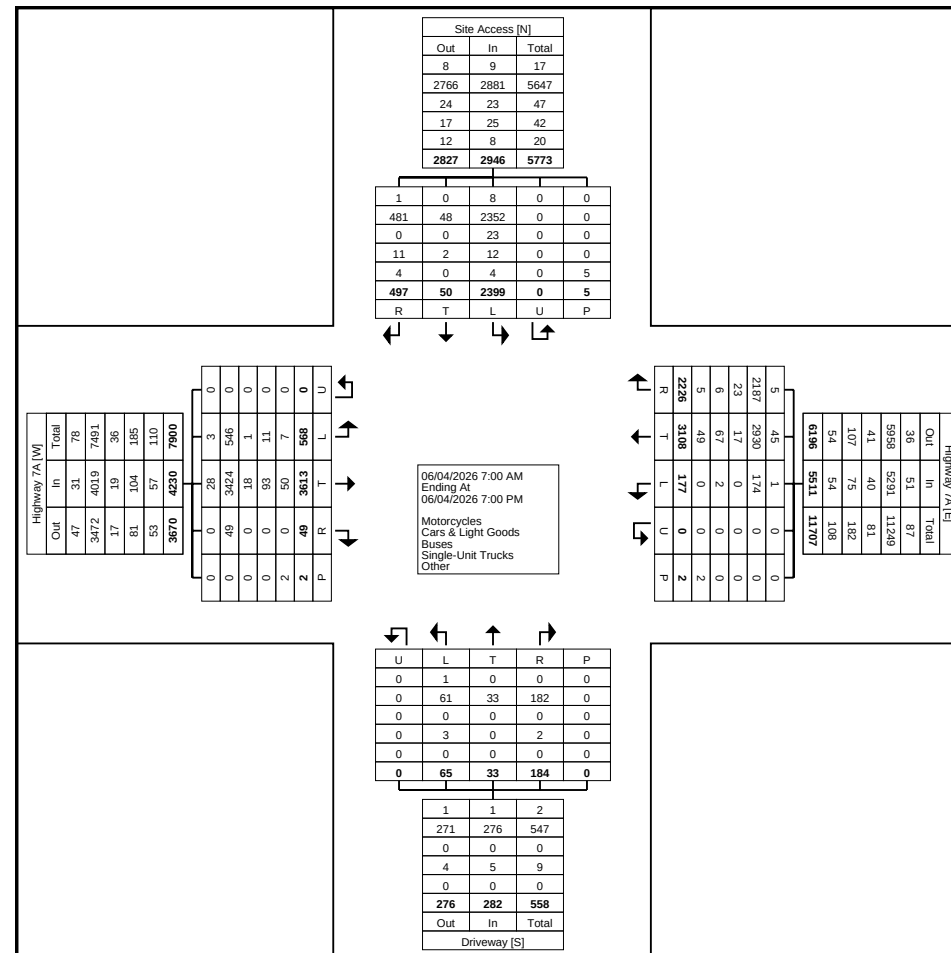
2:00 PM	17	93	1	0	2	111	2	64	70	0	0	136	2	2	6	0	0	10	59	2	15	0	0	76	333
2:15 PM	17	76	0	0	0	93	6	71	58	0	0	135	4	0	7	0	0	11	66	0	20	0	0	86	325
2:30 PM	10	86	1	0	0	97	5	76	60	0	0	141	2	1	1	0	0	4	72	1	19	0	0	92	334
2:45 PM	14	99	1	0	0	114	6	63	40	0	0	109	2	2	7	0	0	11	59	2	16	0	1	77	311
Hourly Total	58	354	3	0	2	415	19	274	228	0	0	521	10	5	21	0	0	36	256	5	70	0	1	331	1303
3:00 PM	12	100	4	0	0	116	4	86	56	0	0	146	2	1	6	0	0	9	52	2	14	0	0	68	339
3:15 PM	13	99	2	0	0	114	4	50	60	0	0	114	0	0	4	0	0	4	66	2	17	0	0	85	317
3:30 PM	22	109	0	0	0	131	3	59	61	0	0	123	1	0	4	0	0	5	69	1	19	0	0	89	348
3:45 PM	17	95	0	0	0	112	3	67	56	0	0	126	2	0	5	0	0	7	71	0	15	0	1	86	331
Hourly Total	64	403	6	0	0	473	14	262	233	0	0	509	5	1	19	0	0	25	258	5	65	0	1	328	1335
4:00 PM	13	107	2	0	0	122	5	82	48	0	0	135	3	0	2	0	0	5	78	1	13	0	0	92	354
4:15 PM	14	77	2	0	0	93	2	71	54	0	0	127	0	1	4	0	0	5	47	1	16	0	0	64	289
4:30 PM	16	127	0	0	0	143	4	66	48	0	0	118	1	0	7	0	0	8	60	1	11	0	0	72	341
4:45 PM	22	117	2	0	0	141	2	58	45	0	0	105	0	0	8	0	0	8	56	1	8	0	0	65	319
Hourly Total	65	428	6	0	0	499	13	277	195	0	0	485	4	1	21	0	0	26	241	4	48	0	0	293	1303
5:00 PM	18	127	1	0	0	146	3	78	35	0	0	116	2	4	7	0	0	13	73	1	16	0	0	90	365
5:15 PM	22	116	0	0	0	138	2	58	47	0	0	107	1	0	2	0	0	3	70	0	11	0	0	81	329
5:30 PM	18	95	1	0	0	114	1	63	35	0	0	99	1	0	3	0	0	4	62	1	6	0	0	69	286
5:45 PM	12	96	1	0	0	109	0	47	52	0	0	99	0	1	1	0	0	2	54	0	9	0	0	63	273
Hourly Total	70	434	3	0	0	507	6	246	169	0	0	421	4	5	13	0	0	22	259	2	42	0	0	303	1253
6:00 PM	18	101	1	0	0	120	3	41	40	0	0	84	2	1	8	0	0	11	45	1	9	0	0	55	270
6:15 PM	10	69	0	0	0	79	2	58	37	0	0	97	1	0	2	0	0	3	61	0	8	0	0	69	248
6:30 PM	8	57	0	0	0	65	0	50	30	0	0	80	0	1	0	0	0	1	51	0	9	0	0	60	206
6:45 PM	2	67	0	0	0	69	2	40	32	0	0	74	0	0	0	0	0	0	42	0	7	0	2	49	192
Hourly Total	38	294	1	0	0	333	7	189	139	0	0	335	3	2	10	0	0	15	199	1	33	0	2	233	916
Grand Total	568	3613	49	0	2	4230	177	3108	2226	0	2	5511	65	33	184	0	0	282	2399	50	497	0	5	2946	12969
Approach %	13.4	85.4	1.2	0.0	-	-	3.2	56.4	40.4	0.0	-	-	23.0	11.7	65.2	0.0	-	-	81.4	1.7	16.9	0.0	-	-	-
Total %	4.4	27.9	0.4	0.0	-	32.6	1.4	24.0	17.2	0.0	-	42.5	0.5	0.3	1.4	0.0	-	2.2	18.5	0.4	3.8	0.0	-	22.7	-
Motorcycles	3	28	0	0	-	31	1	45	5	0	-	51	1	0	0	0	-	1	8	0	1	0	-	9	92
% Motorcycles	0.5	0.8	0.0	-	-	0.7	0.6	1.4	0.2	-	-	0.9	1.5	0.0	0.0	-	-	0.4	0.3	0.0	0.2	-	-	0.3	0.7
Cars & Light Goods	546	3424	49	0	-	4019	174	2930	2187	0	-	5291	61	33	182	0	-	276	2352	48	481	0	-	2881	12467
% Cars & Light Goods	96.1	94.8	100.0	-	-	95.0	98.3	94.3	98.2	-	-	96.0	93.8	100.0	98.9	-	-	97.9	98.0	96.0	96.8	-	-	97.8	96.1
Buses	1	18	0	0	-	19	0	17	23	0	-	40	0	0	0	0	-	0	23	0	0	0	-	23	82
% Buses	0.2	0.5	0.0	-	-	0.4	0.0	0.5	1.0	-	-	0.7	0.0	0.0	0.0	-	-	0.0	1.0	0.0	0.0	-	-	0.8	0.6
Single-Unit Trucks	11	93	0	0	-	104	2	67	6	0	-	75	3	0	2	0	-	5	12	2	11	0	-	25	209
% Single-Unit Trucks	1.9	2.6	0.0	-	-	2.5	1.1	2.2	0.3	-	-	1.4	4.6	0.0	1.1	-	-	1.8	0.5	4.0	2.2	-	-	0.8	1.6
Articulated Trucks	7	49	0	0	-	56	0	49	5	0	-	54	0	0	0	0	-	0	4	0	4	0	-	8	118
% Articulated Trucks	1.2	1.4	0.0	-	-	1.3	0.0	1.6	0.2	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.2	0.0	0.8	-	-	0.3	0.9
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cdowness@pts1.com

Count Name: Highway 7A & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 3



Turning Movement Data Plot

Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	16	127	0	0	0	143	4	66	48	0	0	118	1	0	7	0	0	8	60	1	11	0	0	72	341
4:45 PM	22	117	2	0	0	141	2	58	45	0	0	105	0	0	8	0	0	8	56	1	8	0	0	65	319
5:00 PM	18	127	1	0	0	146	3	78	35	0	0	116	2	4	7	0	0	13	73	1	16	0	0	90	365
5:15 PM	22	116	0	0	0	138	2	58	47	0	0	107	1	0	2	0	0	3	70	0	11	0	0	81	329
Total	78	487	3	0	0	568	11	260	175	0	0	446	4	4	24	0	0	32	259	3	46	0	0	308	1354
Approach %	13.7	85.7	0.5	0.0	-	-	2.5	58.3	39.2	0.0	-	-	12.5	12.5	75.0	0.0	-	-	84.1	1.0	14.9	0.0	-	-	-
Total %	5.8	36.0	0.2	0.0	-	41.9	0.8	19.2	12.9	0.0	-	32.9	0.3	0.3	1.8	0.0	-	2.4	19.1	0.2	3.4	0.0	-	22.7	-
PHF	0.886	0.959	0.375	0.000	-	0.973	0.688	0.833	0.911	0.000	-	0.945	0.500	0.250	0.750	0.000	-	0.615	0.887	0.750	0.719	0.000	-	0.856	0.927
Motorcycles	1	0	0	0	-	1	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	5
% Motorcycles	1.3	0.0	0.0	-	-	0.2	0.0	1.5	0.0	-	-	0.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Cars & Light Goods	75	475	3	0	-	553	11	249	173	0	-	433	4	4	24	0	-	32	257	3	45	0	-	305	1323
% Cars & Light Goods	96.2	97.5	100.0	-	-	97.4	100.0	95.8	98.9	-	-	97.1	100.0	100.0	100.0	-	-	100.0	99.2	100.0	97.8	-	-	99.0	97.7
Buses	0	2	0	0	-	2	0	0	2	0	-	2	0	0	0	0	-	0	2	0	0	0	-	2	6
% Buses	0.0	0.4	0.0	-	-	0.4	0.0	0.0	1.1	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.8	0.0	0.0	-	-	0.6	0.4
Single-Unit Trucks	1	9	0	0	-	10	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	12
% Single-Unit Trucks	1.3	1.8	0.0	-	-	1.8	0.0	0.8	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.9
Articulated Trucks	1	1	0	0	-	2	0	5	0	0	-	5	0	0	0	0	-	0	0	0	1	0	-	1	8
% Articulated Trucks	1.3	0.2	0.0	-	-	0.4	0.0	1.9	0.0	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.2	-	-	0.3	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Highway 7A & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 1

Turning Movement Data

Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	6	37	2	0	0	45	1	47	40	0	0	88	1	0	6	0	0	7	18	2	6	0	0	26	166
9:15 AM	4	50	0	0	0	54	2	46	39	0	0	87	1	0	1	0	0	2	32	0	8	0	0	40	183
9:30 AM	3	44	0	0	0	47	3	51	47	0	0	101	0	0	3	0	0	3	35	0	9	0	0	44	195
9:45 AM	4	76	0	0	0	80	0	60	61	0	0	121	0	1	2	0	0	3	41	0	1	0	0	42	246
Hourly Total	17	207	2	0	0	226	6	204	187	0	0	397	2	1	12	0	0	15	126	2	24	0	0	152	790
10:00 AM	6	44	0	0	0	50	2	56	67	0	0	125	1	0	1	0	0	2	40	0	13	0	0	53	230
10:15 AM	5	60	0	0	0	65	4	42	76	0	0	122	0	0	3	0	0	3	53	0	11	0	0	64	254
10:30 AM	8	81	1	0	0	90	2	56	62	0	0	120	0	1	3	0	0	4	72	1	18	0	0	91	305
10:45 AM	7	74	1	0	0	82	3	70	62	0	1	135	0	0	3	0	0	3	57	1	9	0	0	67	287
Hourly Total	26	259	2	0	0	287	11	224	267	0	1	502	1	1	10	0	0	12	222	2	51	0	0	275	1076
11:00 AM	16	89	0	0	0	105	1	60	79	0	0	140	0	1	4	0	0	5	60	0	15	0	0	75	325
11:15 AM	15	71	2	0	0	88	4	77	80	0	0	161	1	1	2	0	0	4	54	0	11	0	0	65	318
11:30 AM	7	78	1	0	0	86	2	69	79	0	0	150	1	1	1	0	0	3	76	0	13	0	0	89	328
11:45 AM	14	80	1	0	0	95	3	76	85	0	0	164	0	1	5	0	0	6	75	2	17	0	0	94	359
Hourly Total	52	318	4	0	0	374	10	282	323	0	0	615	2	4	12	0	0	18	265	2	56	0	0	323	1330
12:00 PM	13	82	1	0	0	96	2	71	76	0	0	149	0	1	3	0	0	4	88	1	15	0	0	104	353
12:15 PM	12	101	0	0	0	113	1	74	64	0	0	139	1	1	1	0	0	3	77	1	18	0	0	96	351
12:30 PM	16	82	0	0	0	98	3	69	71	0	0	143	0	0	4	0	0	4	76	1	19	0	0	96	341
12:45 PM	14	88	2	0	0	104	10	63	83	0	0	156	3	2	5	0	0	10	70	1	14	0	0	85	355
Hourly Total	55	353	3	0	0	411	16	277	294	0	0	587	4	4	13	0	0	21	311	4	66	0	0	381	1400
1:00 PM	15	81	1	0	0	97	4	75	70	0	0	149	0	2	5	0	0	7	82	2	19	0	0	103	356
1:15 PM	20	79	2	0	0	101	1	78	69	0	0	148	1	2	7	0	0	10	79	0	21	0	0	100	359
1:30 PM	19	85	0	0	0	104	1	85	81	0	0	167	0	1	2	0	0	3	74	1	15	0	0	90	364
1:45 PM	11	100	0	0	0	111	1	56	62	0	0	119	0	0	0	0	0	0	86	0	16	0	0	102	332
Hourly Total	65	345	3	0	0	413	7	294	282	0	0	583	1	5	14	0	0	20	321	3	71	0	0	395	1411
2:00 PM	16	93	2	0	0	111	4	65	60	0	0	129	0	0	3	0	0	3	55	1	13	0	0	69	312
2:15 PM	14	86	2	0	0	102	5	74	62	0	0	141	0	0	4	0	0	4	53	0	13	0	0	66	313
2:30 PM	14	80	0	0	0	94	1	65	52	0	0	118	0	3	6	0	0	9	66	1	12	0	0	79	300
2:45 PM	20	106	0	0	0	126	0	52	63	0	0	115	0	2	2	0	0	4	52	0	14	0	3	66	311
Hourly Total	64	365	4	0	0	433	10	256	237	0	0	503	0	5	15	0	0	20	226	2	52	0	3	280	1236
3:00 PM	9	89	2	0	0	100	7	73	55	0	0	135	2	1	2	0	0	5	69	1	11	0	0	81	321
3:15 PM	13	83	3	0	0	99	0	62	56	0	0	118	0	1	7	0	0	8	40	0	14	0	0	54	279
3:30 PM	9	78	2	0	0	89	1	52	50	0	0	103	2	0	2	0	0	4	76	2	12	0	0	90	286
3:45 PM	11	79	2	0	0	92	0	65	54	0	0	119	2	1	3	0	0	6	60	1	20	0	0	81	298
Hourly Total	42	329	9	0	0	380	8	252	215	0	0	475	6	3	14	0	0	23	245	4	57	0	0	306	1184

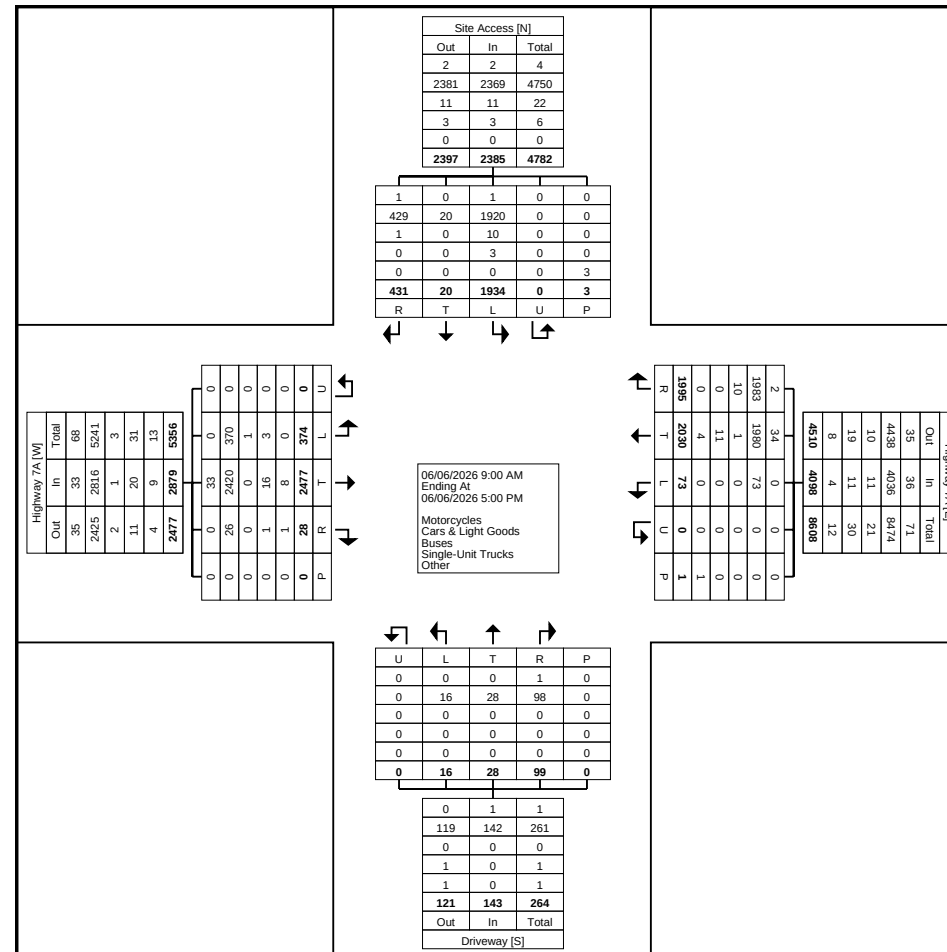
4:00 PM	12	91	0	0	0	103	1	61	49	0	0	111	0	3	5	0	0	8	56	1	11	0	0	68	290
4:15 PM	16	67	1	0	0	84	3	58	49	0	0	110	0	0	3	0	0	3	61	0	15	0	0	76	273
4:30 PM	8	65	0	0	0	73	0	64	43	0	0	107	0	1	1	0	0	2	57	0	13	0	0	70	252
4:45 PM	17	78	0	0	0	95	1	58	49	0	0	108	0	1	0	0	0	1	44	0	15	0	0	59	263
Hourly Total	53	301	1	0	0	355	5	241	190	0	0	436	0	5	9	0	0	14	218	1	54	0	0	273	1078
Grand Total	374	2477	28	0	0	2879	73	2030	1995	0	1	4098	16	28	99	0	0	143	1934	20	431	0	3	2385	9505
Approach %	13.0	86.0	1.0	0.0	-	-	1.8	49.5	48.7	0.0	-	-	11.2	19.6	69.2	0.0	-	-	81.1	0.8	18.1	0.0	-	-	-
Total %	3.9	26.1	0.3	0.0	-	30.3	0.8	21.4	21.0	0.0	-	43.1	0.2	0.3	1.0	0.0	-	1.5	20.3	0.2	4.5	0.0	-	25.1	-
Motorcycles	0	33	0	0	-	33	0	34	2	0	-	36	0	0	1	0	-	1	1	0	1	0	-	2	72
% Motorcycles	0.0	1.3	0.0	-	-	1.1	0.0	1.7	0.1	-	-	0.9	0.0	0.0	1.0	-	-	0.7	0.1	0.0	0.2	-	-	0.1	0.8
Cars & Light Goods	370	2420	26	0	-	2816	73	1980	1983	0	-	4036	16	28	98	0	-	142	1920	20	429	0	-	2369	9363
% Cars & Light Goods	98.9	97.7	92.9	-	-	97.8	100.0	97.5	99.4	-	-	98.5	100.0	100.0	99.0	-	-	99.3	99.3	100.0	99.5	-	-	99.3	98.5
Buses	1	0	0	0	-	1	0	1	10	0	-	11	0	0	0	0	-	0	10	0	1	0	-	11	23
% Buses	0.3	0.0	0.0	-	-	0.0	0.0	0.0	0.5	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.5	0.0	0.2	-	-	0.5	0.2
Single-Unit Trucks	3	16	1	0	-	20	0	11	0	0	-	11	0	0	0	0	-	0	3	0	0	0	-	3	34
% Single-Unit Trucks	0.8	0.6	3.6	-	-	0.7	0.0	0.5	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.2	0.0	0.0	-	-	0.1	0.4
Articulated Trucks	0	8	0	0	-	8	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	12
% Articulated Trucks	0.0	0.3	0.0	-	-	0.3	0.0	0.2	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	3.6	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cdowness@pts1.com

Count Name: Highway 7A & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 3



Turning Movement Data Plot

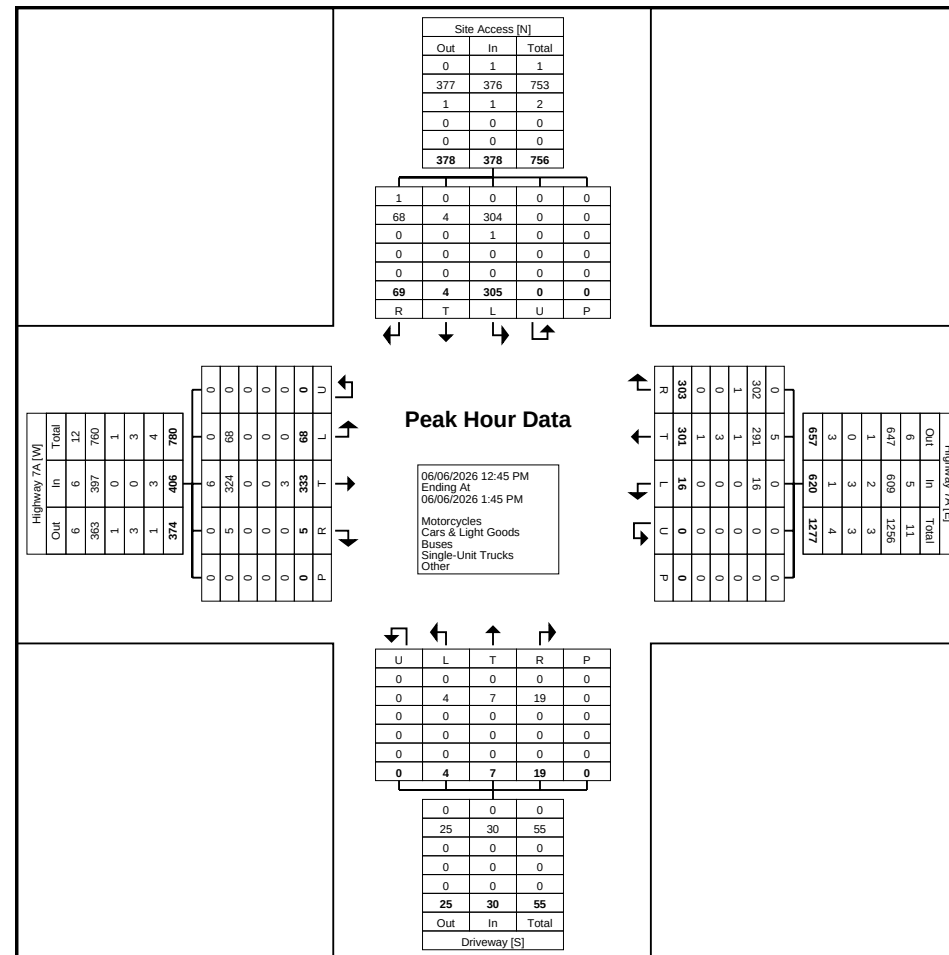
Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:45 PM	14	88	2	0	0	104	10	63	83	0	0	156	3	2	5	0	0	10	70	1	14	0	0	85	355
1:00 PM	15	81	1	0	0	97	4	75	70	0	0	149	0	2	5	0	0	7	82	2	19	0	0	103	356
1:15 PM	20	79	2	0	0	101	1	78	69	0	0	148	1	2	7	0	0	10	79	0	21	0	0	100	359
1:30 PM	19	85	0	0	0	104	1	85	81	0	0	167	0	1	2	0	0	3	74	1	15	0	0	90	364
Total	68	333	5	0	0	406	16	301	303	0	0	620	4	7	19	0	0	30	305	4	69	0	0	378	1434
Approach %	16.7	82.0	1.2	0.0	-	-	2.6	48.5	48.9	0.0	-	-	13.3	23.3	63.3	0.0	-	-	80.7	1.1	18.3	0.0	-	-	-
Total %	4.7	23.2	0.3	0.0	-	28.3	1.1	21.0	21.1	0.0	-	43.2	0.3	0.5	1.3	0.0	-	2.1	21.3	0.3	4.8	0.0	-	26.4	-
PHF	0.850	0.946	0.625	0.000	-	0.976	0.400	0.885	0.913	0.000	-	0.928	0.333	0.875	0.679	0.000	-	0.750	0.930	0.500	0.821	0.000	-	0.917	0.985
Motorcycles	0	6	0	0	-	6	0	5	0	0	-	5	0	0	0	0	-	0	0	0	1	0	-	1	12
% Motorcycles	0.0	1.8	0.0	-	-	1.5	0.0	1.7	0.0	-	-	0.8	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.4	-	-	0.3	0.8
Cars & Light Goods	68	324	5	0	-	397	16	291	302	0	-	609	4	7	19	0	-	30	304	4	68	0	-	376	1412
% Cars & Light Goods	100.0	97.3	100.0	-	-	97.8	100.0	96.7	99.7	-	-	98.2	100.0	100.0	100.0	-	-	100.0	99.7	100.0	98.6	-	-	99.5	98.5
Buses	0	0	0	0	-	0	0	1	1	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.3	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.3	0.0	0.0	-	-	0.3	0.2
Single-Unit Trucks	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Articulated Trucks	0	3	0	0	-	3	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	4
% Articulated Trucks	0.0	0.9	0.0	-	-	0.7	0.0	0.3	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cdowness@pts1.com

Count Name: Highway 7A & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 5



Turning Movement Peak Hour Data Plot (12:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Highway 7A & Site Access -
Sunday
Site Code: 260084
Start Date: 06/07/2026
Page No: 1

Turning Movement Data

Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	3	35	1	0	0	39	1	24	27	0	0	52	1	0	0	0	0	1	17	0	2	0	0	19	111
9:15 AM	10	63	0	0	0	73	0	42	32	0	0	74	1	1	0	0	0	2	24	1	6	0	0	31	180
9:30 AM	7	50	1	0	0	58	1	47	33	0	0	81	0	0	0	0	0	0	25	0	4	0	0	29	168
9:45 AM	7	61	1	0	0	69	2	37	38	0	0	77	0	1	3	0	0	4	28	0	6	0	0	34	184
Hourly Total	27	209	3	0	0	239	4	150	130	0	0	284	2	2	3	0	0	7	94	1	18	0	0	113	643
10:00 AM	6	75	0	0	0	81	1	56	49	0	0	106	0	1	1	0	0	2	28	0	10	0	1	38	227
10:15 AM	12	71	3	0	0	86	3	55	55	0	0	113	2	0	3	0	1	5	51	0	13	0	0	64	268
10:30 AM	11	55	0	0	0	66	1	55	58	0	0	114	1	0	2	0	0	3	47	1	6	0	0	54	237
10:45 AM	4	80	0	0	0	84	2	59	61	0	0	122	0	2	1	0	0	3	51	1	12	0	1	64	273
Hourly Total	33	281	3	0	0	317	7	225	223	0	0	455	3	3	7	0	1	13	177	2	41	0	2	220	1005
11:00 AM	15	59	0	0	0	74	0	61	65	0	0	126	1	0	2	0	0	3	58	0	10	0	0	68	271
11:15 AM	9	71	1	0	0	81	2	80	72	0	0	154	0	0	2	0	0	2	54	0	9	0	0	63	300
11:30 AM	16	77	0	0	0	93	1	88	50	0	0	139	1	0	2	0	0	3	77	0	13	0	0	90	325
11:45 AM	10	97	0	0	0	107	0	74	38	0	0	112	0	0	0	0	0	0	52	0	12	0	0	64	283
Hourly Total	50	304	1	0	0	355	3	303	225	0	0	531	2	0	6	0	0	8	241	0	44	0	0	285	1179
12:00 PM	14	89	2	0	0	105	1	58	59	0	0	118	0	1	0	0	0	1	52	1	11	0	0	64	288
12:15 PM	18	86	0	0	0	104	2	73	70	0	0	145	0	1	1	0	0	2	58	0	11	0	0	69	320
12:30 PM	14	101	1	0	0	116	0	87	66	0	0	153	0	2	2	0	0	4	73	1	10	0	0	84	357
12:45 PM	8	101	2	0	0	111	3	73	61	0	0	137	0	1	5	0	0	6	68	1	17	0	0	86	340
Hourly Total	54	377	5	0	0	436	6	291	256	0	0	553	0	5	8	0	0	13	251	3	49	0	0	303	1305
1:00 PM	15	90	1	0	0	106	1	76	72	0	0	149	2	1	2	0	0	5	58	0	14	0	0	72	332
1:15 PM	16	82	1	0	0	99	0	78	72	0	0	150	0	0	0	0	0	0	65	0	14	0	0	79	328
1:30 PM	13	73	0	0	0	86	3	57	65	0	0	125	0	0	3	0	0	3	73	2	19	0	0	94	308
1:45 PM	8	93	0	0	0	101	1	80	60	0	0	141	1	0	1	0	0	2	77	0	14	0	0	91	335
Hourly Total	52	338	2	0	0	392	5	291	269	0	0	565	3	1	6	0	0	10	273	2	61	0	0	336	1303
2:00 PM	15	101	0	0	0	116	1	73	64	0	0	138	0	1	0	0	0	1	50	0	12	0	0	62	317
2:15 PM	14	78	0	0	0	92	2	68	47	0	0	117	0	1	2	0	0	3	53	1	21	0	0	75	287
2:30 PM	12	87	0	0	0	99	3	70	65	0	0	138	1	0	1	0	0	2	56	0	11	0	0	67	306
2:45 PM	18	70	1	0	0	89	0	84	50	0	0	134	1	0	0	0	0	1	62	0	16	0	0	78	302
Hourly Total	59	336	1	0	0	396	6	295	226	0	0	527	2	2	3	0	0	7	221	1	60	0	0	282	1212
3:00 PM	14	112	1	0	0	127	1	94	38	0	0	133	0	0	2	0	0	2	60	2	12	0	0	74	336
3:15 PM	17	78	0	0	0	95	0	81	43	0	0	124	0	0	3	0	0	3	61	0	6	0	0	67	289
3:30 PM	16	84	0	0	0	100	2	76	45	0	0	123	0	0	1	0	0	1	57	2	10	0	0	69	293
3:45 PM	16	84	1	0	0	101	1	83	41	0	0	125	0	0	5	0	0	5	66	0	12	0	0	78	309
Hourly Total	63	358	2	0	0	423	4	334	167	0	0	505	0	0	11	0	0	11	244	4	40	0	0	288	1227

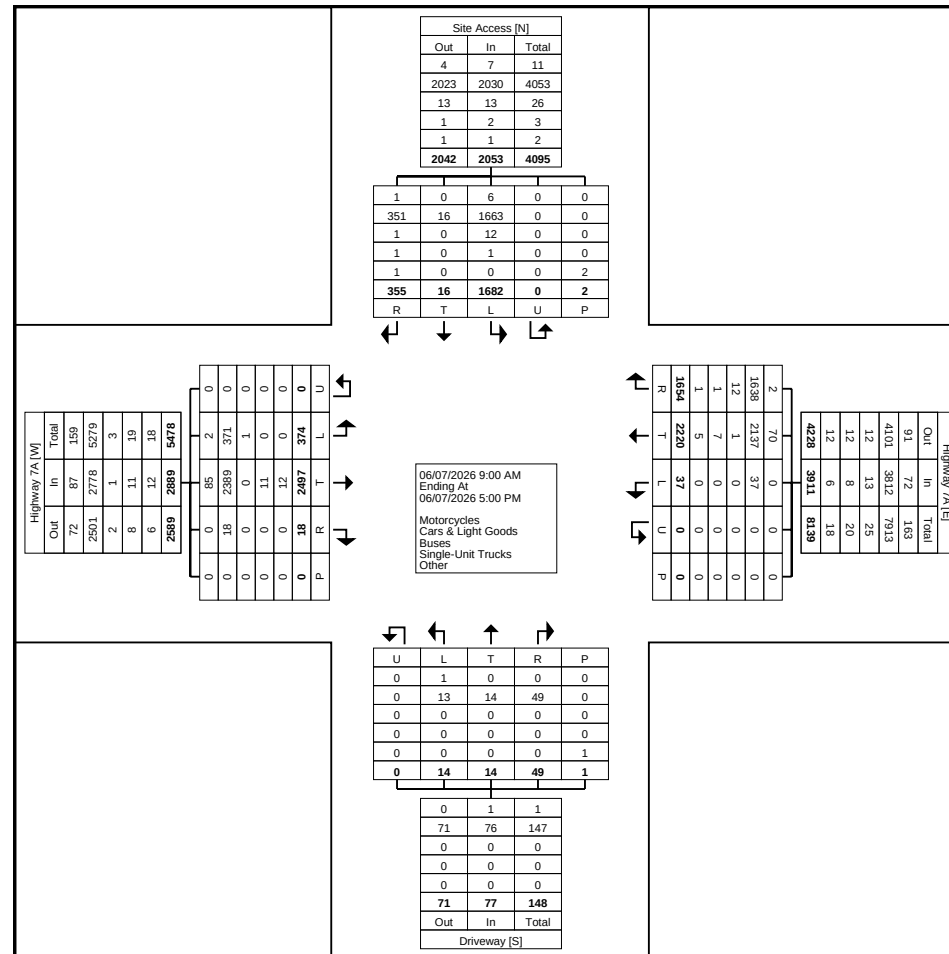
4:00 PM	7	79	1	0	0	87	0	87	40	0	0	127	0	0	2	0	0	2	56	2	9	0	0	67	283
4:15 PM	9	74	0	0	0	83	1	94	40	0	0	135	1	1	0	0	0	2	35	0	13	0	0	48	268
4:30 PM	12	79	0	0	0	91	1	66	35	0	0	102	1	0	2	0	0	3	47	1	12	0	0	60	256
4:45 PM	8	62	0	0	0	70	0	84	43	0	0	127	0	0	1	0	0	1	43	0	8	0	0	51	249
Hourly Total	36	294	1	0	0	331	2	331	158	0	0	491	2	1	5	0	0	8	181	3	42	0	0	226	1056
Grand Total	374	2497	18	0	0	2889	37	2220	1654	0	0	3911	14	14	49	0	1	77	1682	16	355	0	2	2053	8930
Approach %	12.9	86.4	0.6	0.0	-	-	0.9	56.8	42.3	0.0	-	-	18.2	18.2	63.6	0.0	-	-	81.9	0.8	17.3	0.0	-	-	-
Total %	4.2	28.0	0.2	0.0	-	32.4	0.4	24.9	18.5	0.0	-	43.8	0.2	0.2	0.5	0.0	-	0.9	18.8	0.2	4.0	0.0	-	23.0	-
Motorcycles	2	85	0	0	-	87	0	70	2	0	-	72	1	0	0	0	-	1	6	0	1	0	-	7	167
% Motorcycles	0.5	3.4	0.0	-	-	3.0	0.0	3.2	0.1	-	-	1.8	7.1	0.0	0.0	-	-	1.3	0.4	0.0	0.3	-	-	0.3	1.9
Cars & Light Goods	371	2389	18	0	-	2778	37	2137	1638	0	-	3812	13	14	49	0	-	76	1663	16	351	0	-	2030	8696
% Cars & Light Goods	99.2	95.7	100.0	-	-	96.2	100.0	96.3	99.0	-	-	97.5	92.9	100.0	100.0	-	-	98.7	98.9	100.0	98.9	-	-	98.9	97.4
Buses	1	0	0	0	-	1	0	1	12	0	-	13	0	0	0	0	-	0	12	0	1	0	-	13	27
% Buses	0.3	0.0	0.0	-	-	0.0	0.0	0.0	0.7	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.7	0.0	0.3	-	-	0.6	0.3
Single-Unit Trucks	0	11	0	0	-	11	0	7	1	0	-	8	0	0	0	0	-	0	1	0	1	0	-	2	21
% Single-Unit Trucks	0.0	0.4	0.0	-	-	0.4	0.0	0.3	0.1	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1	0.0	0.3	-	-	0.1	0.2
Articulated Trucks	0	8	0	0	-	8	0	2	0	0	-	2	0	0	0	0	-	0	0	0	1	0	-	1	11
% Articulated Trucks	0.0	0.3	0.0	-	-	0.3	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.3	-	-	0.0	0.1
Bicycles on Road	0	4	0	0	-	4	0	3	1	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	8
% Bicycles on Road	0.0	0.2	0.0	-	-	0.1	0.0	0.1	0.1	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Highway 7A & Site Access -
Sunday
Site Code: 260084
Start Date: 06/07/2026
Page No: 3



Turning Movement Data Plot

Start Time	Highway 7A Eastbound						Highway 7A Westbound						Driveway Northbound						Site Access Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:30 PM	14	101	1	0	0	116	0	87	66	0	0	153	0	2	2	0	0	4	73	1	10	0	0	84	357
12:45 PM	8	101	2	0	0	111	3	73	61	0	0	137	0	1	5	0	0	6	68	1	17	0	0	86	340
1:00 PM	15	90	1	0	0	106	1	76	72	0	0	149	2	1	2	0	0	5	58	0	14	0	0	72	332
1:15 PM	16	82	1	0	0	99	0	78	72	0	0	150	0	0	0	0	0	0	65	0	14	0	0	79	328
Total	53	374	5	0	0	432	4	314	271	0	0	589	2	4	9	0	0	15	264	2	55	0	0	321	1357
Approach %	12.3	86.6	1.2	0.0	-	-	0.7	53.3	46.0	0.0	-	-	13.3	26.7	60.0	0.0	-	-	82.2	0.6	17.1	0.0	-	-	-
Total %	3.9	27.6	0.4	0.0	-	31.8	0.3	23.1	20.0	0.0	-	43.4	0.1	0.3	0.7	0.0	-	1.1	19.5	0.1	4.1	0.0	-	23.7	-
PHF	0.828	0.926	0.625	0.000	-	0.931	0.333	0.902	0.941	0.000	-	0.962	0.250	0.500	0.450	0.000	-	0.625	0.904	0.500	0.809	0.000	-	0.933	0.950
Motorcycles	0	13	0	0	-	13	0	12	0	0	-	12	0	0	0	0	-	0	2	0	0	0	-	2	27
% Motorcycles	0.0	3.5	0.0	-	-	3.0	0.0	3.8	0.0	-	-	2.0	0.0	0.0	0.0	-	-	0.0	0.8	0.0	0.0	-	-	0.6	2.0
Cars & Light Goods	52	359	5	0	-	416	4	299	270	0	-	573	2	4	9	0	-	15	259	2	55	0	-	316	1320
% Cars & Light Goods	98.1	96.0	100.0	-	-	96.3	100.0	95.2	99.6	-	-	97.3	100.0	100.0	100.0	-	-	100.0	98.1	100.0	100.0	-	-	98.4	97.3
Buses	1	0	0	0	-	1	0	1	1	0	-	2	0	0	0	0	-	0	2	0	0	0	-	2	5
% Buses	1.9	0.0	0.0	-	-	0.2	0.0	0.3	0.4	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.8	0.0	0.0	-	-	0.6	0.4
Single-Unit Trucks	0	1	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	4
% Single-Unit Trucks	0.0	0.3	0.0	-	-	0.2	0.0	0.6	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.4	0.0	0.0	-	-	0.3	0.3
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.3	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Turning Movement Peak Hour Data Plot (12:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 1

Turning Movement Data

Start Time	Scugog Line 6 Eastbound					Scugog Line 6 Westbound					Site Access Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	18	4	0	0	22	1	26	0	0	27	1	2	0	0	3	52
7:15 AM	11	4	0	0	15	0	50	0	0	50	1	0	0	0	1	66
7:30 AM	14	1	0	0	15	1	33	0	0	34	3	1	0	0	4	53
7:45 AM	18	6	0	0	24	0	41	0	0	41	5	0	0	0	5	70
Hourly Total	61	15	0	0	76	2	150	0	0	152	10	3	0	0	13	241
8:00 AM	8	4	0	0	12	0	38	0	0	38	5	0	0	0	5	55
8:15 AM	12	11	0	0	23	0	33	0	0	33	2	0	0	0	2	58
8:30 AM	12	6	0	0	18	1	20	0	0	21	1	0	0	1	1	40
8:45 AM	20	6	0	0	26	0	26	0	0	26	6	1	0	0	7	59
Hourly Total	52	27	0	0	79	1	117	0	0	118	14	1	0	1	15	212
9:00 AM	15	10	0	0	25	1	29	0	0	30	3	0	0	0	3	58
9:15 AM	17	6	0	0	23	1	29	0	0	30	5	0	0	0	5	58
9:30 AM	18	2	0	0	20	5	22	0	0	27	5	1	0	0	6	53
9:45 AM	21	6	0	0	27	1	23	0	0	24	4	1	0	0	5	56
Hourly Total	71	24	0	0	95	8	103	0	0	111	17	2	0	0	19	225
10:00 AM	21	14	0	0	35	2	28	0	0	30	6	1	0	0	7	72
10:15 AM	17	10	0	0	27	2	17	0	0	19	4	0	0	0	4	50
10:30 AM	20	12	0	0	32	4	18	0	0	22	11	2	0	0	13	67
10:45 AM	16	12	0	0	28	2	24	0	0	26	13	2	0	0	15	69
Hourly Total	74	48	0	0	122	10	87	0	0	97	34	5	0	0	39	258
11:00 AM	13	10	0	0	23	4	18	0	0	22	3	3	0	0	6	51
11:15 AM	17	9	0	0	26	4	16	0	0	20	4	0	0	0	4	50
11:30 AM	16	14	0	0	30	1	24	0	0	25	6	3	0	0	9	64
11:45 AM	23	15	0	0	38	5	21	0	0	26	7	1	0	0	8	72
Hourly Total	69	48	0	0	117	14	79	0	0	93	20	7	0	0	27	237
12:00 PM	28	14	0	0	42	2	36	0	0	38	10	1	0	0	11	91
12:15 PM	19	8	0	0	27	2	26	0	0	28	12	2	0	0	14	69
12:30 PM	24	18	0	0	42	3	27	0	0	30	12	2	0	0	14	86
12:45 PM	12	10	0	0	22	0	28	0	0	28	9	1	0	0	10	60
Hourly Total	83	50	0	0	133	7	117	0	0	124	43	6	0	0	49	306
1:00 PM	19	11	0	0	30	3	22	0	0	25	9	1	0	0	10	65
1:15 PM	19	11	0	0	30	1	21	0	0	22	13	1	0	0	14	66
1:30 PM	12	11	0	0	23	3	31	0	0	34	16	0	0	0	16	73
1:45 PM	16	12	0	0	28	0	31	0	0	31	9	3	0	0	12	71
Hourly Total	66	45	0	0	111	7	105	0	0	112	47	5	0	0	52	275
2:00 PM	19	10	0	0	29	1	19	0	0	20	10	2	0	0	12	61

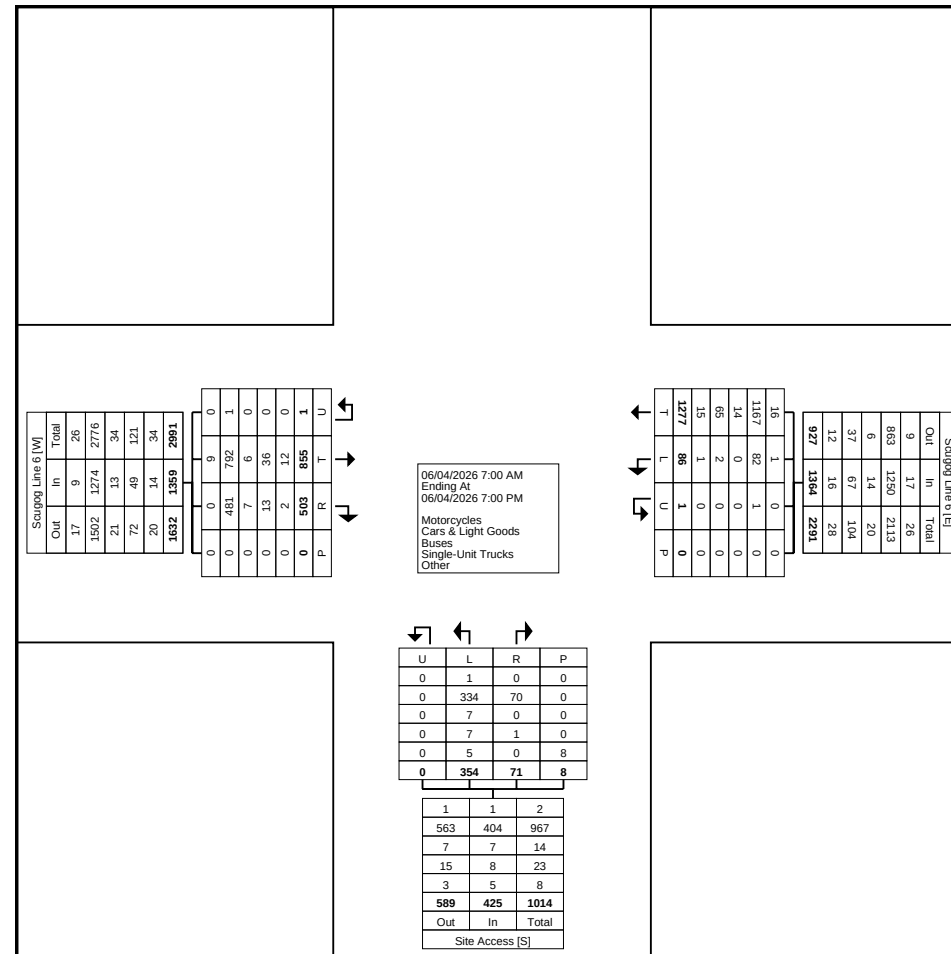
2:15 PM 2:30 PM 2:45 PM	10	10	0	0	20	2	21	0	0	23	12	1	0	0	13	56
	10	13	0	0	23	1	22	0	0	23	9	3	0	0	12	58
	24	16	0	0	40	2	37	0	0	39	8	1	0	0	9	88
Hourly Total	63	49	0	0	112	6	99	0	0	105	39	7	0	0	46	263
3:00 PM 3:15 PM 3:30 PM 3:45 PM	17	15	0	0	32	3	27	0	0	30	6	2	0	0	8	70
	12	11	0	0	23	4	18	0	0	22	7	1	0	0	8	53
	21	11	0	0	32	1	31	0	0	32	5	4	0	1	9	73
	17	12	0	0	29	0	36	1	0	37	8	3	0	0	11	77
Hourly Total	67	49	0	0	116	8	112	1	0	121	26	10	0	1	36	273
4:00 PM 4:15 PM 4:30 PM 4:45 PM	38	38	0	0	76	4	18	0	0	22	8	3	0	1	11	109
	25	12	0	0	37	3	29	0	0	32	12	4	0	0	16	85
	23	18	0	0	41	3	45	0	0	48	16	0	0	0	16	105
	19	13	0	0	32	3	28	0	0	31	6	3	0	0	9	72
Hourly Total	105	81	0	0	186	13	120	0	0	133	42	10	0	1	52	371
5:00 PM 5:15 PM 5:30 PM 5:45 PM	25	9	0	0	34	2	24	0	0	26	12	2	0	0	14	74
	15	11	0	0	26	1	32	0	0	33	7	0	0	3	7	66
	16	7	0	0	23	0	28	0	0	28	8	2	0	2	10	61
	17	13	1	0	31	2	20	0	0	22	8	3	0	0	11	64
Hourly Total	73	40	1	0	114	5	104	0	0	109	35	7	0	5	42	265
6:00 PM 6:15 PM 6:30 PM 6:45 PM	27	3	0	0	30	4	19	0	0	23	10	3	0	0	13	66
	13	10	0	0	23	0	25	0	0	25	4	3	0	0	7	55
	19	7	0	0	26	1	23	0	0	24	6	1	0	0	7	57
	12	7	0	0	19	0	17	0	0	17	7	1	0	0	8	44
Hourly Total	71	27	0	0	98	5	84	0	0	89	27	8	0	0	35	222
Grand Total	855	503	1	0	1359	86	1277	1	0	1364	354	71	0	8	425	3148
Approach %	62.9	37.0	0.1	-	-	6.3	93.6	0.1	-	-	83.3	16.7	0.0	-	-	-
Total %	27.2	16.0	0.0	-	43.2	2.7	40.6	0.0	-	43.3	11.2	2.3	0.0	-	13.5	-
Motorcycles	9	0	0	-	9	1	16	0	-	17	1	0	0	-	1	27
% Motorcycles	1.1	0.0	0.0	-	0.7	1.2	1.3	0.0	-	1.2	0.3	0.0	-	-	0.2	0.9
Cars & Light Goods	792	481	1	-	1274	82	1167	1	-	1250	334	70	0	-	404	2928
% Cars & Light Goods	92.6	95.6	100.0	-	93.7	95.3	91.4	100.0	-	91.6	94.4	98.6	-	-	95.1	93.0
Buses	6	7	0	-	13	0	14	0	-	14	7	0	0	-	7	34
% Buses	0.7	1.4	0.0	-	1.0	0.0	1.1	0.0	-	1.0	2.0	0.0	-	-	1.6	1.1
Single-Unit Trucks	36	13	0	-	49	2	65	0	-	67	7	1	0	-	8	124
% Single-Unit Trucks	4.2	2.6	0.0	-	3.6	2.3	5.1	0.0	-	4.9	2.0	1.4	-	-	1.9	3.9
Articulated Trucks	9	1	0	-	10	0	9	0	-	9	5	0	0	-	5	24
% Articulated Trucks	1.1	0.2	0.0	-	0.7	0.0	0.7	0.0	-	0.7	1.4	0.0	-	-	1.2	0.8
Bicycles on Road	3	1	0	-	4	1	6	0	-	7	0	0	0	-	0	11
% Bicycles on Road	0.4	0.2	0.0	-	0.3	1.2	0.5	0.0	-	0.5	0.0	0.0	-	-	0.0	0.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	62.5	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	37.5	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Scugog Line 6 & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 4

Turning Movement Peak Hour Data (3:45 PM)

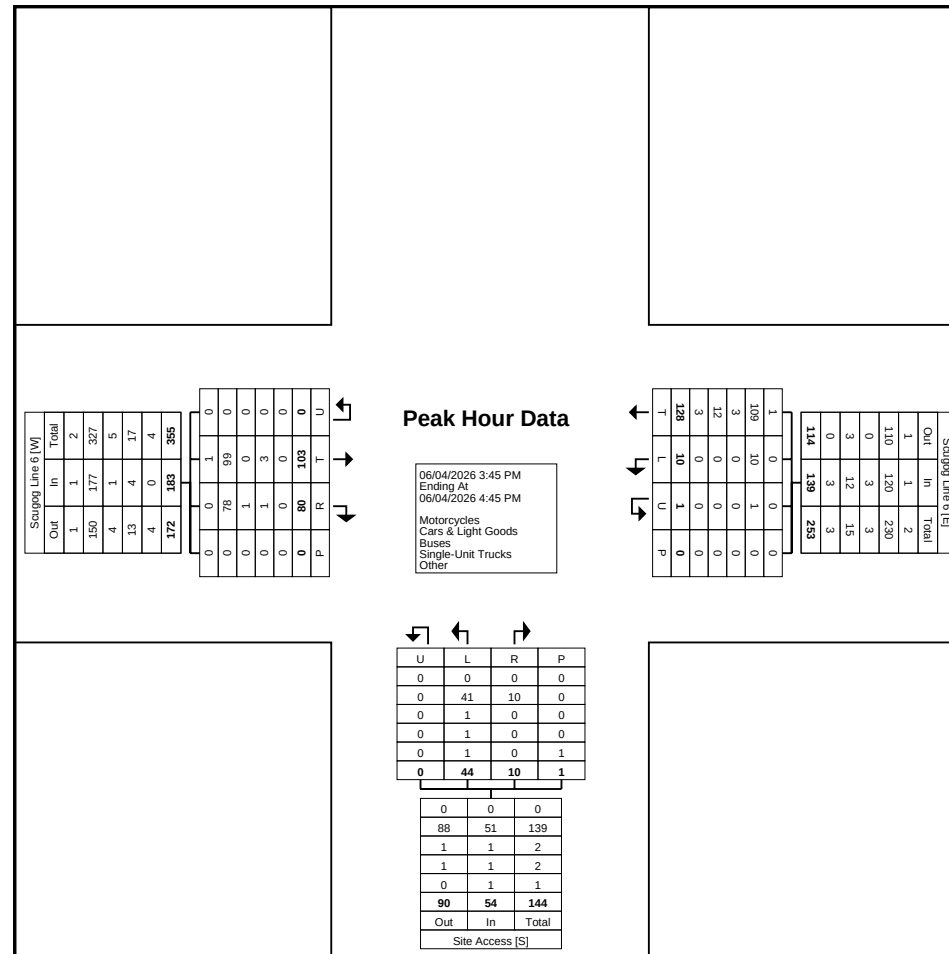
Start Time	Scugog Line 6 Eastbound					Scugog Line 6 Westbound					Site Access Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
3:45 PM	17	12	0	0	29	0	36	1	0	37	8	3	0	0	11	77
4:00 PM	38	38	0	0	76	4	18	0	0	22	8	3	0	1	11	109
4:15 PM	25	12	0	0	37	3	29	0	0	32	12	4	0	0	16	85
4:30 PM	23	18	0	0	41	3	45	0	0	48	16	0	0	0	16	105
Total	103	80	0	0	183	10	128	1	0	139	44	10	0	1	54	376
Approach %	56.3	43.7	0.0	-	-	7.2	92.1	0.7	-	-	81.5	18.5	0.0	-	-	-
Total %	27.4	21.3	0.0	-	48.7	2.7	34.0	0.3	-	37.0	11.7	2.7	0.0	-	14.4	-
PHF	0.678	0.526	0.000	-	0.602	0.625	0.711	0.250	-	0.724	0.688	0.625	0.000	-	0.844	0.862
Motorcycles	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Motorcycles	1.0	0.0	-	-	0.5	0.0	0.8	0.0	-	0.7	0.0	0.0	-	-	0.0	0.5
Cars & Light Goods	99	78	0	-	177	10	109	1	-	120	41	10	0	-	51	348
% Cars & Light Goods	96.1	97.5	-	-	96.7	100.0	85.2	100.0	-	86.3	93.2	100.0	-	-	94.4	92.6
Buses	0	1	0	-	1	0	3	0	-	3	1	0	0	-	1	5
% Buses	0.0	1.3	-	-	0.5	0.0	2.3	0.0	-	2.2	2.3	0.0	-	-	1.9	1.3
Single-Unit Trucks	3	1	0	-	4	0	12	0	-	12	1	0	0	-	1	17
% Single-Unit Trucks	2.9	1.3	-	-	2.2	0.0	9.4	0.0	-	8.6	2.3	0.0	-	-	1.9	4.5
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	0.7	2.3	0.0	-	-	1.9	0.5
Bicycles on Road	0	0	0	-	0	0	2	0	-	2	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	1.6	0.0	-	1.4	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Thursday
Site Code: 260084
Start Date: 06/04/2026
Page No: 5



Turning Movement Peak Hour Data Plot (3:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 1

Turning Movement Data

Start Time	Scugog Line 6 Eastbound					Scugog Line 6 Westbound					Site Access Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
9:00 AM	12	6	0	0	18	0	13	0	0	13	2	0	0	0	2	33
9:15 AM	11	9	0	0	20	2	16	0	0	18	4	2	0	0	6	44
9:30 AM	12	5	0	0	17	1	16	0	0	17	4	0	0	0	4	38
9:45 AM	19	10	0	0	29	2	20	0	0	22	6	0	0	0	6	57
Hourly Total	54	30	0	0	84	5	65	0	0	70	16	2	0	0	18	172
10:00 AM	15	6	0	0	21	1	16	0	0	17	6	1	0	0	7	45
10:15 AM	15	10	0	0	25	4	12	0	0	16	8	1	0	0	9	50
10:30 AM	7	7	0	0	14	2	16	0	0	18	6	3	0	0	9	41
10:45 AM	7	2	0	0	9	1	21	0	0	22	6	2	0	0	8	39
Hourly Total	44	25	0	0	69	8	65	0	0	73	26	7	0	0	33	175
11:00 AM	19	5	0	0	24	2	20	0	0	22	5	1	0	0	6	52
11:15 AM	22	12	0	0	34	6	24	0	0	30	7	2	0	0	9	73
11:30 AM	15	14	0	0	29	2	17	0	0	19	6	2	0	0	8	56
11:45 AM	18	14	0	0	32	3	16	0	0	19	10	2	0	1	12	63
Hourly Total	74	45	0	0	119	13	77	0	0	90	28	7	0	1	35	244
12:00 PM	18	8	0	0	26	1	16	0	0	17	8	4	0	0	12	55
12:15 PM	14	18	0	0	32	4	23	0	0	27	9	3	0	0	12	71
12:30 PM	20	7	0	0	27	2	18	0	0	20	10	4	0	0	14	61
12:45 PM	10	12	0	0	22	3	22	0	0	25	4	3	0	0	7	54
Hourly Total	62	45	0	0	107	10	79	0	0	89	31	14	0	0	45	241
1:00 PM	25	16	0	0	41	1	12	0	0	13	11	2	0	0	13	67
1:15 PM	20	9	0	0	29	6	24	0	0	30	15	6	0	0	21	80
1:30 PM	16	8	0	0	24	5	27	0	0	32	8	4	0	0	12	68
1:45 PM	13	7	0	0	20	4	19	1	0	24	15	4	0	0	19	63
Hourly Total	74	40	0	0	114	16	82	1	0	99	49	16	0	0	65	278
2:00 PM	10	4	0	0	14	3	14	0	0	17	14	3	0	0	17	48
2:15 PM	16	6	0	0	22	2	16	0	0	18	4	4	0	0	8	48
2:30 PM	23	6	0	0	29	2	21	0	0	23	12	1	0	0	13	65
2:45 PM	10	7	0	0	17	9	17	0	0	26	13	2	0	0	15	58
Hourly Total	59	23	0	0	82	16	68	0	0	84	43	10	0	0	53	219
3:00 PM	14	12	0	0	26	0	13	0	0	13	8	2	0	0	10	49
3:15 PM	20	7	0	0	27	2	14	0	0	16	4	2	0	0	6	49
3:30 PM	14	13	0	0	27	1	16	0	0	17	6	3	0	0	9	53
3:45 PM	8	4	0	0	12	0	15	0	0	15	5	1	0	0	6	33
Hourly Total	56	36	0	0	92	3	58	0	0	61	23	8	0	0	31	184
4:00 PM	17	11	0	0	28	3	18	0	0	21	5	2	0	0	7	56

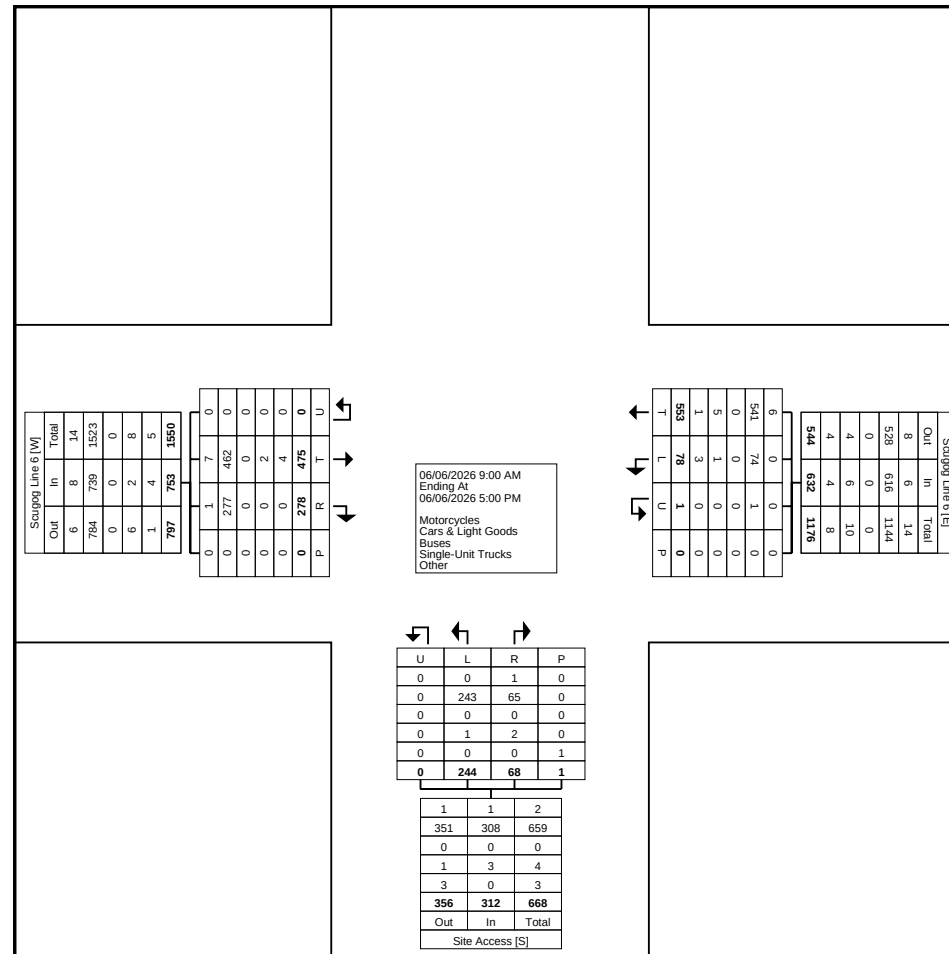
[illegible]



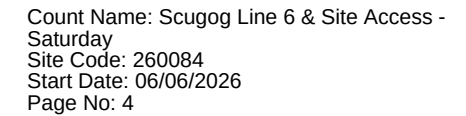
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Scugog Line 6 & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 3



Turning Movement Data Plot

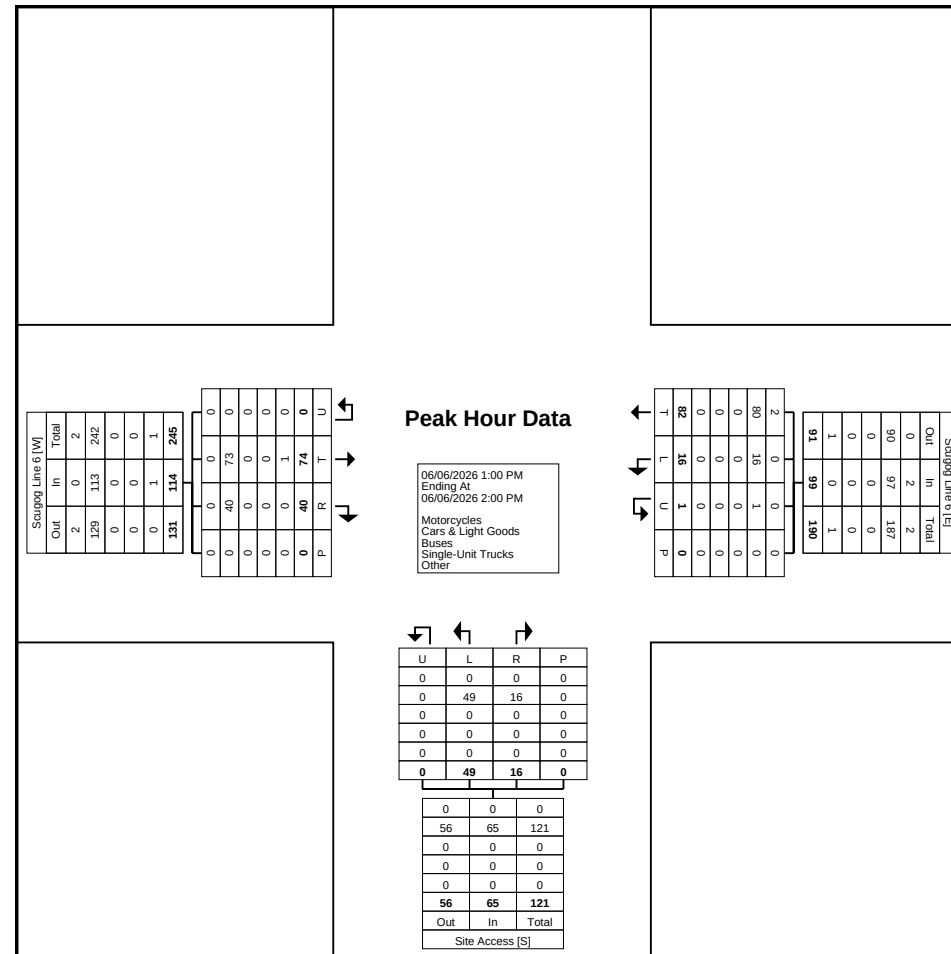
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Saturday
Site Code: 260084
Start Date: 06/06/2026
Page No: 5



Turning Movement Peak Hour Data Plot (1:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Sunday
Site Code: 260084
Start Date: 06/07/2026
Page No: 1

Turning Movement Data

Start Time	Scugog Line 6 Eastbound					Scugog Line 6 Westbound					Site Access Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
9:00 AM	10	6	0	0	16	0	10	0	0	10	1	0	0	0	1	27
9:15 AM	10	5	0	0	15	1	16	0	0	17	2	1	0	0	3	35
9:30 AM	10	1	0	0	11	0	8	0	0	8	0	0	0	0	0	19
9:45 AM	19	3	0	0	22	0	8	0	0	8	3	0	0	0	3	33
Hourly Total	49	15	0	0	64	1	42	0	0	43	6	1	0	0	7	114
10:00 AM	16	10	0	0	26	3	14	0	0	17	4	0	0	0	4	47
10:15 AM	19	6	0	0	25	2	15	0	0	17	6	0	0	0	6	48
10:30 AM	15	6	0	0	21	2	14	0	0	16	8	0	0	0	8	45
10:45 AM	18	7	0	0	25	4	22	0	0	26	7	2	0	1	9	60
Hourly Total	68	29	0	0	97	11	65	0	0	76	25	2	0	1	27	200
11:00 AM	13	6	0	0	19	0	28	0	0	28	6	1	0	0	7	54
11:15 AM	15	1	0	0	16	3	16	0	0	19	14	1	0	0	15	50
11:30 AM	25	5	0	0	30	3	18	0	0	21	11	0	0	0	11	62
11:45 AM	13	7	0	0	20	7	18	0	0	25	4	2	0	0	6	51
Hourly Total	66	19	0	0	85	13	80	0	0	93	35	4	0	0	39	217
12:00 PM	8	14	0	0	22	1	20	0	0	21	5	0	0	2	5	48
12:15 PM	9	5	0	0	14	4	22	0	0	26	10	0	0	0	10	50
12:30 PM	19	11	0	0	30	3	18	0	0	21	3	4	0	0	7	58
12:45 PM	18	12	0	0	30	2	23	0	0	25	11	4	0	0	15	70
Hourly Total	54	42	0	0	96	10	83	0	0	93	29	8	0	2	37	226
1:00 PM	23	12	0	0	35	4	27	0	0	31	9	1	0	0	10	76
1:15 PM	16	7	0	0	23	2	11	0	0	13	11	2	0	0	13	49
1:30 PM	11	8	0	0	19	3	15	0	0	18	6	3	0	0	9	46
1:45 PM	11	5	0	0	16	5	22	0	0	27	6	0	0	0	6	49
Hourly Total	61	32	0	0	93	14	75	0	0	89	32	6	0	0	38	220
2:00 PM	9	8	0	0	17	2	27	0	0	29	5	3	0	0	8	54
2:15 PM	16	8	0	0	24	1	29	0	0	30	8	3	0	0	11	65
2:30 PM	13	3	0	0	16	5	20	0	0	25	9	3	0	0	12	53
2:45 PM	14	5	0	0	19	0	21	0	0	21	7	2	0	0	9	49
Hourly Total	52	24	0	0	76	8	97	0	0	105	29	11	0	0	40	221
3:00 PM	15	12	0	0	27	4	20	0	0	24	3	3	0	0	6	57
3:15 PM	18	4	0	0	22	1	28	0	0	29	3	2	0	0	5	56
3:30 PM	12	5	0	0	17	3	18	0	0	21	9	1	0	0	10	48
3:45 PM	20	7	0	0	27	1	18	0	0	19	5	0	0	0	5	51
Hourly Total	65	28	0	0	93	9	84	0	0	93	20	6	0	0	26	212
4:00 PM	10	9	0	0	19	0	24	0	0	24	4	3	0	0	7	50

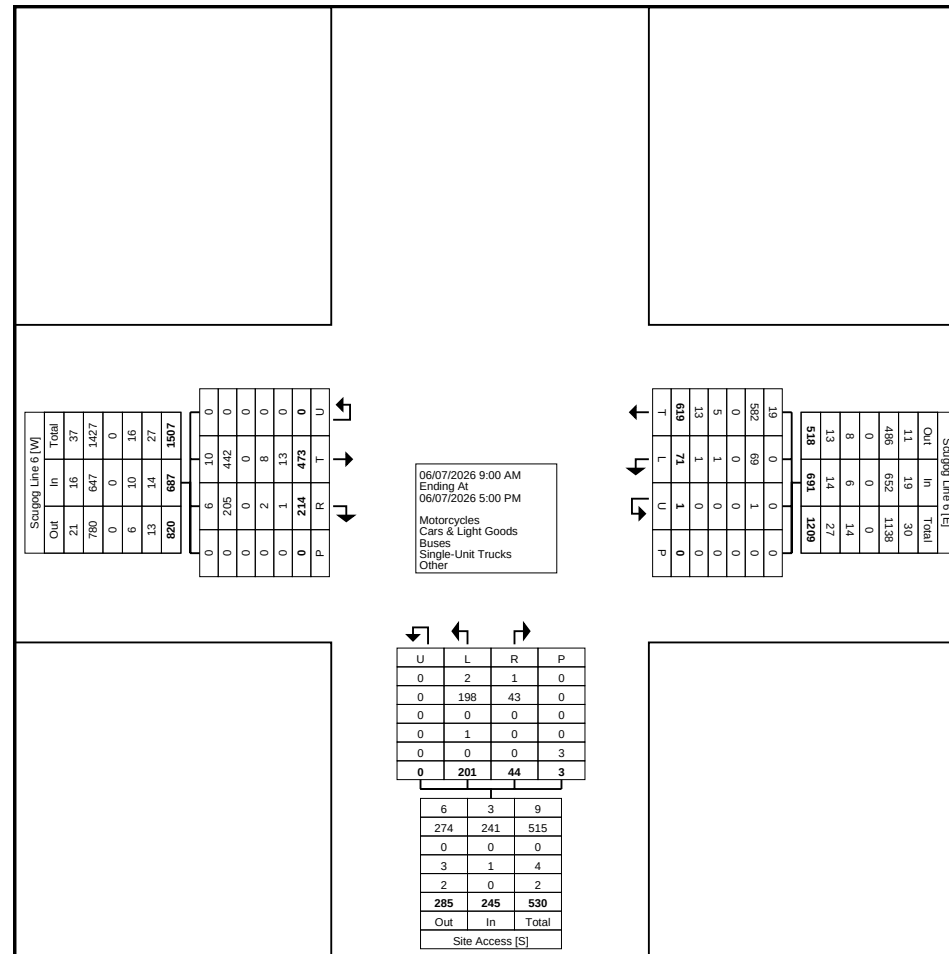
[illegible]



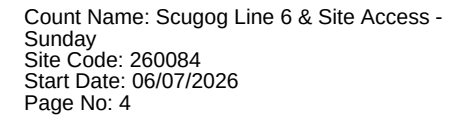
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Sunday
Site Code: 260084
Start Date: 06/07/2026
Page No: 3



Turning Movement Data Plot

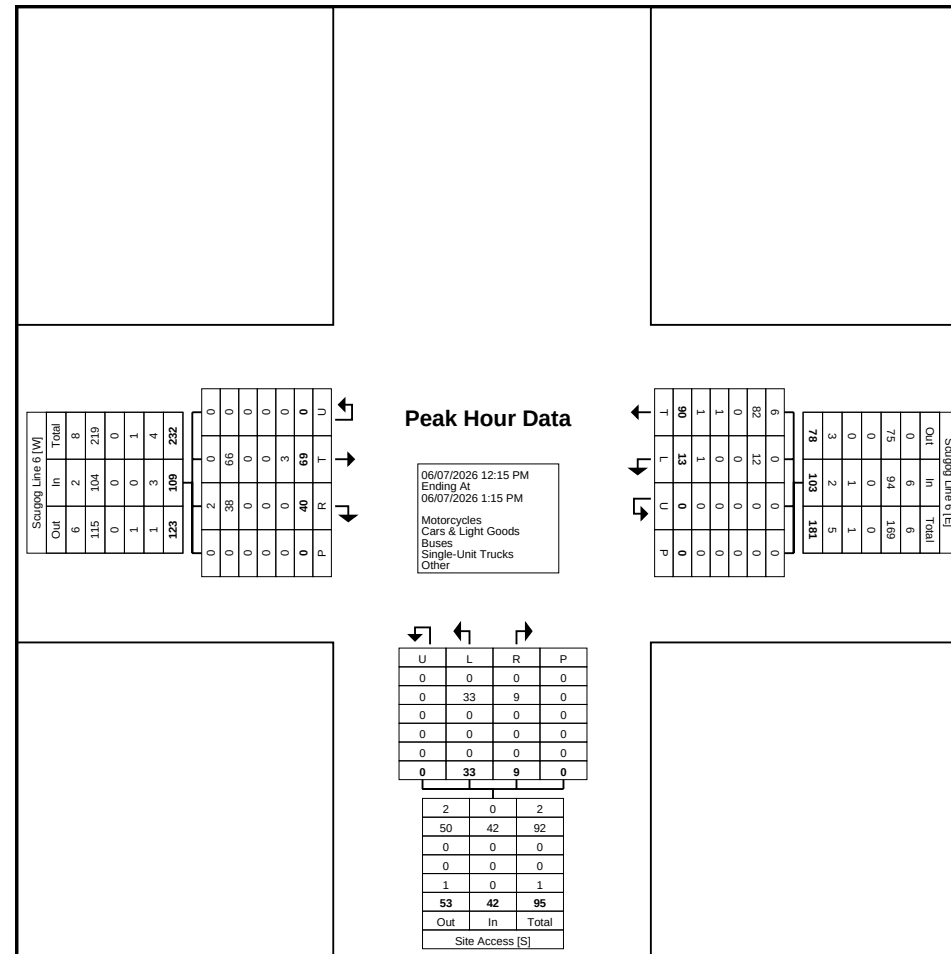
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Scugog Line 6 & Site Access -
Sunday
Site Code: 260084
Start Date: 06/07/2026
Page No: 5



Turning Movement Peak Hour Data Plot (12:15 PM)



INTERSECTION SIGNAL TIMING REPORT

Location

Hwy. 7 and Walmart Entrance

Date

10/29/2019

C&E No.

27570292

Prepared by

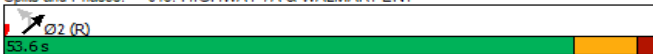
K.Patel

Prepared for

Paradigm Transportation Solutions Limited (PTSL)

AM Peak 6:00-9:00



Phase Number	2	4	6
Movement	NETL	SEL	SWT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	53.6	26.4	53.6
Maximum Split (%)	67.0%	33.0%	67.0%
Minimum Split (s)	29	24	29
Yellow Time (s)	5.1	3.3	5.1
All-Red Time (s)	1.6	2.8	1.6
Minimum Initial (s)	20	10	20
Vehicle Extension (s)	4	3	4
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	11	11	11
Flash Dont Walk (s)	5	5	5
Intersection Summary			
Cycle Length	80		
Control Type	Actuated-Coordinated		
Natural Cycle	55		
Offset: 59.2 (74%), Referenced to phase 2:NETL and 6:SWT, Start of Green			
Splits and Phases: 913: HIGHWAY 7A & WALMART ENT			
			
			

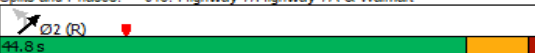
PM/off Peak 9:00-22:00



Phase Number	2	4	5	6
Movement	NETL	SEL	NEL	SWT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	44.8	35.2	10.4	34.4
Maximum Split (%)	56.0%	44.0%	13.0%	43.0%
Minimum Split (s)	29	24	9	29
Yellow Time (s)	5.1	3.3	3	5.1
All-Red Time (s)	1.6	2.8	0	1.6
Minimum Initial (s)	20	10	5	20
Vehicle Extension (s)	4	3	3	4
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	11	11		11
Flash Dont Walk (s)	5	5		5
Intersection Summary				
Cycle Length	80			
Control Type	Actuated-Coordinated			
Natural Cycle	65			
Offset: 10.4 (13%), Referenced to phase 2:NETL and 6:SWT, Start of Green				
Splits and Phases: 913: HIGHWAY 7A & WALMART ENT				
				
				

Weekend Peak 08:00-22:00



Phase Number	2	4	5	6
Movement	NETL	SEL	NEL	SWT
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	C-Max	None	None	C-Max
Maximum Split (s)	44.8	35.2	10.4	34.4
Maximum Split (%)	56.0%	44.0%	13.0%	43.0%
Minimum Split (s)	29	24	9	29
Yellow Time (s)	5.1	3.3	3	5.1
All-Red Time (s)	1.6	2.8	0	1.6
Minimum Initial (s)	20	10	5	20
Vehicle Extension (s)	4	3	3	4
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	11	11		11
Flash Dont Walk (s)	5	5		5
Intersection Summary				
Cycle Length	80			
Control Type	Actuated-Coordinated			
Natural Cycle	65			
Offset: 16 (20%), Referenced to phase 2:NETL and 6:SWT, Start of Green				
Splits and Phases: 913: Highway 7/Highway 7A & Walmart				
				
				

*Please note a concerted effort has been made to ensure the accuracy and completeness of the data provided, however, inadvertent errors or omissions can still occur. Please bring any errors or omissions to the Region's attention.

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
2005	7A			CR	11,200	13,600	13,100	9,450	900	8	0.7	0	0.0
2006	7A			CR	11,300	13,700	13,100	9,550	900	6	0.5	1	0.1
2007	7A			CR	11,600	14,000	14,000	9,750	700	13	1.1	0	0.0
2008	7A			CR	11,200	13,600	13,400	9,450	670	7	0.6	1	0.1
2009	7A			CR	12,000	14,400	13,900	10,200	720	4	0.3	0	0.0
2010	7A			IC	11,900	13,200	13,300	10,600	710	5	0.4	1	0.1
2011	7A			IC	12,400	13,600	14,100	11,100	740	9	0.7	0	0.0
2012	7A			IC	12,600	14,000	13,500	11,200	760	5	0.4	0	0.0
2013	7A			C	12,800	14,100	13,900	11,500	770	14	1.1	0	0.0
2014	7A			C	13,000	14,300	13,900	11,700	780	7	0.5	0	0.0
2015	7A			C	13,200	14,500	14,100	11,900	790	12	0.9	0	0.0
2016	7A			C	13,400	14,700	14,300	12,100	800	14	1.0	1	0.1
2017	7A			C	13,600	14,900	14,800	12,300	820	12	0.9	0	0.0
2018	7A			C	13,800	15,100	15,000	12,500	830	8	0.6	0	0.0
2019	7A			C	14,000	15,300	15,200	12,700	2,400	5	0.4	1	0.1
2021	7A			C	14,400	15,700	15,600	13,100	2,450	11	0.8	1	0.1
2021	7A	HWYS 7 & 12 MANCHESTER END OF HWY											
2021	8	NIAGARA/HAMILTON REG BDY START OF NA	43.0										
2012	8	HWY 5 AND HWY 8 EAST OF ROUNDABOUT END OF NA	0.3	UNCL	N/A	N/A	N/A	N/A	N/A	0	N/A	0	N/A
2013	8			C	10,100	11,100	11,000	9,100	0	0	0.0	0	0.0
2014	8			UC	10,200	10,200	9,800	9,700	0	0	0.0	0	0.0
2015	8			UC	17,000	17,100	16,300	16,100	0	0	0.0	0	0.0
2016	8			UC	22,100	22,200	21,300	21,000	0	0	0.0	0	0.0
2017	8			UC	22,300	22,200	22,400	21,400	0	0	0.0	0	0.0
2018	8			UC	22,400	22,200	22,600	21,500	0	0	0.0	0	0.0
2019	8			UC	22,600	22,300	22,600	21,800	0	0	0.0	0	0.0
1988	8			C	5,750	6,400	6,400	5,200	520	10	0.8	0	0.0
1989	8			C	5,950	6,600	6,650	5,350	540	8	0.6	1	0.1
1990	8	CENTRE OF ROUNDABOUT (PETERS CORS)	6.3	C	6,100	6,750	6,750	5,500	550	14	1.0	0	0.0
1991	8			C	6,750	7,450	7,500	6,150	610	12	0.8	0	0.0
1992	8			C	6,800	7,350	7,550	6,250	610	8	0.5	0	0.0
1993	8			C	6,800	7,400	7,550	6,250	610	11	0.7	1	0.1
1994	8			C	6,800	7,450	7,600	6,150	610	13	0.8	2	0.1
1995	8			C	7,050	7,700	7,900	6,450	630	7	0.4	0	0.0
1996	8			C	7,200	8,150	8,200	6,500	650	10	0.6	1	0.1
1997	8			C	7,050	7,950	8,050	6,350	780	6	0.4	0	0.0
1998	8			C	7,550	8,550	8,550	6,800	830	7	0.4	1	0.1
1999	8			C	7,600	8,500	8,600	6,850	840	6	0.3	0	0.0
2000	8			C	7,750	8,750	8,750	7,000	780	12	0.7	0	0.0
2001	8			C	7,900	8,900	8,900	7,100	790	11	0.6	0	0.0
2002	8			C	8,050	9,000	9,100	7,250	800	9	0.5	0	0.0

Appendix C

2026 Synchro Outputs



Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	219	7	19	336	81	8	1	8	64	3	12
Future Volume (vph)	25	219	7	19	336	81	8	1	8	64	3	12
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.05	0.22	0.01	0.03	0.34	0.09		0.03	0.02		0.21	0.03
Control Delay	7.4	8.6	0.0	7.2	9.7	2.1		22.9	0.1		25.6	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	7.4	8.6	0.0	7.2	9.7	2.1		22.9	0.1		25.6	0.2
LOS	A	A	A	A	A	A		C	A		C	A
Approach Delay		8.2			8.2			12.1			21.6	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.34
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 57.9%
 Analysis Period (min) 15

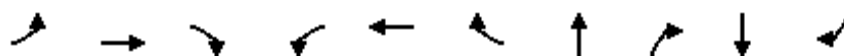
Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

 Ø2 (R)	 Ø4
53.6 s	26.4 s
 Ø6 (R)	 Ø8
53.6 s	26.4 s

3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	27	233	7	20	357	86	10	9	71	13
v/c Ratio	0.05	0.22	0.01	0.03	0.34	0.09	0.03	0.02	0.21	0.03
Control Delay	7.4	8.6	0.0	7.2	9.7	2.1	22.9	0.1	25.6	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	7.4	8.6	0.0	7.2	9.7	2.1	22.9	0.1	25.6	0.2
Queue Length 50th (m)	1.7	16.1	0.0	1.2	26.9	0.0	1.2	0.0	9.0	0.0
Queue Length 95th (m)	5.0	27.3	0.0	4.0	42.9	5.3	5.1	0.0	19.9	0.0
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	567	1050	964	650	1050	963	325	447	338	387
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.22	0.01	0.03	0.34	0.09	0.03	0.02	0.21	0.03
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	219	7	19	336	81	8	1	8	64	3	12
Future Volume (vph)	25	219	7	19	336	81	8	1	8	64	3	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1730	1380
Flt Permitted	0.53	1.00	1.00	0.61	1.00	1.00		0.83	1.00		0.74	1.00
Satd. Flow (perm)	969	1792	1615	1110	1792	1583		1283	1615		1334	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	233	7	20	357	86	9	1	9	68	3	13
RTOR Reduction (vph)	0	0	3	0	0	36	0	0	7	0	0	10
Lane Group Flow (vph)	27	233	4	20	357	50	0	10	2	0	71	3
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	568	1050	946	650	1050	928		325	409		338	350
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.03		0.00	0.02		0.03		0.01	0.00		c0.05	0.00
v/c Ratio	0.05	0.22	0.00	0.03	0.34	0.05		0.03	0.01		0.21	0.01
Uniform Delay, d1	7.0	7.9	6.9	7.0	8.6	7.1		22.5	22.3		23.5	22.3
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	0.2	0.5	0.0	0.1	0.9	0.1		0.2	0.0		1.4	0.0
Delay (s)	7.2	8.4	6.9	7.1	9.4	7.2		22.6	22.3		24.9	22.4
Level of Service	A	A	A	A	A	A		C	C		C	C
Approach Delay (s)		8.2			8.9			22.5			24.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			10.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			57.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

Existing 2026 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	15	0	162	14	0
Future Volume (Veh/h)	51	15	0	162	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	59	17	0	186	16	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			76		254	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			76		254	68
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1536		696	1002
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	76	186	16			
Volume Left	0	0	16			
Volume Right	17	0	0			
cSH	1700	1700	696			
Volume to Capacity	0.04	0.11	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.3			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			18.5%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	410	4	15	258	225	6	0	15	284	4	64
Future Volume (vph)	65	410	4	15	258	225	6	0	15	284	4	64
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	30.1	30.1	30.1		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.38	0.38	0.38		0.36	0.36		0.36	0.36
v/c Ratio	0.12	0.48	0.01	0.04	0.38	0.31		0.02	0.02		0.61	0.10
Control Delay	10.1	16.5	0.0	17.9	21.1	4.0		16.7	0.1		27.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.1	16.5	0.0	17.9	21.1	4.0		16.7	0.1		27.0	2.8
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		15.5			13.3			4.6			22.6	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 16.4

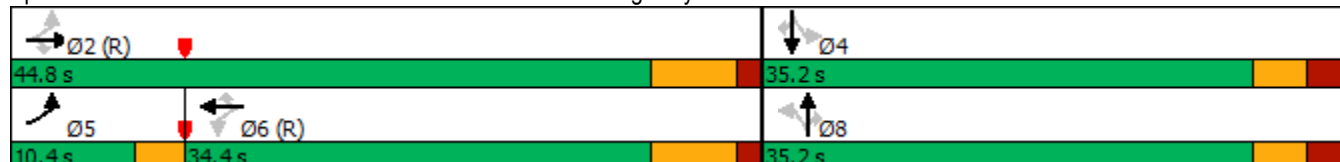
Intersection LOS: B

Intersection Capacity Utilization 77.1%

ICU Level of Service D

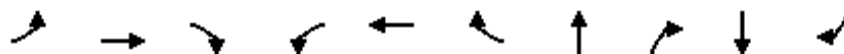
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	68	432	4	16	272	237	6	16	303	67
v/c Ratio	0.12	0.48	0.01	0.04	0.38	0.31	0.02	0.02	0.61	0.10
Control Delay	10.1	16.5	0.0	17.9	21.1	4.0	16.7	0.1	27.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	16.5	0.0	17.9	21.1	4.0	16.7	0.1	27.0	2.8
Queue Length 50th (m)	5.1	44.8	0.0	1.7	32.3	0.0	0.6	0.0	38.8	0.0
Queue Length 95th (m)	11.1	69.4	0.0	5.9	53.7	14.4	3.1	0.0	65.9	5.2
Internal Link Dist (m)	394.9		274.4				50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	572	895	791	365	714	755	340	645	500	645
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	0.12	0.48	0.01	0.04	0.38	0.31	0.02	0.02	0.61	0.10
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 PM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	410	4	15	258	225	6	0	15	284	4	64
Future Volume (vph)	65	410	4	15	258	225	6	0	15	284	4	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1811	1615
Flt Permitted	0.50	1.00	1.00	0.51	1.00	1.00		0.49	1.00		0.73	1.00
Satd. Flow (perm)	942	1881	1615	971	1900	1615		935	1615		1378	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	68	432	4	16	272	237	6	0	16	299	4	67
RTOR Reduction (vph)	0	0	2	0	0	150	0	0	10	0	0	43
Lane Group Flow (vph)	68	432	2	16	272	87	0	6	6	0	303	24
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	509	895	769	358	700	595		340	587		501	587
v/s Ratio Prot	0.01	c0.23			0.14							
v/s Ratio Perm	0.05		0.00	0.02		0.05		0.01	0.00		c0.22	0.02
v/c Ratio	0.13	0.48	0.00	0.04	0.39	0.15		0.02	0.01		0.60	0.04
Uniform Delay, d1	11.6	14.2	11.0	16.2	18.6	16.9		16.3	16.3		20.8	16.4
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	0.1	1.9	0.0	0.2	1.6	0.5		0.1	0.0		5.3	0.1
Delay (s)	11.7	16.1	11.0	16.4	20.2	17.4		16.4	16.3		26.1	16.6
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.5			18.8			16.3			24.4	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			77.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

Existing 2026 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	103	80	0	128	44	0
Future Volume (Veh/h)	103	80	0	128	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	120	93	0	149	51	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			213		316	166
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		316	166
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			1369		667	883
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	213	149	51			
Volume Left	0	0	51			
Volume Right	93	0	0			
cSH	1700	1700	667			
Volume to Capacity	0.13	0.09	0.08			
Queue Length 95th (m)	0.0	0.0	2.0			
Control Delay (s)	0.0	0.0	10.8			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			20.3%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	333	5	16	301	303	4	7	19	305	4	69
Future Volume (vph)	68	333	5	16	301	303	4	7	19	305	4	69
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	30.1	30.1	30.1		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.38	0.38	0.38		0.36	0.36		0.36	0.36
v/c Ratio	0.13	0.38	0.01	0.04	0.44	0.39		0.02	0.03		0.63	0.11
Control Delay	10.2	15.0	0.0	17.9	22.1	4.0		16.5	0.1		27.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.2	15.0	0.0	17.9	22.1	4.0		16.5	0.1		27.9	3.1
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		14.0			13.2			6.1			23.4	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 16.0

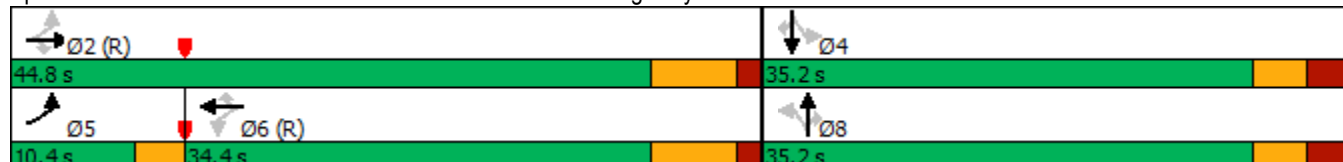
Intersection LOS: B

Intersection Capacity Utilization 74.2%

ICU Level of Service D

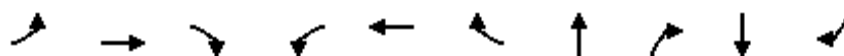
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	69	340	5	16	307	309	11	19	315	70
v/c Ratio	0.13	0.38	0.01	0.04	0.44	0.39	0.02	0.03	0.63	0.11
Control Delay	10.2	15.0	0.0	17.9	22.1	4.0	16.5	0.1	27.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	15.0	0.0	17.9	22.1	4.0	16.5	0.1	27.9	3.1
Queue Length 50th (m)	5.2	33.1	0.0	1.7	37.5	0.0	1.1	0.0	40.8	0.0
Queue Length 95th (m)	11.3	52.8	0.0	5.9	61.1	16.3	4.4	0.0	69.2	5.7
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0		60.0		80.0			
Base Capacity (vph)	538	895	791	396	700	800	625	645	498	645
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	0.13	0.38	0.01	0.04	0.44	0.39	0.02	0.03	0.63	0.11
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 SAT

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	333	5	16	301	303	4	7	19	305	4	69
Future Volume (vph)	68	333	5	16	301	303	4	7	19	305	4	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1811	1615
Flt Permitted	0.46	1.00	1.00	0.56	1.00	1.00		0.91	1.00		0.72	1.00
Satd. Flow (perm)	865	1881	1615	1057	1863	1615		1720	1615		1370	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	69	340	5	16	307	309	4	7	19	311	4	70
RTOR Reduction (vph)	0	0	3	0	0	195	0	0	12	0	0	45
Lane Group Flow (vph)	69	340	2	16	307	114	0	11	7	0	315	25
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	477	895	769	389	686	595		625	587		498	587
v/s Ratio Prot	0.01	c0.18			c0.16							
v/s Ratio Perm	0.06		0.00	0.02		0.07		0.01	0.00		c0.23	0.02
v/c Ratio	0.14	0.38	0.00	0.04	0.45	0.19		0.02	0.01		0.63	0.04
Uniform Delay, d1	11.7	13.4	11.0	16.2	19.1	17.2		16.3	16.3		21.0	16.5
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	0.1	1.2	0.0	0.2	2.1	0.7		0.1	0.0		6.0	0.1
Delay (s)	11.8	14.6	11.0	16.4	21.2	17.9		16.3	16.3		27.0	16.6
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		14.1			19.4			16.3			25.1	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			74.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

Existing 2026 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	74	40	0	82	49	0
Future Volume (Veh/h)	74	40	0	82	49	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	85	46	0	94	56	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			131		202	108
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			131		202	108
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1467		791	951
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	131	94	56			
Volume Left	0	0	56			
Volume Right	46	0	0			
cSH	1700	1700	791			
Volume to Capacity	0.08	0.06	0.07			
Queue Length 95th (m)	0.0	0.0	1.8			
Control Delay (s)	0.0	0.0	9.9			
Lane LOS						
Approach Delay (s)	0.0	0.0	9.9			
Approach LOS						
Intersection Summary						
Average Delay						
			2.0			
Intersection Capacity Utilization			16.3%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 SUN

260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	374	5	4	314	271	2	4	9	264	2	55
Future Volume (vph)	53	374	5	4	314	271	2	4	9	264	2	55
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	32.0	32.0	32.0		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.40	0.40	0.40		0.36	0.36		0.36	0.36
v/c Ratio	0.11	0.44	0.01	0.01	0.44	0.35		0.01	0.01		0.56	0.09
Control Delay	10.0	15.9	0.0	17.2	21.2	3.9		16.3	0.0		25.6	2.1
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	15.9	0.0	17.2	21.2	3.9		16.3	0.0		25.6	2.1
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		15.0			13.2			6.5			21.6	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 15.7

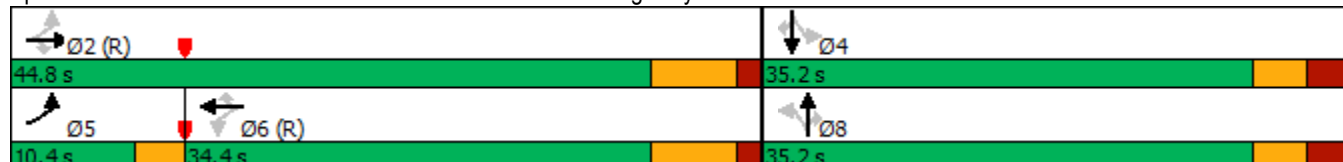
Intersection LOS: B

Intersection Capacity Utilization 74.0%

ICU Level of Service D

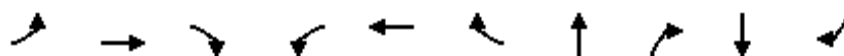
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	56	394	5	4	331	285	6	9	280	58
v/c Ratio	0.11	0.44	0.01	0.01	0.44	0.35	0.01	0.01	0.56	0.09
Control Delay	10.0	15.9	0.0	17.2	21.2	3.9	16.3	0.0	25.6	2.1
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	15.9	0.0	17.2	21.2	3.9	16.3	0.0	25.6	2.1
Queue Length 50th (m)	4.1	39.8	0.0	0.4	40.7	0.0	0.6	0.0	35.1	0.0
Queue Length 95th (m)	9.6	62.4	0.0	2.4	66.2	15.7	3.0	0.0	60.1	3.8
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	514	895	791	402	752	817	642	645	500	645
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	0.11	0.44	0.01	0.01	0.44	0.35	0.01	0.01	0.56	0.09
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

Existing 2026 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	374	5	4	314	271	2	4	9	264	2	55
Future Volume (vph)	53	374	5	4	314	271	2	4	9	264	2	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.44	1.00	1.00	0.53	1.00	1.00		0.93	1.00		0.72	1.00
Satd. Flow (perm)	816	1881	1615	1006	1881	1615		1765	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	394	5	4	331	285	2	4	9	278	2	58
RTOR Reduction (vph)	0	0	3	0	0	175	0	0	6	0	0	37
Lane Group Flow (vph)	56	394	2	4	331	110	0	6	3	0	280	21
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	30.8	30.8	30.8		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	30.8	30.8	30.8		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.39	0.39	0.39		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	439	895	769	387	724	621		642	587		500	587
v/s Ratio Prot	0.01	c0.21			0.18							
v/s Ratio Perm	0.05		0.00	0.00		0.07		0.00	0.00		c0.20	0.01
v/c Ratio	0.13	0.44	0.00	0.01	0.46	0.18		0.01	0.01		0.56	0.04
Uniform Delay, d1	11.7	13.9	11.0	15.2	18.4	16.2		16.2	16.2		20.3	16.4
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	0.1	1.6	0.0	0.0	2.1	0.6		0.0	0.0		4.5	0.1
Delay (s)	11.8	15.5	11.0	15.2	20.4	16.9		16.3	16.2		24.8	16.5
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.0			18.8			16.3			23.4	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			18.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			74.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

Existing 2026 SUN
260084

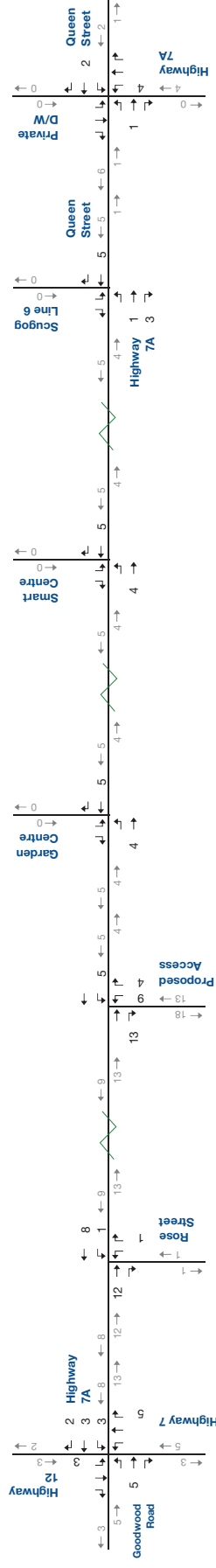
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	69	40	0	90	33	0
Future Volume (Veh/h)	69	40	0	90	33	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	82	48	0	107	39	0
Pedestrians						
Lane Width (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			130		213	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			130		213	106
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1468		780	954
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	130	107	39			
Volume Left	0	0	39			
Volume Right	48	0	0			
cSH	1700	1700	780			
Volume to Capacity	0.08	0.06	0.05			
Queue Length 95th (m)	0.0	0.0	1.3			
Control Delay (s)	0.0	0.0	9.9			
Lane LOS						
Approach Delay (s)	0.0	0.0	9.9			
Approach LOS						
Intersection Summary						
Average Delay						
			1.4			
Intersection Capacity Utilization			16.1%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix D

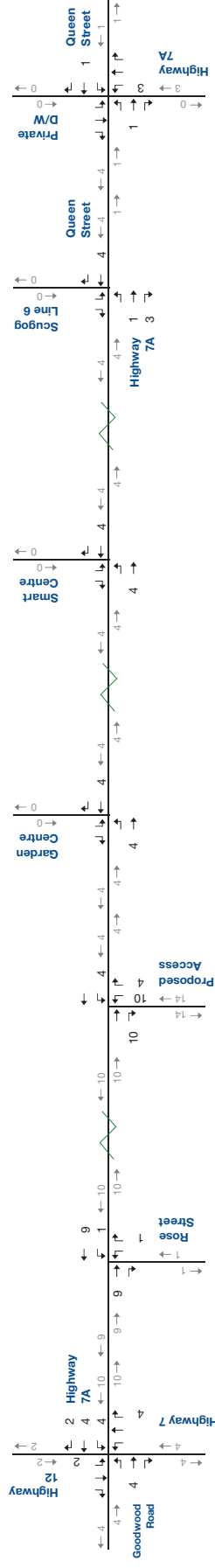
Background Forecast Components



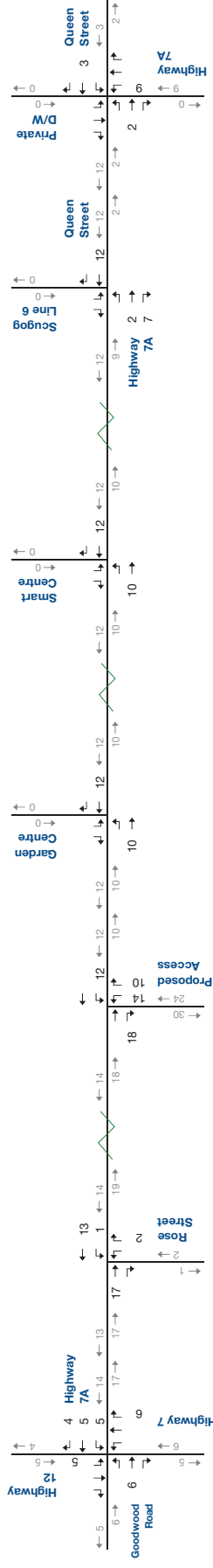
AM Peak Hour



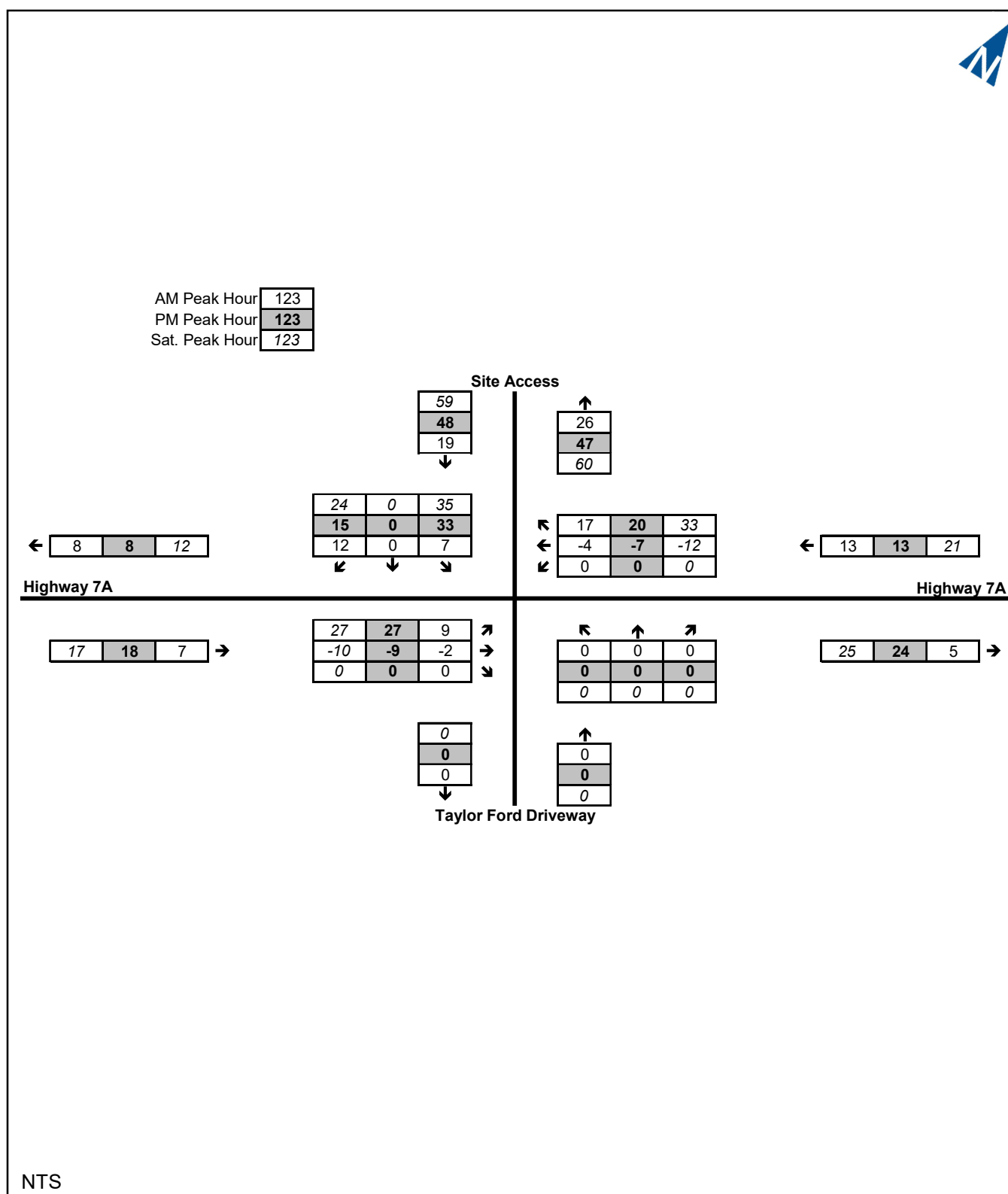
PM Peak Hour



SAT Peak Hour



Site Traffic AM, PM, SAT Peak Hours



Appendix E

2028 Synchro Outputs



Timings

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 AM

260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	230	7	19	350	98	8	1	8	71	3	24
Future Volume (vph)	34	230	7	19	350	98	8	1	8	71	3	24
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.06	0.23	0.01	0.03	0.35	0.11		0.03	0.02		0.24	0.07
Control Delay	7.6	8.7	0.0	7.2	9.8	1.9		22.9	0.1		26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	7.6	8.7	0.0	7.2	9.8	1.9		22.9	0.1		26.0	3.4
LOS	A	A	A	A	A	A		C	A		C	A
Approach Delay		8.3			8.1			12.1			20.4	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 57.9%

ICU Level of Service B

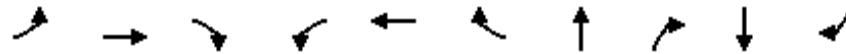
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

 Ø2 (R)	 Ø4
53.6 s	26.4 s
 Ø6 (R)	 Ø8
53.6 s	26.4 s

3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	36	245	7	20	372	104	10	9	79	26
v/c Ratio	0.06	0.23	0.01	0.03	0.35	0.11	0.03	0.02	0.24	0.07
Control Delay	7.6	8.7	0.0	7.2	9.8	1.9	22.9	0.1	26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	8.7	0.0	7.2	9.8	1.9	22.9	0.1	26.0	3.4
Queue Length 50th (m)	2.3	17.1	0.0	1.2	28.2	0.0	1.2	0.0	10.0	0.0
Queue Length 95th (m)	6.1	28.6	0.0	4.0	44.9	5.8	5.1	0.0	21.6	2.9
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0		60.0		80.0			
Base Capacity (vph)	554	1050	964	643	1050	971	324	447	334	387
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	0.23	0.01	0.03	0.35	0.11	0.03	0.02	0.24	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	230	7	19	350	98	8	1	8	71	3	24
Future Volume (vph)	34	230	7	19	350	98	8	1	8	71	3	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1730	1380
Flt Permitted	0.52	1.00	1.00	0.61	1.00	1.00		0.82	1.00		0.73	1.00
Satd. Flow (perm)	946	1792	1615	1098	1792	1583		1279	1615		1319	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	36	245	7	20	372	104	9	1	9	76	3	26
RTOR Reduction (vph)	0	0	3	0	0	43	0	0	7	0	0	19
Lane Group Flow (vph)	36	245	4	20	372	61	0	10	2	0	79	7
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	554	1050	946	643	1050	928		324	409		334	350
v/s Ratio Prot		0.14			c0.21							
v/s Ratio Perm	0.04		0.00	0.02		0.04		0.01	0.00		c0.06	0.00
v/c Ratio	0.06	0.23	0.00	0.03	0.35	0.07		0.03	0.01		0.24	0.02
Uniform Delay, d1	7.1	7.9	6.9	7.0	8.6	7.1		22.5	22.3		23.7	22.4
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	0.2	0.5	0.0	0.1	0.9	0.1		0.2	0.0		1.7	0.1
Delay (s)	7.3	8.5	6.9	7.1	9.6	7.3		22.6	22.3		25.4	22.5
Level of Service	A		A	A	A	A		C	C		C	C
Approach Delay (s)		8.3			9.0			22.5			24.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			10.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			57.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	53	15	0	168	14	0
Future Volume (Veh/h)	53	15	0	168	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	61	17	0	193	16	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			78		262	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			78		262	70
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1533		687	999
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	78	193	16			
Volume Left	0	0	16			
Volume Right	17	0	0			
cSH	1700	1700	687			
Volume to Capacity	0.05	0.11	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.4			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.4			
Approach LOS						
Intersection Summary						
Average Delay						
			0.6			
Intersection Capacity Utilization			18.8%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	421	4	15	265	245	6	0	15	317	4	79
Future Volume (vph)	92	421	4	15	265	245	6	0	15	317	4	79
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.17	0.49	0.01	0.04	0.39	0.34		0.02	0.02		0.68	0.13
Control Delay	10.5	16.8	0.0	18.0	21.5	4.0		16.7	0.1		29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.5	16.8	0.0	18.0	21.5	4.0		16.7	0.1		29.6	4.2
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		15.5			13.2			4.6			24.6	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 17.0

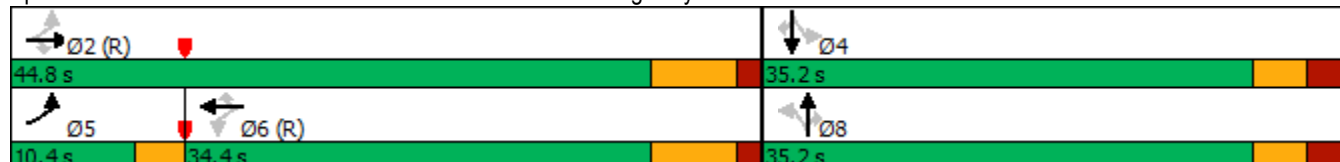
Intersection LOS: B

Intersection Capacity Utilization 79.5%

ICU Level of Service D

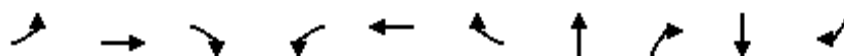
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	443	4	16	279	258	6	16	338	83
v/c Ratio	0.17	0.49	0.01	0.04	0.39	0.34	0.02	0.02	0.68	0.13
Control Delay	10.5	16.8	0.0	18.0	21.5	4.0	16.7	0.1	29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	16.8	0.0	18.0	21.5	4.0	16.7	0.1	29.6	4.2
Queue Length 50th (m)	7.4	46.3	0.0	1.7	33.7	0.0	0.6	0.0	44.7	0.0
Queue Length 95th (m)	14.7	71.8	0.0	5.9	55.0	15.1	3.1	0.0	75.2	7.9
Internal Link Dist (m)	394.9		274.4			50.8		39.1		
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	563	895	791	358	709	765	310	645	500	645
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	0.17	0.49	0.01	0.04	0.39	0.34	0.02	0.02	0.68	0.13
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	421	4	15	265	245	6	0	15	317	4	79
Future Volume (vph)	92	421	4	15	265	245	6	0	15	317	4	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1811	1615
Flt Permitted	0.49	1.00	1.00	0.51	1.00	1.00		0.45	1.00		0.72	1.00
Satd. Flow (perm)	924	1881	1615	962	1900	1615		853	1615		1377	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	443	4	16	279	258	6	0	16	334	4	83
RTOR Reduction (vph)	0	0	2	0	0	164	0	0	10	0	0	53
Lane Group Flow (vph)	97	443	2	16	279	94	0	6	6	0	338	30
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	503	895	769	352	695	591		310	587		500	587
v/s Ratio Prot	0.01	c0.24			0.15							
v/s Ratio Perm	0.08		0.00	0.02		0.06		0.01	0.00		c0.25	0.02
v/c Ratio	0.19	0.49	0.00	0.05	0.40	0.16		0.02	0.01		0.68	0.05
Uniform Delay, d1	11.8	14.4	11.0	16.3	18.8	17.1		16.3	16.3		21.5	16.5
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	0.2	2.0	0.0	0.2	1.7	0.6		0.1	0.0		7.2	0.2
Delay (s)	12.0	16.3	11.0	16.6	20.6	17.6		16.4	16.3		28.6	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.5			19.1			16.3			26.3	
Approach LOS		B			B			B			C	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	107	80	0	133	44	0
Future Volume (Veh/h)	107	80	0	133	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	124	93	0	155	51	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			217		326	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			217		326	170
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			1365		658	879
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	217	155	51			
Volume Left	0	0	51			
Volume Right	93	0	0			
cSH	1700	1700	658			
Volume to Capacity	0.13	0.09	0.08			
Queue Length 95th (m)	0.0	0.0	2.0			
Control Delay (s)	0.0	0.0	10.9			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.9			
Approach LOS						
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			20.5%		ICU Level of Service	
Analysis Period (min)			15		A	

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	346	5	16	313	336	4	7	19	340	4	93
Future Volume (vph)	95	346	5	16	313	336	4	7	19	340	4	93
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.19	0.39	0.01	0.04	0.46	0.42		0.02	0.03		0.70	0.15
Control Delay	10.6	15.2	0.0	17.9	22.6	4.1		16.5	0.1		31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.6	15.2	0.0	17.9	22.6	4.1		16.5	0.1		31.0	4.7
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		14.0			13.1			6.1			25.4	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 16.7

Intersection LOS: B

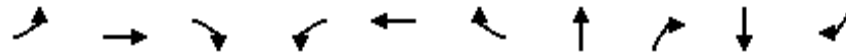
Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	353	5	16	319	343	11	19	351	95
v/c Ratio	0.19	0.39	0.01	0.04	0.46	0.42	0.02	0.03	0.70	0.15
Control Delay	10.6	15.2	0.0	17.9	22.6	4.1	16.5	0.1	31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	15.2	0.0	17.9	22.6	4.1	16.5	0.1	31.0	4.7
Queue Length 50th (m)	7.4	34.6	0.0	1.7	39.7	0.0	1.1	0.0	47.1	0.0
Queue Length 95th (m)	14.7	55.0	0.0	5.9	63.6	16.9	4.4	0.0	#80.1	9.3
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0		60.0		80.0			
Base Capacity (vph)	526	895	791	390	696	818	622	645	498	647
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	0.18	0.39	0.01	0.04	0.46	0.42	0.02	0.03	0.70	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	346	5	16	313	336	4	7	19	340	4	93
Future Volume (vph)	95	346	5	16	313	336	4	7	19	340	4	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1811	1615
Flt Permitted	0.44	1.00	1.00	0.55	1.00	1.00		0.90	1.00		0.72	1.00
Satd. Flow (perm)	837	1881	1615	1044	1863	1615		1710	1615		1370	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	353	5	16	319	343	4	7	19	347	4	95
RTOR Reduction (vph)	0	0	3	0	0	217	0	0	12	0	0	60
Lane Group Flow (vph)	97	353	2	16	319	126	0	11	7	0	351	35
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	468	895	769	382	682	591		622	587		498	587
v/s Ratio Prot	0.02	c0.19			c0.17							
v/s Ratio Perm	0.08		0.00	0.02		0.08		0.01	0.00		c0.26	0.02
v/c Ratio	0.21	0.39	0.00	0.04	0.47	0.21		0.02	0.01		0.70	0.06
Uniform Delay, d1	12.0	13.5	11.0	16.3	19.4	17.4		16.3	16.3		21.8	16.5
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	0.2	1.3	0.0	0.2	2.3	0.8		0.1	0.0		8.1	0.2
Delay (s)	12.2	14.8	11.0	16.5	21.7	18.2		16.3	16.3		29.9	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		14.2			19.8			16.3			27.1	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			76.8%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	77	40	0	85	49	0
Future Volume (Veh/h)	77	40	0	85	49	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	89	46	0	98	56	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			135		210	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			135		210	112
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1462		783	947
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	135	98	56			
Volume Left	0	0	56			
Volume Right	46	0	0			
cSH	1700	1700	783			
Volume to Capacity	0.08	0.06	0.07			
Queue Length 95th (m)	0.0	0.0	1.8			
Control Delay (s)	0.0	0.0	10.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.0			
Approach LOS						
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			16.5%		ICU Level of Service	
Analysis Period (min)			15		A	

Timings

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 SUN

260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	397	5	4	337	279	2	4	9	273	2	61
Future Volume (vph)	60	397	5	4	337	279	2	4	9	273	2	61
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	30.1	30.1	30.1		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.38	0.38	0.38		0.36	0.36		0.36	0.36
v/c Ratio	0.13	0.47	0.01	0.01	0.50	0.37		0.01	0.01		0.58	0.10
Control Delay	10.2	16.3	0.0	17.5	23.2	4.0		16.3	0.0		26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.2	16.3	0.0	17.5	23.2	4.0		16.3	0.0		26.1	2.5
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		15.3			14.5			6.5			21.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 16.4

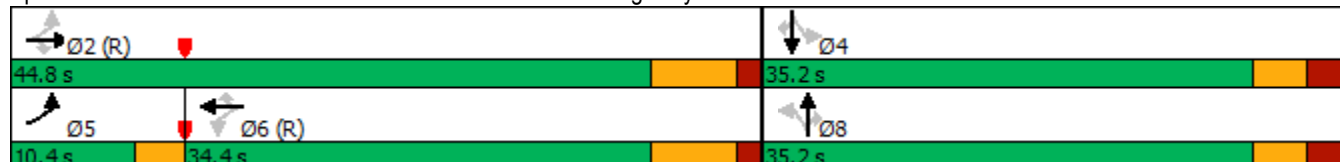
Intersection LOS: B

Intersection Capacity Utilization 75.7%

ICU Level of Service D

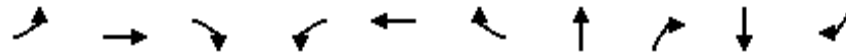
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	63	418	5	4	355	294	6	9	289	64
v/c Ratio	0.13	0.47	0.01	0.01	0.50	0.37	0.01	0.01	0.58	0.10
Control Delay	10.2	16.3	0.0	17.5	23.2	4.0	16.3	0.0	26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.2	16.3	0.0	17.5	23.2	4.0	16.3	0.0	26.1	2.5
Queue Length 50th (m)	4.7	42.9	0.0	0.4	44.6	0.0	0.6	0.0	36.5	0.0
Queue Length 95th (m)	10.5	66.8	0.0	2.4	71.4	15.9	3.0	0.0	62.2	4.7
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	485	895	791	370	708	791	641	645	500	645
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	0.13	0.47	0.01	0.01	0.50	0.37	0.01	0.01	0.58	0.10

Intersection Summary

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	397	5	4	337	279	2	4	9	273	2	61
Future Volume (vph)	60	397	5	4	337	279	2	4	9	273	2	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.40	1.00	1.00	0.52	1.00	1.00		0.93	1.00		0.72	1.00
Satd. Flow (perm)	748	1881	1615	984	1881	1615		1763	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	418	5	4	355	294	2	4	9	287	2	64
RTOR Reduction (vph)	0	0	3	0	0	186	0	0	6	0	0	41
Lane Group Flow (vph)	63	418	2	4	355	108	0	6	3	0	289	23
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	427	895	769	362	693	595		641	587		500	587
v/s Ratio Prot	0.01	c0.22			c0.19							
v/s Ratio Perm	0.06		0.00	0.00		0.07		0.00	0.00		c0.21	0.01
v/c Ratio	0.15	0.47	0.00	0.01	0.51	0.18		0.01	0.01		0.58	0.04
Uniform Delay, d1	11.9	14.1	11.0	16.0	19.7	17.1		16.2	16.2		20.5	16.4
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	0.2	1.7	0.0	0.1	2.7	0.7		0.0	0.0		4.8	0.1
Delay (s)	12.0	15.9	11.0	16.1	22.3	17.8		16.3	16.2		25.3	16.6
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.3			20.2			16.3			23.7	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			75.7%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	72	40	0	94	33	0
Future Volume (Veh/h)	72	40	0	94	33	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	86	48	0	112	39	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			134		222	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			134		222	110
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1463		771	949
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	134	112	39			
Volume Left	0	0	39			
Volume Right	48	0	0			
cSH	1700	1700	771			
Volume to Capacity	0.08	0.07	0.05			
Queue Length 95th (m)	0.0	0.0	1.3			
Control Delay (s)	0.0	0.0	9.9			
Lane LOS						
Approach Delay (s)	0.0	0.0	9.9			
Approach LOS						
Intersection Summary						
Average Delay						
			1.4			
Intersection Capacity Utilization			16.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	230	7	19	350	158	8	1	8	117	3	32
Future Volume (vph)	53	230	7	19	350	158	8	1	8	117	3	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.10	0.23	0.01	0.03	0.35	0.17		0.03	0.02		0.38	0.09
Control Delay	7.9	8.7	0.0	7.2	9.8	1.7		23.0	0.1		28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	7.9	8.7	0.0	7.2	9.8	1.7		23.0	0.1		28.8	5.2
LOS	A	A	A	A	A	A		C	A		C	A
Approach Delay		8.3			7.3			12.2			23.8	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 10.2

Intersection LOS: B

Intersection Capacity Utilization 64.6%

ICU Level of Service C

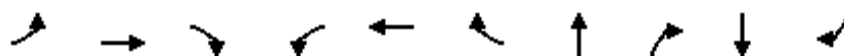
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

 Ø2 (R)	 Ø4
53.6 s	26.4 s
 Ø6 (R)	 Ø8
53.6 s	26.4 s

3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	56	245	7	20	372	168	10	9	127	34
v/c Ratio	0.10	0.23	0.01	0.03	0.35	0.17	0.03	0.02	0.38	0.09
Control Delay	7.9	8.7	0.0	7.2	9.8	1.7	23.0	0.1	28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	8.7	0.0	7.2	9.8	1.7	23.0	0.1	28.8	5.2
Queue Length 50th (m)	3.6	17.1	0.0	1.2	28.2	0.0	1.2	0.0	16.8	0.0
Queue Length 95th (m)	8.7	28.6	0.0	4.0	44.9	7.3	5.1	0.0	32.6	4.7
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0		60.0		80.0			
Base Capacity (vph)	554	1050	964	643	1050	997	317	447	332	387
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	0.10	0.23	0.01	0.03	0.35	0.17	0.03	0.02	0.38	0.09
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	230	7	19	350	158	8	1	8	117	3	32
Future Volume (vph)	53	230	7	19	350	158	8	1	8	117	3	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1727	1380
Flt Permitted	0.52	1.00	1.00	0.61	1.00	1.00		0.81	1.00		0.72	1.00
Satd. Flow (perm)	946	1792	1615	1098	1792	1583		1251	1615		1312	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	245	7	20	372	168	9	1	9	124	3	34
RTOR Reduction (vph)	0	0	3	0	0	70	0	0	7	0	0	25
Lane Group Flow (vph)	56	245	4	20	372	98	0	10	2	0	127	9
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	554	1050	946	643	1050	928		317	409		332	350
v/s Ratio Prot		0.14			c0.21							
v/s Ratio Perm	0.06		0.00	0.02		0.06		0.01	0.00		c0.10	0.01
v/c Ratio	0.10	0.23	0.00	0.03	0.35	0.11		0.03	0.01		0.38	0.02
Uniform Delay, d1	7.3	7.9	6.9	7.0	8.6	7.3		22.5	22.3		24.7	22.4
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	0.4	0.5	0.0	0.1	0.9	0.2		0.2	0.0		3.3	0.1
Delay (s)	7.6	8.5	6.9	7.1	9.6	7.5		22.6	22.3		28.0	22.5
Level of Service	A	A	A	A	A	A		C	C		C	C
Approach Delay (s)		8.3			8.9			22.5			26.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			64.6%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2028 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	53	26	0	168	24	0
Future Volume (Veh/h)	53	26	0	168	24	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	61	30	0	193	28	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			91		269	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			91		269	76
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1517		681	991
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	91	193	28			
Volume Left	0	0	28			
Volume Right	30	0	0			
cSH	1700	1517	681			
Volume to Capacity	0.05	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	1.0			
Control Delay (s)	0.0	0.0	10.5			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.5			
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			18.8%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2028 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	53	0	0	168	0	0
Future Volume (Veh/h)	53	0	0	168	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	0	0	183	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	58			241	58	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	58			241	58	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	100	
cM capacity (veh/h)	1546			747	1008	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	58	183	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1546	1700			
Volume to Capacity	0.03	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			12.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	410	4	15	225	366	6	0	15	422	4	141
Future Volume (vph)	127	410	4	15	225	366	6	0	15	422	4	141
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	41.0	41.0	30.6	30.6	30.6	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.0%	51.3%	51.3%	38.3%	38.3%	38.3%	48.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	38.0	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.48	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
v/c Ratio	0.25	0.54	0.01	0.05	0.41	0.51		0.02	0.02		0.79	0.20
Control Delay	13.3	20.0	0.0	20.8	25.1	5.2		14.3	0.1		33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	13.3	20.0	0.0	20.8	25.1	5.2		14.3	0.1		33.1	3.5
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		18.3			13.0			4.0			25.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.7

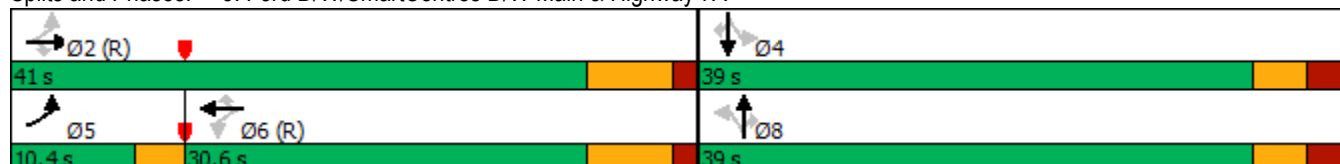
Intersection LOS: B

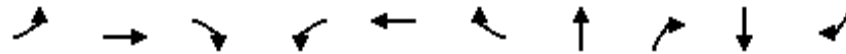
Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	134	432	4	16	237	385	6	16	448	148
v/c Ratio	0.25	0.54	0.01	0.05	0.41	0.51	0.02	0.02	0.79	0.20
Control Delay	13.3	20.0	0.0	20.8	25.1	5.2	14.3	0.1	33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	20.0	0.0	20.8	25.1	5.2	14.3	0.1	33.1	3.5
Queue Length 50th (m)	11.6	49.5	0.0	1.8	30.2	0.0	0.6	0.0	60.7	0.0
Queue Length 95th (m)	21.8	76.8	0.0	6.4	50.5	19.4	2.9	0.0	#111.9	10.4
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	532	806	716	293	572	755	279	717	565	751
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	0.25	0.54	0.01	0.05	0.41	0.51	0.02	0.02	0.79	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 PM
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	410	4	15	225	366	6	0	15	422	4	141
Future Volume (vph)	127	410	4	15	225	366	6	0	15	422	4	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1810	1615
Flt Permitted	0.50	1.00	1.00	0.51	1.00	1.00		0.36	1.00		0.72	1.00
Satd. Flow (perm)	957	1881	1615	971	1900	1615		681	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	432	4	16	237	385	6	0	16	444	4	148
RTOR Reduction (vph)	0	0	2	0	0	269	0	0	9	0	0	87
Lane Group Flow (vph)	134	432	2	16	237	116	0	6	7	0	448	61
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Effective Green, g (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.43	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	486	806	692	292	572	486		280	664		565	664
v/s Ratio Prot	0.02	c0.23			0.12							
v/s Ratio Perm	0.09		0.00	0.02		0.07		0.01	0.00		c0.33	0.04
v/c Ratio	0.28	0.54	0.00	0.05	0.41	0.24		0.02	0.01		0.79	0.09
Uniform Delay, d1	14.3	16.9	13.1	19.9	22.3	21.0		14.0	13.9		20.6	14.4
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	0.3	2.5	0.0	0.4	2.2	1.2		0.1	0.0		10.9	0.3
Delay (s)	14.6	19.5	13.1	20.2	24.5	22.2		14.1	13.9		31.5	14.7
Level of Service	B	B	B	C	C	C		B	B		C	B
Approach Delay (s)		18.3			23.0			14.0			27.3	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			22.8				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			84.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2028 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	107	108	0	133	58	0
Future Volume (Veh/h)	107	108	0	133	58	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	124	126	0	155	67	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			250		342	187
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			250		342	187
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1327		644	860
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	250	155	67			
Volume Left	0	0	67			
Volume Right	126	0	0			
cSH	1700	1327	644			
Volume to Capacity	0.15	0.00	0.10			
Queue Length 95th (m)	0.0	0.0	2.8			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS						
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS						
Intersection Summary						
Average Delay						
			1.6			
Intersection Capacity Utilization			22.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2028 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	107	0	0	133	0	0
Future Volume (Veh/h)	107	0	0	133	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	0	0	145	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			116		261	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			116		261	116
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1473		728	936
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	116	145	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1473	1700			
Volume to Capacity	0.07	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			10.3%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	338	5	16	277	490	4	7	19	461	4	154
Future Volume (vph)	130	338	5	16	277	490	4	7	19	461	4	154
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	38.0	38.0	27.6	27.6	27.6	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	13.0%	47.5%	47.5%	34.5%	34.5%	34.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	35.0	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.44	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
v/c Ratio	0.31	0.47	0.01	0.06	0.58	0.63		0.01	0.02		0.77	0.19
Control Delay	15.8	20.8	0.0	23.0	31.2	6.5		12.4	0.1		29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	15.8	20.8	0.0	23.0	31.2	6.5		12.4	0.1		29.3	3.0
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		19.2			15.6			4.6			22.7	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.6

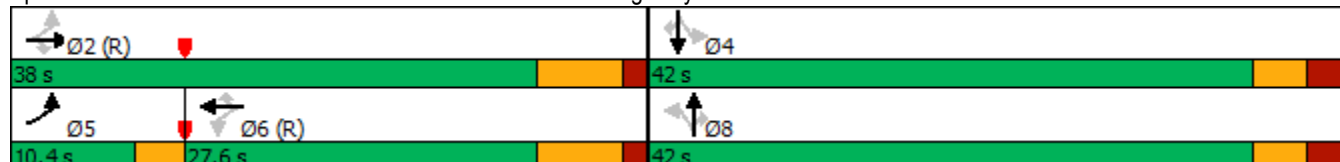
Intersection LOS: B

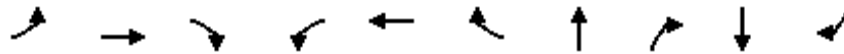
Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	133	345	5	16	283	500	11	19	474	157
v/c Ratio	0.31	0.47	0.01	0.06	0.58	0.63	0.01	0.02	0.77	0.19
Control Delay	15.8	20.8	0.0	23.0	31.2	6.5	12.4	0.1	29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	20.8	0.0	23.0	31.2	6.5	12.4	0.1	29.3	3.0
Queue Length 50th (m)	12.4	40.1	0.0	1.9	39.3	0.0	0.9	0.0	61.5	0.0
Queue Length 95th (m)	23.3	63.8	0.0	6.7	64.5	23.4	3.7	0.0	#113.6	9.9
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	435	735	657	278	491	794	762	774	613	811
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	0.31	0.47	0.01	0.06	0.58	0.63	0.01	0.02	0.77	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	338	5	16	277	490	4	7	19	461	4	154
Future Volume (vph)	130	338	5	16	277	490	4	7	19	461	4	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1810	1615
Flt Permitted	0.41	1.00	1.00	0.55	1.00	1.00		0.89	1.00		0.72	1.00
Satd. Flow (perm)	777	1881	1615	1052	1863	1615		1699	1615		1369	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	133	345	5	16	283	500	4	7	19	470	4	157
RTOR Reduction (vph)	0	0	3	0	0	368	0	0	10	0	0	87
Lane Group Flow (vph)	133	345	2	16	283	132	0	11	9	0	474	70
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Effective Green, g (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.39	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	396	735	631	277	491	425		762	724		614	724
v/s Ratio Prot	0.03	c0.18			c0.15							
v/s Ratio Perm	0.10		0.00	0.02		0.08		0.01	0.01		c0.35	0.04
v/c Ratio	0.34	0.47	0.00	0.06	0.58	0.31		0.01	0.01		0.77	0.10
Uniform Delay, d1	16.4	18.2	14.8	22.0	25.6	23.6		12.2	12.2		18.6	12.7
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	0.5	2.1	0.0	0.4	4.9	1.9		0.0	0.0		9.1	0.3
Delay (s)	16.9	20.3	14.8	22.4	30.4	25.5		12.3	12.2		27.7	13.0
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		19.3			27.2			12.3			24.0	
Approach LOS		B			C			B			C	

Intersection Summary

HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2028 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	77	54	0	85	68	0
Future Volume (Veh/h)	77	54	0	85	68	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	89	62	0	98	78	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			151		218	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			151		218	120
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1442		775	937
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	151	98	78			
Volume Left	0	0	78			
Volume Right	62	0	0			
cSH	1700	1442	775			
Volume to Capacity	0.09	0.00	0.10			
Queue Length 95th (m)	0.0	0.0	2.7			
Control Delay (s)	0.0	0.0	10.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			17.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2028 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	77	0	0	85	0	0
Future Volume (Veh/h)	77	0	0	85	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	84	0	0	92	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			84	176		84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			84	176		84
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			1513	814		975
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	84	92	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1513	1700			
Volume to Capacity	0.05	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			7.8%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 SUN
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	391	5	4	305	415	2	4	9	372	2	113
Future Volume (vph)	87	391	5	4	305	415	2	4	9	372	2	113
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.18	0.46	0.01	0.01	0.46	0.50		0.01	0.01		0.79	0.18
Control Delay	10.6	16.2	0.0	17.5	22.5	4.3		16.3	0.0		36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.6	16.2	0.0	17.5	22.5	4.3		16.3	0.0		36.3	4.4
LOS	B	B	A	B	C	A		B	A		D	A
Approach Delay		15.0			12.0			6.5			28.9	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 17.6

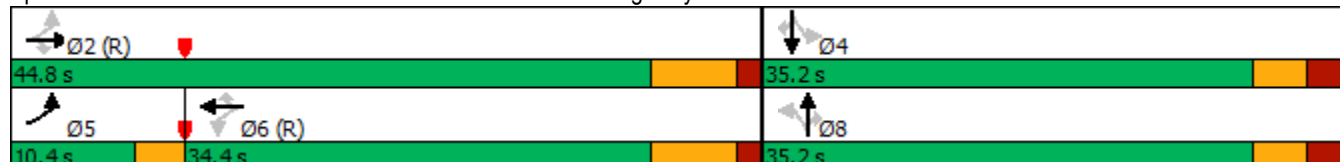
Intersection LOS: B

Intersection Capacity Utilization 80.9%

ICU Level of Service D

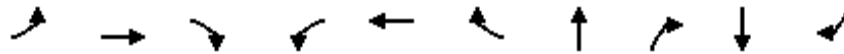
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	92	412	5	4	321	437	6	9	394	119
v/c Ratio	0.18	0.46	0.01	0.01	0.46	0.50	0.01	0.01	0.79	0.18
Control Delay	10.6	16.2	0.0	17.5	22.5	4.3	16.3	0.0	36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	16.2	0.0	17.5	22.5	4.3	16.3	0.0	36.3	4.4
Queue Length 50th (m)	7.0	42.1	0.0	0.4	39.8	0.0	0.6	0.0	55.1	0.0
Queue Length 95th (m)	14.1	65.7	0.0	2.4	63.9	18.8	3.0	0.0	#102.0	10.2
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	514	895	791	370	703	877	632	645	500	663
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	0.18	0.46	0.01	0.01	0.46	0.50	0.01	0.01	0.79	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2028 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	391	5	4	305	415	2	4	9	372	2	113
Future Volume (vph)	87	391	5	4	305	415	2	4	9	372	2	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.44	1.00	1.00	0.52	1.00	1.00		0.91	1.00		0.72	1.00
Satd. Flow (perm)	816	1881	1615	989	1881	1615		1738	1615		1375	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	412	5	4	321	437	2	4	9	392	2	119
RTOR Reduction (vph)	0	0	3	0	0	277	0	0	6	0	0	76
Lane Group Flow (vph)	92	412	2	4	321	160	0	6	3	0	394	43
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	457	895	769	362	688	591		632	587		500	587
v/s Ratio Prot	0.01	c0.22			0.17							
v/s Ratio Perm	0.08		0.00	0.00		0.10		0.00	0.00		c0.29	0.03
v/c Ratio	0.20	0.46	0.00	0.01	0.47	0.27		0.01	0.01		0.79	0.07
Uniform Delay, d1	11.9	14.1	11.0	16.1	19.4	17.8		16.2	16.2		22.7	16.6
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	0.2	1.7	0.0	0.1	2.3	1.1		0.0	0.0		11.9	0.2
Delay (s)	12.2	15.8	11.0	16.2	21.6	19.0		16.3	16.2		34.6	16.9
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.1			20.1			16.3			30.5	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			21.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			80.9%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2028 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	72	56	0	94	44	0
Future Volume (Veh/h)	72	56	0	94	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	86	67	0	112	52	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			153		232	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			153		232	120
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1440		761	938
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	153	112	52			
Volume Left	0	0	52			
Volume Right	67	0	0			
cSH	1700	1440	761			
Volume to Capacity	0.09	0.00	0.07			
Queue Length 95th (m)	0.0	0.0	1.8			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			17.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2028 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	72	0	0	94	0	0
Future Volume (Veh/h)	72	0	0	94	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	0	0	102	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			78		180	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			78		180	78
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1520		810	983
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	78	102	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1520	1700			
Volume to Capacity	0.05	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			8.3%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix F

2033 Synchro Outputs



Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	252	7	19	384	98	8	1	8	71	3	24
Future Volume (vph)	34	252	7	19	384	98	8	1	8	71	3	24
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.07	0.26	0.01	0.03	0.39	0.11		0.03	0.02		0.24	0.07
Control Delay	7.6	8.8	0.0	7.2	10.2	1.9		22.9	0.1		26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	7.6	8.8	0.0	7.2	10.2	1.9		22.9	0.1		26.0	3.4
LOS	A	A	A	A	B	A		C	A		C	A
Approach Delay		8.5			8.5			12.1			20.4	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 9.9

Intersection LOS: A

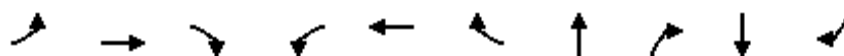
Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

											
Ø2 (R)											
53.6 s											
											
Ø6 (R)											
53.6 s											



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	36	268	7	20	409	104	10	9	79	26
v/c Ratio	0.07	0.26	0.01	0.03	0.39	0.11	0.03	0.02	0.24	0.07
Control Delay	7.6	8.8	0.0	7.2	10.2	1.9	22.9	0.1	26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	8.8	0.0	7.2	10.2	1.9	22.9	0.1	26.0	3.4
Queue Length 50th (m)	2.3	19.0	0.0	1.2	32.0	0.0	1.2	0.0	10.0	0.0
Queue Length 95th (m)	6.2	31.5	0.0	4.0	50.2	5.8	5.1	0.0	21.6	2.9
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	522	1050	964	630	1050	971	324	447	334	387
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	0.26	0.01	0.03	0.39	0.11	0.03	0.02	0.24	0.07
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	252	7	19	384	98	8	1	8	71	3	24
Future Volume (vph)	34	252	7	19	384	98	8	1	8	71	3	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1730	1380
Flt Permitted	0.49	1.00	1.00	0.59	1.00	1.00		0.82	1.00		0.73	1.00
Satd. Flow (perm)	892	1792	1615	1075	1792	1583		1279	1615		1319	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	36	268	7	20	409	104	9	1	9	76	3	26
RTOR Reduction (vph)	0	0	3	0	0	43	0	0	7	0	0	19
Lane Group Flow (vph)	36	268	4	20	409	61	0	10	2	0	79	7
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	522	1050	946	630	1050	928		324	409		334	350
v/s Ratio Prot		0.15			c0.23							
v/s Ratio Perm	0.04		0.00	0.02		0.04		0.01	0.00		c0.06	0.00
v/c Ratio	0.07	0.26	0.00	0.03	0.39	0.07		0.03	0.01		0.24	0.02
Uniform Delay, d1	7.1	8.1	6.9	7.0	8.9	7.1		22.5	22.3		23.7	22.4
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	0.3	0.6	0.0	0.1	1.1	0.1		0.2	0.0		1.7	0.1
Delay (s)	7.4	8.6	6.9	7.1	10.0	7.3		22.6	22.3		25.4	22.5
Level of Service	A		A	A	A	A		C	C		C	C
Approach Delay (s)		8.5			9.3			22.5			24.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			57.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2033 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	58	15	0	185	14	0
Future Volume (Veh/h)	58	15	0	185	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	67	17	0	213	16	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			84		288	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			84		288	76
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1526		664	991
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	84	213	16			
Volume Left	0	0	16			
Volume Right	17	0	0			
cSH	1700	1700	664			
Volume to Capacity	0.05	0.13	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.6			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			19.7%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	462	4	15	291	245	6	0	15	317	4	79
Future Volume (vph)	92	462	4	15	291	245	6	0	15	317	4	79
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.18	0.54	0.01	0.05	0.43	0.34		0.02	0.02		0.68	0.13
Control Delay	10.6	17.7	0.0	18.1	22.1	4.0		16.7	0.1		29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.6	17.7	0.0	18.1	22.1	4.0		16.7	0.1		29.6	4.2
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		16.4			13.9			4.6			24.6	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 17.5

Intersection LOS: B

Intersection Capacity Utilization 81.7%

ICU Level of Service D

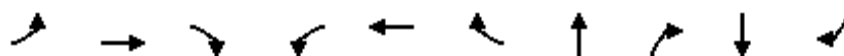
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	486	4	16	306	258	6	16	338	83
v/c Ratio	0.18	0.54	0.01	0.05	0.43	0.34	0.02	0.02	0.68	0.13
Control Delay	10.6	17.7	0.0	18.1	22.1	4.0	16.7	0.1	29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	17.7	0.0	18.1	22.1	4.0	16.7	0.1	29.6	4.2
Queue Length 50th (m)	7.4	52.2	0.0	1.7	37.6	0.0	0.6	0.0	44.7	0.0
Queue Length 95th (m)	14.7	80.4	0.0	5.9	60.5	15.1	3.1	0.0	75.2	7.9
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	538	895	791	344	709	765	310	645	500	645
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	0.18	0.54	0.01	0.05	0.43	0.34	0.02	0.02	0.68	0.13
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	462	4	15	291	245	6	0	15	317	4	79
Future Volume (vph)	92	462	4	15	291	245	6	0	15	317	4	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1811	1615
Flt Permitted	0.46	1.00	1.00	0.49	1.00	1.00		0.45	1.00		0.72	1.00
Satd. Flow (perm)	865	1881	1615	924	1900	1615		853	1615		1377	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	486	4	16	306	258	6	0	16	334	4	83
RTOR Reduction (vph)	0	0	2	0	0	164	0	0	10	0	0	53
Lane Group Flow (vph)	97	486	2	16	306	94	0	6	6	0	338	30
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	480	895	769	338	695	591		310	587		500	587
v/s Ratio Prot	0.01	c0.26			0.16							
v/s Ratio Perm	0.08		0.00	0.02		0.06		0.01	0.00		c0.25	0.02
v/c Ratio	0.20	0.54	0.00	0.05	0.44	0.16		0.02	0.01		0.68	0.05
Uniform Delay, d1	11.9	14.8	11.0	16.3	19.2	17.1		16.3	16.3		21.5	16.5
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	0.2	2.4	0.0	0.3	2.0	0.6		0.1	0.0		7.2	0.2
Delay (s)	12.1	17.2	11.0	16.6	21.2	17.6		16.4	16.3		28.6	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		16.3			19.5			16.3			26.3	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			81.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	117	80	0	146	44	0
Future Volume (Veh/h)	117	80	0	146	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	136	93	0	170	51	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			229		352	182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			229		352	182
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			1351		635	865
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	229	170	51			
Volume Left	0	0	51			
Volume Right	93	0	0			
cSH	1700	1700	635			
Volume to Capacity	0.13	0.10	0.08			
Queue Length 95th (m)	0.0	0.0	2.1			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			21.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	380	5	16	343	336	4	7	19	340	4	93
Future Volume (vph)	95	380	5	16	343	336	4	7	19	340	4	93
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.20	0.43	0.01	0.04	0.50	0.42		0.02	0.03		0.70	0.15
Control Delay	10.7	15.7	0.0	17.9	23.4	4.1		16.5	0.1		31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.7	15.7	0.0	17.9	23.4	4.1		16.5	0.1		31.0	4.7
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		14.6			13.9			6.1			25.4	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 17.0

Intersection LOS: B

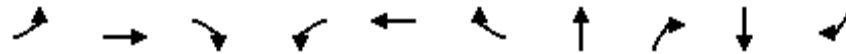
Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	388	5	16	350	343	11	19	351	95
v/c Ratio	0.20	0.43	0.01	0.04	0.50	0.42	0.02	0.03	0.70	0.15
Control Delay	10.7	15.7	0.0	17.9	23.4	4.1	16.5	0.1	31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	15.7	0.0	17.9	23.4	4.1	16.5	0.1	31.0	4.7
Queue Length 50th (m)	7.4	39.0	0.0	1.7	44.3	0.0	1.1	0.0	47.1	0.0
Queue Length 95th (m)	14.7	61.2	0.0	5.9	70.3	16.9	4.4	0.0	#80.1	9.3
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	498	895	791	378	696	818	622	645	498	647
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	0.19	0.43	0.01	0.04	0.50	0.42	0.02	0.03	0.70	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	380	5	16	343	336	4	7	19	340	4	93
Future Volume (vph)	95	380	5	16	343	336	4	7	19	340	4	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1811	1615
Flt Permitted	0.41	1.00	1.00	0.53	1.00	1.00		0.90	1.00		0.72	1.00
Satd. Flow (perm)	770	1881	1615	1011	1863	1615		1710	1615		1370	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	388	5	16	350	343	4	7	19	347	4	95
RTOR Reduction (vph)	0	0	3	0	0	217	0	0	12	0	0	60
Lane Group Flow (vph)	97	388	2	16	350	126	0	11	7	0	351	35
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	441	895	769	370	682	591		622	587		498	587
v/s Ratio Prot	0.02	c0.21			c0.19							
v/s Ratio Perm	0.09		0.00	0.02		0.08		0.01	0.00		c0.26	0.02
v/c Ratio	0.22	0.43	0.00	0.04	0.51	0.21		0.02	0.01		0.70	0.06
Uniform Delay, d1	12.1	13.8	11.0	16.3	19.8	17.4		16.3	16.3		21.8	16.5
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	0.3	1.5	0.0	0.2	2.7	0.8		0.1	0.0		8.1	0.2
Delay (s)	12.4	15.4	11.0	16.5	22.5	18.2		16.3	16.3		29.9	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		14.7			20.3			16.3			27.1	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			78.6%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2033 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	84	40	0	93	49	0
Future Volume (Veh/h)	84	40	0	93	49	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	97	46	0	107	56	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			143		227	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			143		227	120
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1452		766	937
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	143	107	56			
Volume Left	0	0	56			
Volume Right	46	0	0			
cSH	1700	1700	766			
Volume to Capacity	0.08	0.06	0.07			
Queue Length 95th (m)	0.0	0.0	1.9			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			16.9%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 SUN
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	434	5	4	368	279	2	4	9	273	2	61
Future Volume (vph)	60	434	5	4	368	279	2	4	9	273	2	61
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	30.1	30.1	30.1		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.38	0.38	0.38		0.36	0.36		0.36	0.36
v/c Ratio	0.14	0.51	0.01	0.01	0.55	0.37		0.01	0.01		0.58	0.10
Control Delay	10.3	17.0	0.0	17.5	24.1	4.0		16.3	0.0		26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.3	17.0	0.0	17.5	24.1	4.0		16.3	0.0		26.1	2.5
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		16.1			15.5			6.5			21.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 17.0

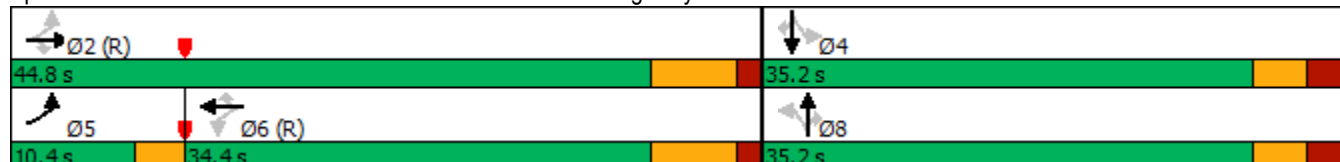
Intersection LOS: B

Intersection Capacity Utilization 77.7%

ICU Level of Service D

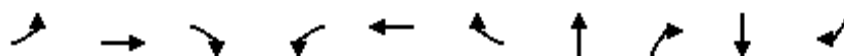
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	63	457	5	4	387	294	6	9	289	64
v/c Ratio	0.14	0.51	0.01	0.01	0.55	0.37	0.01	0.01	0.58	0.10
Control Delay	10.3	17.0	0.0	17.5	24.1	4.0	16.3	0.0	26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	17.0	0.0	17.5	24.1	4.0	16.3	0.0	26.1	2.5
Queue Length 50th (m)	4.7	48.2	0.0	0.4	49.7	0.0	0.6	0.0	36.5	0.0
Queue Length 95th (m)	10.5	74.5	0.0	2.4	78.8	15.9	3.0	0.0	62.2	4.7
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	457	895	791	357	708	791	641	645	500	645
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	0.51	0.01	0.01	0.55	0.37	0.01	0.01	0.58	0.10
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2033 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	434	5	4	368	279	2	4	9	273	2	61
Future Volume (vph)	60	434	5	4	368	279	2	4	9	273	2	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.37	1.00	1.00	0.50	1.00	1.00		0.93	1.00		0.72	1.00
Satd. Flow (perm)	683	1881	1615	949	1881	1615		1763	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	457	5	4	387	294	2	4	9	287	2	64
RTOR Reduction (vph)	0	0	3	0	0	186	0	0	6	0	0	41
Lane Group Flow (vph)	63	457	2	4	387	108	0	6	3	0	289	23
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	401	895	769	349	693	595		641	587		500	587
v/s Ratio Prot	0.01	c0.24			c0.21							
v/s Ratio Perm	0.06		0.00	0.00		0.07		0.00	0.00		c0.21	0.01
v/c Ratio	0.16	0.51	0.00	0.01	0.56	0.18		0.01	0.01		0.58	0.04
Uniform Delay, d1	12.1	14.5	11.0	16.0	20.1	17.1		16.2	16.2		20.5	16.4
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	0.2	2.1	0.0	0.1	3.2	0.7		0.0	0.0		4.8	0.1
Delay (s)	12.2	16.6	11.0	16.1	23.3	17.8		16.3	16.2		25.3	16.6
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		16.0			20.9			16.3			23.7	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			19.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			77.7%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2033 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	40	0	103	33	0
Future Volume (Veh/h)	79	40	0	103	33	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	94	48	0	123	39	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			142		241	118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			142		241	118
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1453		752	939
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	142	123	39			
Volume Left	0	0	39			
Volume Right	48	0	0			
cSH	1700	1700	752			
Volume to Capacity	0.08	0.07	0.05			
Queue Length 95th (m)	0.0	0.0	1.3			
Control Delay (s)	0.0	0.0	10.1			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			16.6%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	252	7	19	384	158	8	1	8	117	3	32
Future Volume (vph)	53	252	7	19	384	158	8	1	8	117	3	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.11	0.26	0.01	0.03	0.39	0.17		0.03	0.02		0.38	0.09
Control Delay	8.0	8.8	0.0	7.2	10.2	1.7		23.0	0.1		28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	8.0	8.8	0.0	7.2	10.2	1.7		23.0	0.1		28.8	5.2
LOS	A	A	A	A	B	A		C	A		C	A
Approach Delay		8.5			7.7			12.2			23.8	
Approach LOS		A			A			B			C	

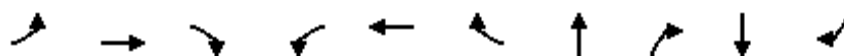
Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 66.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

											
											
53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s
											
53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s	53.6 s



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	56	268	7	20	409	168	10	9	127	34
v/c Ratio	0.11	0.26	0.01	0.03	0.39	0.17	0.03	0.02	0.38	0.09
Control Delay	8.0	8.8	0.0	7.2	10.2	1.7	23.0	0.1	28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	8.8	0.0	7.2	10.2	1.7	23.0	0.1	28.8	5.2
Queue Length 50th (m)	3.6	19.0	0.0	1.2	32.0	0.0	1.2	0.0	16.8	0.0
Queue Length 95th (m)	8.8	31.5	0.0	4.0	50.2	7.3	5.1	0.0	32.6	4.7
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0		80.0				
Base Capacity (vph)	522	1050	964	630	1050	997	317	447	332	387
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	0.11	0.26	0.01	0.03	0.39	0.17	0.03	0.02	0.38	0.09
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	252	7	19	384	158	8	1	8	117	3	32
Future Volume (vph)	53	252	7	19	384	158	8	1	8	117	3	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1727	1380
Flt Permitted	0.49	1.00	1.00	0.59	1.00	1.00		0.81	1.00		0.72	1.00
Satd. Flow (perm)	892	1792	1615	1075	1792	1583		1251	1615		1312	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	268	7	20	409	168	9	1	9	124	3	34
RTOR Reduction (vph)	0	0	3	0	0	70	0	0	7	0	0	25
Lane Group Flow (vph)	56	268	4	20	409	98	0	10	2	0	127	9
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	522	1050	946	630	1050	928		317	409		332	350
v/s Ratio Prot		0.15			c0.23							
v/s Ratio Perm	0.06		0.00	0.02		0.06		0.01	0.00		c0.10	0.01
v/c Ratio	0.11	0.26	0.00	0.03	0.39	0.11		0.03	0.01		0.38	0.02
Uniform Delay, d1	7.3	8.1	6.9	7.0	8.9	7.3		22.5	22.3		24.7	22.4
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	0.4	0.6	0.0	0.1	1.1	0.2		0.2	0.0		3.3	0.1
Delay (s)	7.7	8.6	6.9	7.1	10.0	7.5		22.6	22.3		28.0	22.5
Level of Service	A	A	A	A	A	A		C	C		C	C
Approach Delay (s)		8.4			9.2			22.5			26.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			66.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2033 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	58	26	0	185	24	0
Future Volume (Veh/h)	58	26	0	185	24	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	67	30	0	213	28	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			97		295	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			97		295	82
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1509		658	983
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	97	213	28			
Volume Left	0	0	28			
Volume Right	30	0	0			
cSH	1700	1509	658			
Volume to Capacity	0.06	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	1.1			
Control Delay (s)	0.0	0.0	10.7			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.7			
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			19.7%		ICU Level of Service	
Analysis Period (min)			15			
			A			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2033 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	58	0	0	185	0	0
Future Volume (Veh/h)	58	0	0	185	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	0	0	201	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			63	264		63
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			63	264		63
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			1540	725		1002
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	63	201	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1540	1700			
Volume to Capacity	0.04	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			13.1%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	451	4	15	251	366	6	0	15	422	4	141
Future Volume (vph)	127	451	4	15	251	366	6	0	15	422	4	141
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	41.0	41.0	30.6	30.6	30.6	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.0%	51.3%	51.3%	38.3%	38.3%	38.3%	48.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	38.0	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.48	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
v/c Ratio	0.27	0.59	0.01	0.06	0.46	0.51		0.02	0.02		0.79	0.20
Control Delay	13.5	21.2	0.0	20.9	26.0	5.2		14.3	0.1		33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	13.5	21.2	0.0	20.9	26.0	5.2		14.3	0.1		33.1	3.5
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		19.4			13.8			4.0			25.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.3

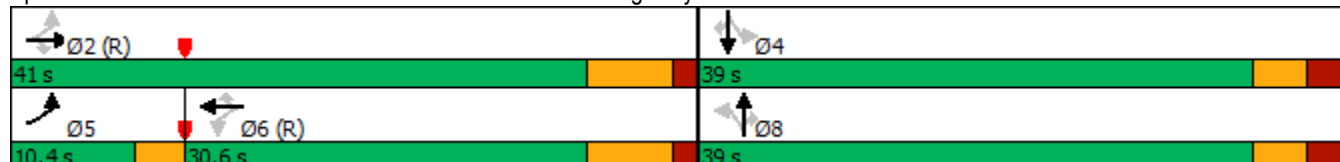
Intersection LOS: B

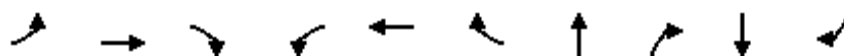
Intersection Capacity Utilization 86.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	134	475	4	16	264	385	6	16	448	148
v/c Ratio	0.27	0.59	0.01	0.06	0.46	0.51	0.02	0.02	0.79	0.20
Control Delay	13.5	21.2	0.0	20.9	26.0	5.2	14.3	0.1	33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	21.2	0.0	20.9	26.0	5.2	14.3	0.1	33.1	3.5
Queue Length 50th (m)	11.6	56.1	0.0	1.8	34.2	0.0	0.6	0.0	60.7	0.0
Queue Length 95th (m)	21.8	86.4	0.0	6.4	56.3	19.4	2.9	0.0	#111.9	10.4
Internal Link Dist (m)	394.9		274.4			50.8		39.1		
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	505	806	716	281	572	755	279	717	565	751
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	0.27	0.59	0.01	0.06	0.46	0.51	0.02	0.02	0.79	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 PM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	451	4	15	251	366	6	0	15	422	4	141
Future Volume (vph)	127	451	4	15	251	366	6	0	15	422	4	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1810	1615
Flt Permitted	0.47	1.00	1.00	0.49	1.00	1.00		0.36	1.00		0.72	1.00
Satd. Flow (perm)	886	1881	1615	934	1900	1615		681	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	475	4	16	264	385	6	0	16	444	4	148
RTOR Reduction (vph)	0	0	2	0	0	269	0	0	9	0	0	87
Lane Group Flow (vph)	134	475	2	16	264	116	0	6	7	0	448	61
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Effective Green, g (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.43	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	462	806	692	281	572	486		280	664		565	664
v/s Ratio Prot	0.03	c0.25			0.14							
v/s Ratio Perm	0.10		0.00	0.02		0.07		0.01	0.00		c0.33	0.04
v/c Ratio	0.29	0.59	0.00	0.06	0.46	0.24		0.02	0.01		0.79	0.09
Uniform Delay, d1	14.3	17.5	13.1	19.9	22.7	21.0		14.0	13.9		20.6	14.4
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	0.3	3.2	0.0	0.4	2.7	1.2		0.1	0.0		10.9	0.3
Delay (s)	14.7	20.6	13.1	20.3	25.4	22.2		14.1	13.9		31.5	14.7
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		19.3			23.4			14.0			27.3	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			86.9%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2033 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	117	108	0	146	58	0
Future Volume (Veh/h)	117	108	0	146	58	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	136	126	0	170	67	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			262		369	199
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			262		369	199
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1314		621	847
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	262	170	67			
Volume Left	0	0	67			
Volume Right	126	0	0			
cSH	1700	1314	621			
Volume to Capacity	0.15	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	2.9			
Control Delay (s)	0.0	0.0	11.5			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.5			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			22.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2033 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	117	0	0	146	0	0
Future Volume (Veh/h)	117	0	0	146	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	0	0	159	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			127	286		127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			127	286		127
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			1459	704		923
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	127	159	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1459	1700			
Volume to Capacity	0.07	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
A						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			11.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	372	5	16	307	490	4	7	19	461	4	154
Future Volume (vph)	130	372	5	16	307	490	4	7	19	461	4	154
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	38.0	38.0	27.6	27.6	27.6	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	13.0%	47.5%	47.5%	34.5%	34.5%	34.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	35.0	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.44	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
v/c Ratio	0.33	0.52	0.01	0.06	0.64	0.63		0.01	0.02		0.77	0.19
Control Delay	16.2	21.7	0.0	23.1	33.0	6.5		12.4	0.1		29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	16.2	21.7	0.0	23.1	33.0	6.5		12.4	0.1		29.3	3.0
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		20.1			16.9			4.6			22.7	
Approach LOS		C			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.4

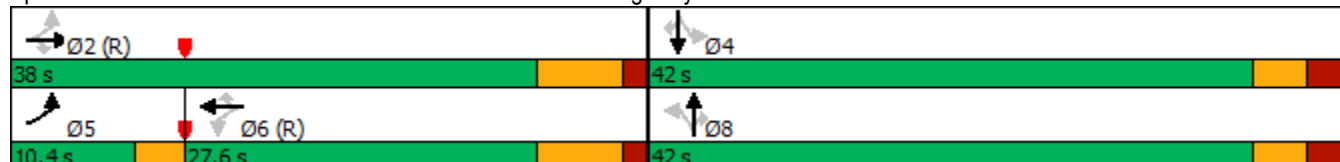
Intersection LOS: B

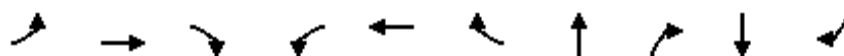
Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	133	380	5	16	313	500	11	19	474	157
v/c Ratio	0.33	0.52	0.01	0.06	0.64	0.63	0.01	0.02	0.77	0.19
Control Delay	16.2	21.7	0.0	23.1	33.0	6.5	12.4	0.1	29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	21.7	0.0	23.1	33.0	6.5	12.4	0.1	29.3	3.0
Queue Length 50th (m)	12.4	45.2	0.0	1.9	44.4	0.0	0.9	0.0	61.5	0.0
Queue Length 95th (m)	23.3	71.2	0.0	6.8	71.6	23.4	3.7	0.0	#113.6	9.9
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	405	735	657	268	491	794	762	774	613	811
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	0.33	0.52	0.01	0.06	0.64	0.63	0.01	0.02	0.77	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	372	5	16	307	490	4	7	19	461	4	154
Future Volume (vph)	130	372	5	16	307	490	4	7	19	461	4	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1810	1615
Flt Permitted	0.36	1.00	1.00	0.54	1.00	1.00		0.89	1.00		0.72	1.00
Satd. Flow (perm)	692	1881	1615	1019	1863	1615		1699	1615		1369	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	133	380	5	16	313	500	4	7	19	470	4	157
RTOR Reduction (vph)	0	0	3	0	0	368	0	0	10	0	0	87
Lane Group Flow (vph)	133	380	2	16	313	132	0	11	9	0	474	70
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Effective Green, g (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.39	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	370	735	631	268	491	425		762	724		614	724
v/s Ratio Prot	0.03	c0.20			c0.17							
v/s Ratio Perm	0.11		0.00	0.02		0.08		0.01	0.01		c0.35	0.04
v/c Ratio	0.36	0.52	0.00	0.06	0.64	0.31		0.01	0.01		0.77	0.10
Uniform Delay, d1	16.5	18.6	14.8	22.0	26.1	23.6		12.2	12.2		18.6	12.7
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	0.6	2.6	0.0	0.4	6.2	1.9		0.0	0.0		9.1	0.3
Delay (s)	17.1	21.2	14.8	22.5	32.3	25.5		12.3	12.2		27.7	13.0
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		20.1			28.0			12.3			24.0	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			24.5				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			84.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2033 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	84	54	0	93	68	0
Future Volume (Veh/h)	84	54	0	93	68	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	97	62	0	107	78	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			159		235	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			159		235	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		90	100
cM capacity (veh/h)			1433		758	927
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	159	107	78			
Volume Left	0	0	78			
Volume Right	62	0	0			
cSH	1700	1433	758			
Volume to Capacity	0.09	0.00	0.10			
Queue Length 95th (m)	0.0	0.0	2.7			
Control Delay (s)	0.0	0.0	10.3			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.3			
Approach LOS						
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			18.2%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2033 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	84	0	0	93	0	0
Future Volume (Veh/h)	84	0	0	93	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	0	0	101	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			91		192	91
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			91		192	91
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1504		797	967
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	91	101	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1504	1700			
Volume to Capacity	0.05	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			8.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 SUN
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	428	5	4	336	415	2	4	9	372	2	113
Future Volume (vph)	87	428	5	4	336	415	2	4	9	372	2	113
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.19	0.50	0.01	0.01	0.50	0.50		0.01	0.01		0.79	0.18
Control Delay	10.7	16.9	0.0	17.5	23.4	4.3		16.3	0.0		36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.7	16.9	0.0	17.5	23.4	4.3		16.3	0.0		36.3	4.4
LOS	B	B	A	B	C	A		B	A		D	A
Approach Delay		15.7			12.9			6.5			28.9	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.0

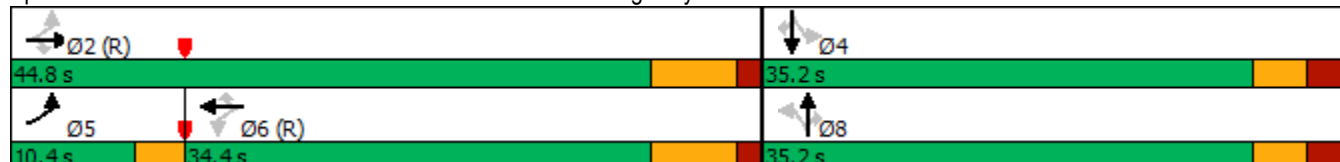
Intersection LOS: B

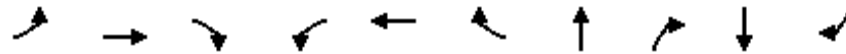
Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	92	451	5	4	354	437	6	9	394	119
v/c Ratio	0.19	0.50	0.01	0.01	0.50	0.50	0.01	0.01	0.79	0.18
Control Delay	10.7	16.9	0.0	17.5	23.4	4.3	16.3	0.0	36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	16.9	0.0	17.5	23.4	4.3	16.3	0.0	36.3	4.4
Queue Length 50th (m)	7.0	47.4	0.0	0.4	44.9	0.0	0.6	0.0	55.1	0.0
Queue Length 95th (m)	14.1	73.3	0.0	2.4	71.2	18.8	3.0	0.0	#102.0	10.2
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	484	895	791	356	703	877	632	645	500	663
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	0.19	0.50	0.01	0.01	0.50	0.50	0.01	0.01	0.79	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	428	5	4	336	415	2	4	9	372	2	113
Future Volume (vph)	87	428	5	4	336	415	2	4	9	372	2	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.40	1.00	1.00	0.50	1.00	1.00		0.91	1.00		0.72	1.00
Satd. Flow (perm)	747	1881	1615	954	1881	1615		1738	1615		1375	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	451	5	4	354	437	2	4	9	392	2	119
RTOR Reduction (vph)	0	0	3	0	0	277	0	0	6	0	0	76
Lane Group Flow (vph)	92	451	2	4	354	160	0	6	3	0	394	43
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	429	895	769	349	688	591		632	587		500	587
v/s Ratio Prot	0.02	c0.24			0.19							
v/s Ratio Perm	0.09		0.00	0.00		0.10		0.00	0.00		c0.29	0.03
v/c Ratio	0.21	0.50	0.00	0.01	0.51	0.27		0.01	0.01		0.79	0.07
Uniform Delay, d1	12.1	14.4	11.0	16.1	19.8	17.8		16.2	16.2		22.7	16.6
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	0.3	2.0	0.0	0.1	2.7	1.1		0.0	0.0		11.9	0.2
Delay (s)	12.3	16.5	11.0	16.2	22.5	19.0		16.3	16.2		34.6	16.9
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.7			20.5			16.3			30.5	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			21.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			82.8%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2033 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	56	0	103	44	0
Future Volume (Veh/h)	79	56	0	103	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	94	67	0	123	52	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			161		250	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			161		250	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1430		742	928
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	161	123	52			
Volume Left	0	0	52			
Volume Right	67	0	0			
cSH	1700	1430	742			
Volume to Capacity	0.09	0.00	0.07			
Queue Length 95th (m)	0.0	0.0	1.8			
Control Delay (s)	0.0	0.0	10.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			17.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2033 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	0	0	103	0	0
Future Volume (Veh/h)	79	0	0	103	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	86	0	0	112	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			86		198	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			86		198	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1510		791	973
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	86	112	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1510	1700			
Volume to Capacity	0.05	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			8.8%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix G

2038 Synchro Outputs



Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2038 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	274	7	19	418	98	8	1	8	71	3	24
Future Volume (vph)	34	274	7	19	418	98	8	1	8	71	3	24
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.07	0.28	0.01	0.03	0.42	0.11		0.03	0.02		0.24	0.07
Control Delay	7.7	9.0	0.0	7.2	10.7	1.9		22.9	0.1		26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	7.7	9.0	0.0	7.2	10.7	1.9		22.9	0.1		26.0	3.4
LOS	A	A	A	A	B	A		C	A		C	A
Approach Delay		8.7			9.0			12.1			20.4	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 10.1

Intersection LOS: B

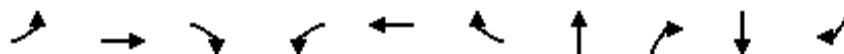
Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

 Ø2 (R)	 Ø4
53.6 s	26.4 s
 Ø6 (R)	 Ø8
53.6 s	26.4 s



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	36	291	7	20	445	104	10	9	79	26
v/c Ratio	0.07	0.28	0.01	0.03	0.42	0.11	0.03	0.02	0.24	0.07
Control Delay	7.7	9.0	0.0	7.2	10.7	1.9	22.9	0.1	26.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	9.0	0.0	7.2	10.7	1.9	22.9	0.1	26.0	3.4
Queue Length 50th (m)	2.3	21.0	0.0	1.2	35.8	0.0	1.2	0.0	10.0	0.0
Queue Length 95th (m)	6.2	34.2	0.0	4.0	55.6	5.8	5.1	0.0	21.6	2.9
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0		80.0				
Base Capacity (vph)	492	1050	964	617	1050	971	324	447	334	387
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	0.28	0.01	0.03	0.42	0.11	0.03	0.02	0.24	0.07
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2038 AM

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	274	7	19	418	98	8	1	8	71	3	24
Future Volume (vph)	34	274	7	19	418	98	8	1	8	71	3	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1730	1380
Flt Permitted	0.46	1.00	1.00	0.58	1.00	1.00		0.82	1.00		0.73	1.00
Satd. Flow (perm)	841	1792	1615	1053	1792	1583		1279	1615		1319	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	36	291	7	20	445	104	9	1	9	76	3	26
RTOR Reduction (vph)	0	0	3	0	0	43	0	0	7	0	0	19
Lane Group Flow (vph)	36	291	4	20	445	61	0	10	2	0	79	7
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	493	1050	946	617	1050	928		324	409		334	350
v/s Ratio Prot		0.16			c0.25							
v/s Ratio Perm	0.04		0.00	0.02		0.04		0.01	0.00		c0.06	0.00
v/c Ratio	0.07	0.28	0.00	0.03	0.42	0.07		0.03	0.01		0.24	0.02
Uniform Delay, d1	7.2	8.2	6.9	7.0	9.1	7.1		22.5	22.3		23.7	22.4
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	0.3	0.7	0.0	0.1	1.3	0.1		0.2	0.0		1.7	0.1
Delay (s)	7.4	8.8	6.9	7.1	10.4	7.3		22.6	22.3		25.4	22.5
Level of Service	A		A	A	B	A		C	C		C	C
Approach Delay (s)		8.6			9.7			22.5			24.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			57.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2038 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	15	0	201	14	0
Future Volume (Veh/h)	63	15	0	201	14	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	72	17	0	231	16	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			89		312	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			89		312	80
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1519		643	985
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	89	231	16			
Volume Left	0	0	16			
Volume Right	17	0	0			
cSH	1700	1700	643			
Volume to Capacity	0.05	0.14	0.02			
Queue Length 95th (m)	0.0	0.0	0.6			
Control Delay (s)	0.0	0.0	10.7			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.7			
Approach LOS						
Intersection Summary						
Average Delay						
			0.5			
Intersection Capacity Utilization			20.6%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	503	4	15	317	245	6	0	15	317	4	79
Future Volume (vph)	92	503	4	15	317	245	6	0	15	317	4	79
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.19	0.59	0.01	0.05	0.47	0.34		0.02	0.02		0.68	0.13
Control Delay	10.7	18.7	0.0	18.2	22.7	4.0		16.7	0.1		29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.7	18.7	0.0	18.2	22.7	4.0		16.7	0.1		29.6	4.2
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		17.3			14.7			4.6			24.6	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 18.0

Intersection LOS: B

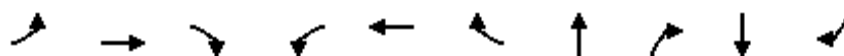
Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	529	4	16	334	258	6	16	338	83
v/c Ratio	0.19	0.59	0.01	0.05	0.47	0.34	0.02	0.02	0.68	0.13
Control Delay	10.7	18.7	0.0	18.2	22.7	4.0	16.7	0.1	29.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	18.7	0.0	18.2	22.7	4.0	16.7	0.1	29.6	4.2
Queue Length 50th (m)	7.4	58.7	0.0	1.7	41.7	0.0	0.6	0.0	44.7	0.0
Queue Length 95th (m)	14.7	90.0	0.0	6.0	66.5	15.1	3.1	0.0	75.2	7.9
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0		60.0		80.0			
Base Capacity (vph)	512	895	791	310	709	765	310	645	500	645
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	0.19	0.59	0.01	0.05	0.47	0.34	0.02	0.02	0.68	0.13
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2028 PM
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	503	4	15	317	245	6	0	15	317	4	79
Future Volume (vph)	92	503	4	15	317	245	6	0	15	317	4	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1811	1615
Flt Permitted	0.42	1.00	1.00	0.44	1.00	1.00		0.45	1.00		0.72	1.00
Satd. Flow (perm)	804	1881	1615	829	1900	1615		853	1615		1377	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	529	4	16	334	258	6	0	16	334	4	83
RTOR Reduction (vph)	0	0	2	0	0	164	0	0	10	0	0	53
Lane Group Flow (vph)	97	529	2	16	334	94	0	6	6	0	338	30
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	455	895	769	303	695	591		310	587		500	587
v/s Ratio Prot	0.02	c0.28			0.18							
v/s Ratio Perm	0.09		0.00	0.02		0.06		0.01	0.00		c0.25	0.02
v/c Ratio	0.21	0.59	0.00	0.05	0.48	0.16		0.02	0.01		0.68	0.05
Uniform Delay, d1	12.0	15.3	11.0	16.4	19.5	17.1		16.3	16.3		21.5	16.5
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	0.2	2.9	0.0	0.3	2.4	0.6		0.1	0.0		7.2	0.2
Delay (s)	12.3	18.1	11.0	16.7	21.9	17.6		16.4	16.3		28.6	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		17.2			19.9			16.3			26.3	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			83.8%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2028 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	128	80	0	159	44	0
Future Volume (Veh/h)	128	80	0	159	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	149	93	0	185	51	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			242		380	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			242		380	196
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			1336		612	851
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	242	185	51			
Volume Left	0	0	51			
Volume Right	93	0	0			
cSH	1700	1700	612			
Volume to Capacity	0.14	0.11	0.08			
Queue Length 95th (m)	0.0	0.0	2.2			
Control Delay (s)	0.0	0.0	11.4			
Lane LOS						
Approach Delay (s)	0.0	0.0	11.4			
Approach LOS						
Intersection Summary						
Average Delay						
			1.2			
Intersection Capacity Utilization			21.6%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

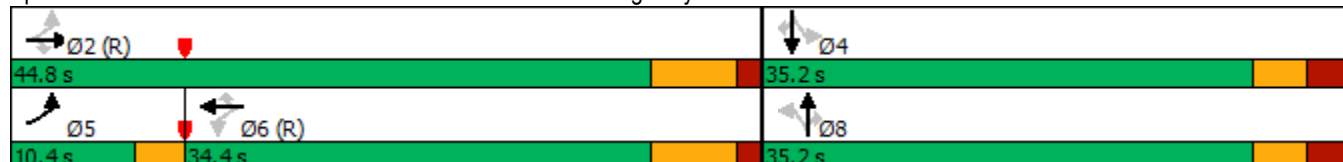
FB 2038 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	413	5	16	373	336	4	7	19	340	4	93
Future Volume (vph)	95	413	5	16	373	336	4	7	19	340	4	93
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.21	0.47	0.01	0.04	0.55	0.42		0.02	0.03		0.70	0.15
Control Delay	10.9	16.3	0.0	18.0	24.3	4.1		16.5	0.1		31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.9	16.3	0.0	18.0	24.3	4.1		16.5	0.1		31.0	4.7
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		15.2			14.8			6.1			25.4	
Approach LOS		B			B			A			C	

Intersection Summary

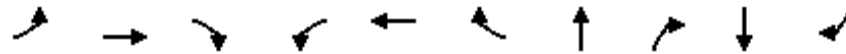
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 17.5
Intersection Capacity Utilization 80.4%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service D

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	97	421	5	16	381	343	11	19	351	95
v/c Ratio	0.21	0.47	0.01	0.04	0.55	0.42	0.02	0.03	0.70	0.15
Control Delay	10.9	16.3	0.0	18.0	24.3	4.1	16.5	0.1	31.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	16.3	0.0	18.0	24.3	4.1	16.5	0.1	31.0	4.7
Queue Length 50th (m)	7.4	43.3	0.0	1.7	49.3	0.0	1.1	0.0	47.1	0.0
Queue Length 95th (m)	14.7	67.2	0.0	5.9	77.5	16.9	4.4	0.0	#80.1	9.3
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	470	895	791	366	696	818	622	645	498	647
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	0.21	0.47	0.01	0.04	0.55	0.42	0.02	0.03	0.70	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2038 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	413	5	16	373	336	4	7	19	340	4	93
Future Volume (vph)	95	413	5	16	373	336	4	7	19	340	4	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1811	1615
Flt Permitted	0.37	1.00	1.00	0.52	1.00	1.00		0.90	1.00		0.72	1.00
Satd. Flow (perm)	706	1881	1615	981	1863	1615		1710	1615		1370	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	421	5	16	381	343	4	7	19	347	4	95
RTOR Reduction (vph)	0	0	3	0	0	217	0	0	12	0	0	60
Lane Group Flow (vph)	97	421	2	16	381	126	0	11	7	0	351	35
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	415	895	769	359	682	591		622	587		498	587
v/s Ratio Prot	0.02	c0.22			c0.20							
v/s Ratio Perm	0.09		0.00	0.02		0.08		0.01	0.00		c0.26	0.02
v/c Ratio	0.23	0.47	0.00	0.04	0.56	0.21		0.02	0.01		0.70	0.06
Uniform Delay, d1	12.3	14.1	11.0	16.3	20.2	17.4		16.3	16.3		21.8	16.5
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	0.3	1.8	0.0	0.2	3.3	0.8		0.1	0.0		8.1	0.2
Delay (s)	12.6	15.9	11.0	16.6	23.5	18.2		16.3	16.3		29.9	16.7
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		15.2			20.9			16.3			27.1	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			80.4%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

8: SmartCentres D/W Rear & Scugog Line 6

FB 2038 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	92	40	0	102	49	0
Future Volume (Veh/h)	92	40	0	102	49	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	106	46	0	117	56	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			152		246	129
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			152		246	129
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1441		747	926
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	152	117	56			
Volume Left	0	0	56			
Volume Right	46	0	0			
cSH	1700	1700	747			
Volume to Capacity	0.09	0.07	0.07			
Queue Length 95th (m)	0.0	0.0	1.9			
Control Delay (s)	0.0	0.0	10.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			17.3%	ICU Level of Service		A
Analysis Period (min)			15			

Timings

FB 2038 SUN

3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	472	5	4	399	279	2	4	9	273	2	61
Future Volume (vph)	60	472	5	4	399	279	2	4	9	273	2	61
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	30.1	30.1	30.1		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.38	0.38	0.38		0.36	0.36		0.36	0.36
v/c Ratio	0.15	0.56	0.01	0.01	0.59	0.37		0.01	0.01		0.58	0.10
Control Delay	10.4	17.9	0.0	17.5	25.3	4.0		16.3	0.0		26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.4	17.9	0.0	17.5	25.3	4.0		16.3	0.0		26.1	2.5
LOS	B	B	A	B	C	A		B	A		C	A
Approach Delay		16.9			16.5			6.5			21.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 79.7%

ICU Level of Service D

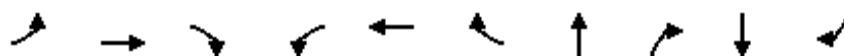
Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A



3: Ford D/W/SmartCentres D/W Main & Highway 7A

260084



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	63	497	5	4	420	294	6	9	289	64
v/c Ratio	0.15	0.56	0.01	0.01	0.59	0.37	0.01	0.01	0.58	0.10
Control Delay	10.4	17.9	0.0	17.5	25.3	4.0	16.3	0.0	26.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	17.9	0.0	17.5	25.3	4.0	16.3	0.0	26.1	2.5
Queue Length 50th (m)	4.7	54.0	0.0	0.4	55.0	0.0	0.6	0.0	36.5	0.0
Queue Length 95th (m)	10.5	82.9	0.0	2.4	86.5	15.9	3.0	0.0	62.2	4.7
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	429	895	791	336	708	791	641	645	500	645
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	0.56	0.01	0.01	0.59	0.37	0.01	0.01	0.58	0.10
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FB 2038 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	472	5	4	399	279	2	4	9	273	2	61
Future Volume (vph)	60	472	5	4	399	279	2	4	9	273	2	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.33	1.00	1.00	0.47	1.00	1.00		0.93	1.00		0.72	1.00
Satd. Flow (perm)	617	1881	1615	894	1881	1615		1763	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	497	5	4	420	294	2	4	9	287	2	64
RTOR Reduction (vph)	0	0	3	0	0	186	0	0	6	0	0	41
Lane Group Flow (vph)	63	497	2	4	420	108	0	6	3	0	289	23
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.5	29.5	29.5		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	374	895	769	329	693	595		641	587		500	587
v/s Ratio Prot	0.01	c0.26			c0.22							
v/s Ratio Perm	0.07		0.00	0.00		0.07		0.00	0.00		c0.21	0.01
v/c Ratio	0.17	0.56	0.00	0.01	0.61	0.18		0.01	0.01		0.58	0.04
Uniform Delay, d1	12.3	14.9	11.0	16.0	20.5	17.1		16.2	16.2		20.5	16.4
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	0.2	2.5	0.0	0.1	3.9	0.7		0.0	0.0		4.8	0.1
Delay (s)	12.5	17.4	11.0	16.1	24.4	17.8		16.3	16.2		25.3	16.6
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		16.8			21.7			16.3			23.7	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			79.7%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear & Scugog Line 6

FB 2038 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	86	40	0	112	33	0
Future Volume (Veh/h)	86	40	0	112	33	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	102	48	0	133	39	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			150		259	126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			150		259	126
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1444		734	930
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	150	133	39			
Volume Left	0	0	39			
Volume Right	48	0	0			
cSH	1700	1700	734			
Volume to Capacity	0.09	0.08	0.05			
Queue Length 95th (m)	0.0	0.0	1.3			
Control Delay (s)	0.0	0.0	10.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			17.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 AM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	274	7	19	418	158	8	1	8	117	3	32
Future Volume (vph)	53	274	7	19	418	158	8	1	8	117	3	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.11	0.28	0.01	0.03	0.42	0.17		0.03	0.02		0.38	0.09
Control Delay	8.1	9.0	0.0	7.2	10.7	1.7		23.0	0.1		28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	8.1	9.0	0.0	7.2	10.7	1.7		23.0	0.1		28.8	5.2
LOS	A	A	A	A	B	A		C	A		C	A
Approach Delay		8.7			8.2			12.2			23.8	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 10.6

Intersection LOS: B

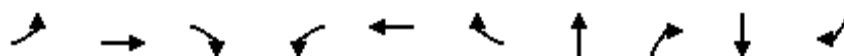
Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

	Ø2 (R)			Ø4
53.6 s			26.4 s	
	Ø6 (R)			Ø8
53.6 s			26.4 s	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	56	291	7	20	445	168	10	9	127	34
v/c Ratio	0.11	0.28	0.01	0.03	0.42	0.17	0.03	0.02	0.38	0.09
Control Delay	8.1	9.0	0.0	7.2	10.7	1.7	23.0	0.1	28.8	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	9.0	0.0	7.2	10.7	1.7	23.0	0.1	28.8	5.2
Queue Length 50th (m)	3.6	21.0	0.0	1.2	35.8	0.0	1.2	0.0	16.8	0.0
Queue Length 95th (m)	8.9	34.2	0.0	4.0	55.6	7.3	5.1	0.0	32.6	4.7
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	492	1050	964	617	1050	997	317	447	332	387
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	0.11	0.28	0.01	0.03	0.42	0.17	0.03	0.02	0.38	0.09
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 AM
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	274	7	19	418	158	8	1	8	117	3	32
Future Volume (vph)	53	274	7	19	418	158	8	1	8	117	3	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1484	1615		1727	1380
Flt Permitted	0.46	1.00	1.00	0.58	1.00	1.00		0.81	1.00		0.72	1.00
Satd. Flow (perm)	841	1792	1615	1053	1792	1583		1251	1615		1312	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	56	291	7	20	445	168	9	1	9	124	3	34
RTOR Reduction (vph)	0	0	3	0	0	70	0	0	7	0	0	25
Lane Group Flow (vph)	56	291	4	20	445	98	0	10	2	0	127	9
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	493	1050	946	617	1050	928		317	409		332	350
v/s Ratio Prot		0.16			c0.25							
v/s Ratio Perm	0.07		0.00	0.02		0.06		0.01	0.00		c0.10	0.01
v/c Ratio	0.11	0.28	0.00	0.03	0.42	0.11		0.03	0.01		0.38	0.02
Uniform Delay, d1	7.3	8.2	6.9	7.0	9.1	7.3		22.5	22.3		24.7	22.4
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	0.5	0.7	0.0	0.1	1.3	0.2		0.2	0.0		3.3	0.1
Delay (s)	7.8	8.8	6.9	7.1	10.4	7.5		22.6	22.3		28.0	22.5
Level of Service	A		A	A	B	A		C	C		C	C
Approach Delay (s)		8.6			9.5			22.5			26.8	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.8
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	26	0	201	24	0
Future Volume (Veh/h)	63	26	0	201	24	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	72	30	0	231	28	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			102		318	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			102		318	87
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		96	100
cM capacity (veh/h)			1503		638	977
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	102	231	28			
Volume Left	0	0	28			
Volume Right	30	0	0			
cSH	1700	1503	638			
Volume to Capacity	0.06	0.00	0.04			
Queue Length 95th (m)	0.0	0.0	1.1			
Control Delay (s)	0.0	0.0	10.9			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.9			
Approach LOS						
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			20.6%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 AM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	0	0	201	0	0
Future Volume (Veh/h)	63	0	0	201	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	0	0	218	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			68		286	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			68		286	68
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1533		704	995
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	68	218	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1533	1700			
Volume to Capacity	0.04	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			13.9%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 PM
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	492	4	15	277	366	6	0	15	422	4	141
Future Volume (vph)	127	492	4	15	277	366	6	0	15	422	4	141
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	41.0	41.0	30.6	30.6	30.6	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.0%	51.3%	51.3%	38.3%	38.3%	38.3%	48.8%	48.8%	48.8%	48.8%	48.8%	48.8%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	38.0	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.48	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
v/c Ratio	0.28	0.64	0.01	0.06	0.51	0.51		0.02	0.02		0.79	0.20
Control Delay	13.7	22.6	0.0	21.1	27.0	5.2		14.3	0.1		33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	13.7	22.6	0.0	21.1	27.0	5.2		14.3	0.1		33.1	3.5
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		20.6			14.7			4.0			25.8	
Approach LOS		C			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.9

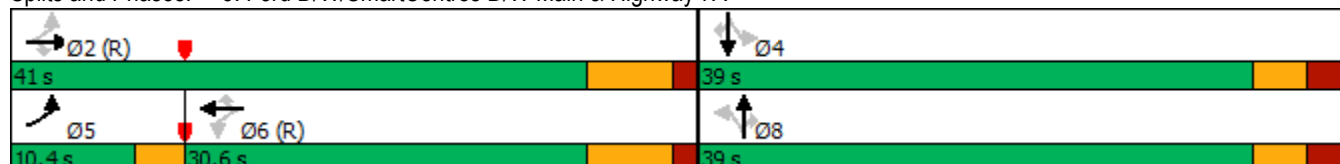
Intersection LOS: B

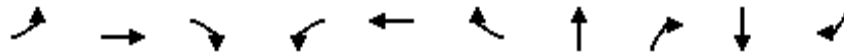
Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	134	518	4	16	292	385	6	16	448	148
v/c Ratio	0.28	0.64	0.01	0.06	0.51	0.51	0.02	0.02	0.79	0.20
Control Delay	13.7	22.6	0.0	21.1	27.0	5.2	14.3	0.1	33.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	22.6	0.0	21.1	27.0	5.2	14.3	0.1	33.1	3.5
Queue Length 50th (m)	11.6	63.0	0.0	1.8	38.4	0.0	0.6	0.0	60.7	0.0
Queue Length 95th (m)	21.8	96.6	0.0	6.4	62.4	19.4	2.9	0.0	#111.9	10.4
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	477	806	716	252	572	755	279	717	565	751
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	0.28	0.64	0.01	0.06	0.51	0.51	0.02	0.02	0.79	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2033 PM
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	492	4	15	277	366	6	0	15	422	4	141
Future Volume (vph)	127	492	4	15	277	366	6	0	15	422	4	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1810	1615
Flt Permitted	0.43	1.00	1.00	0.44	1.00	1.00		0.36	1.00		0.72	1.00
Satd. Flow (perm)	814	1881	1615	839	1900	1615		681	1615		1376	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	518	4	16	292	385	6	0	16	444	4	148
RTOR Reduction (vph)	0	0	2	0	0	269	0	0	9	0	0	87
Lane Group Flow (vph)	134	518	2	16	292	116	0	6	7	0	448	61
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Effective Green, g (s)	34.3	34.3	34.3	24.1	24.1	24.1		32.9	32.9		32.9	32.9
Actuated g/C Ratio	0.43	0.43	0.43	0.30	0.30	0.30		0.41	0.41		0.41	0.41
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	438	806	692	252	572	486		280	664		565	664
v/s Ratio Prot	0.03	c0.28			0.15							
v/s Ratio Perm	0.10		0.00	0.02		0.07		0.01	0.00		c0.33	0.04
v/c Ratio	0.31	0.64	0.00	0.06	0.51	0.24		0.02	0.01		0.79	0.09
Uniform Delay, d1	14.5	18.0	13.1	19.9	23.1	21.0		14.0	13.9		20.6	14.4
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	0.4	3.9	0.0	0.5	3.2	1.2		0.1	0.0		10.9	0.3
Delay (s)	14.9	21.9	13.1	20.4	26.3	22.2		14.1	13.9		31.5	14.7
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		20.4			23.9			14.0			27.3	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.8
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2033 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	128	108	0	159	58	0
Future Volume (Veh/h)	128	108	0	159	58	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	149	126	0	185	67	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			275		397	212
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		397	212
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1300		599	833
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	275	185	67			
Volume Left	0	0	67			
Volume Right	126	0	0			
cSH	1700	1300	599			
Volume to Capacity	0.16	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	3.0			
Control Delay (s)	0.0	0.0	11.8			
Lane LOS						
Approach Delay (s)	0.0	0.0	11.8			
Approach LOS						
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			23.3%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2033 PM
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	128	0	0	159	0	0
Future Volume (Veh/h)	128	0	0	159	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	139	0	0	173	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			139		312	139
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			139		312	139
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1445		681	909
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	139	173	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1445	1700			
Volume to Capacity	0.08	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			11.7%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SAT
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	405	5	16	337	490	4	7	19	461	4	154
Future Volume (vph)	130	405	5	16	337	490	4	7	19	461	4	154
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	38.0	38.0	27.6	27.6	27.6	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	13.0%	47.5%	47.5%	34.5%	34.5%	34.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	35.0	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.44	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
v/c Ratio	0.36	0.56	0.01	0.06	0.70	0.63		0.01	0.02		0.77	0.19
Control Delay	16.6	22.7	0.0	23.1	35.7	6.5		12.4	0.1		29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	16.6	22.7	0.0	23.1	35.7	6.5		12.4	0.1		29.3	3.0
LOS	B	C	A	C	D	A		B	A		C	A
Approach Delay		21.0			18.5			4.6			22.7	
Approach LOS		C			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 20.3

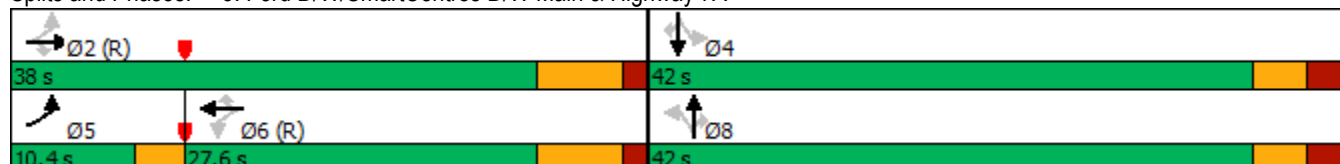
Intersection LOS: C

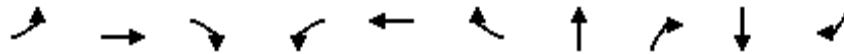
Intersection Capacity Utilization 86.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	133	413	5	16	344	500	11	19	474	157
v/c Ratio	0.36	0.56	0.01	0.06	0.70	0.63	0.01	0.02	0.77	0.19
Control Delay	16.6	22.7	0.0	23.1	35.7	6.5	12.4	0.1	29.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	22.7	0.0	23.1	35.7	6.5	12.4	0.1	29.3	3.0
Queue Length 50th (m)	12.4	50.3	0.0	1.9	49.8	0.0	0.9	0.0	61.5	0.0
Queue Length 95th (m)	23.3	78.3	0.0	6.8	#81.0	23.4	3.7	0.0	#113.6	9.9
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	376	735	657	261	491	794	762	774	613	811
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	0.35	0.56	0.01	0.06	0.70	0.63	0.01	0.02	0.77	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SAT
260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	405	5	16	337	490	4	7	19	461	4	154
Future Volume (vph)	130	405	5	16	337	490	4	7	19	461	4	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1866	1615		1810	1615
Flt Permitted	0.32	1.00	1.00	0.52	1.00	1.00		0.89	1.00		0.72	1.00
Satd. Flow (perm)	607	1881	1615	988	1863	1615		1699	1615		1369	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	133	413	5	16	344	500	4	7	19	470	4	157
RTOR Reduction (vph)	0	0	3	0	0	368	0	0	10	0	0	87
Lane Group Flow (vph)	133	413	2	16	344	132	0	11	9	0	474	70
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Effective Green, g (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.39	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	345	735	631	260	491	425		762	724		614	724
v/s Ratio Prot	0.03	c0.22			c0.18							
v/s Ratio Perm	0.12		0.00	0.02		0.08		0.01	0.01		c0.35	0.04
v/c Ratio	0.39	0.56	0.00	0.06	0.70	0.31		0.01	0.01		0.77	0.10
Uniform Delay, d1	16.7	19.0	14.8	22.0	26.6	23.6		12.2	12.2		18.6	12.7
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	0.7	3.1	0.0	0.5	8.1	1.9		0.0	0.0		9.1	0.3
Delay (s)	17.5	22.1	14.8	22.5	34.7	25.5		12.3	12.2		27.7	13.0
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		20.9			29.1			12.3			24.0	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			25.2				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			86.6%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	92	54	0	102	68	0
Future Volume (Veh/h)	92	54	0	102	68	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	106	62	0	117	78	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			168		254	137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			168		254	137
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		89	100
cM capacity (veh/h)			1422		739	917
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	168	117	78			
Volume Left	0	0	78			
Volume Right	62	0	0			
cSH	1700	1422	739			
Volume to Capacity	0.10	0.00	0.11			
Queue Length 95th (m)	0.0	0.0	2.8			
Control Delay (s)	0.0	0.0	10.4			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.4			
Approach LOS						
Intersection Summary						
Average Delay						
			2.2			
Intersection Capacity Utilization			18.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 SAT
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	92	0	0	102	0	0
Future Volume (Veh/h)	92	0	0	102	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	0	0	111	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			100		211	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			100		211	100
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1493		777	956
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	100	111	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1493	1700			
Volume to Capacity	0.06	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			8.7%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SUN
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	466	5	4	368	415	2	4	9	372	2	113
Future Volume (vph)	87	466	5	4	368	415	2	4	9	372	2	113
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.20	0.55	0.01	0.01	0.55	0.50		0.01	0.01		0.79	0.18
Control Delay	10.8	17.8	0.0	17.5	24.4	4.3		16.3	0.0		36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	10.8	17.8	0.0	17.5	24.4	4.3		16.3	0.0		36.3	4.4
LOS	B	B	A	B	C	A		B	A		D	A
Approach Delay		16.5			13.7			6.5			28.9	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 18.5

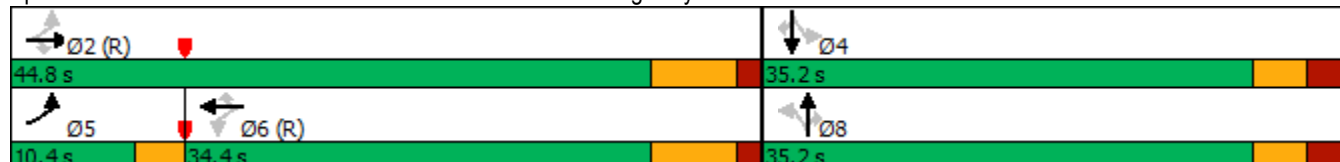
Intersection LOS: B

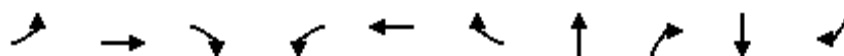
Intersection Capacity Utilization 84.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	92	491	5	4	387	437	6	9	394	119
v/c Ratio	0.20	0.55	0.01	0.01	0.55	0.50	0.01	0.01	0.79	0.18
Control Delay	10.8	17.8	0.0	17.5	24.4	4.3	16.3	0.0	36.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	17.8	0.0	17.5	24.4	4.3	16.3	0.0	36.3	4.4
Queue Length 50th (m)	7.0	53.1	0.0	0.4	50.2	0.0	0.6	0.0	55.1	0.0
Queue Length 95th (m)	14.1	81.6	0.0	2.4	78.8	18.8	3.0	0.0	#102.0	10.2
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	456	895	791	341	703	877	632	645	500	663
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	0.20	0.55	0.01	0.01	0.55	0.50	0.01	0.01	0.79	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SUN

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	466	5	4	368	415	2	4	9	372	2	113
Future Volume (vph)	87	466	5	4	368	415	2	4	9	372	2	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.36	1.00	1.00	0.48	1.00	1.00		0.91	1.00		0.72	1.00
Satd. Flow (perm)	680	1881	1615	913	1881	1615		1738	1615		1375	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	491	5	4	387	437	2	4	9	392	2	119
RTOR Reduction (vph)	0	0	3	0	0	277	0	0	6	0	0	76
Lane Group Flow (vph)	92	491	2	4	387	160	0	6	3	0	394	43
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	402	895	769	334	688	591		632	587		500	587
v/s Ratio Prot	0.02	c0.26			0.21							
v/s Ratio Perm	0.09		0.00	0.00		0.10		0.00	0.00		c0.29	0.03
v/c Ratio	0.23	0.55	0.00	0.01	0.56	0.27		0.01	0.01		0.79	0.07
Uniform Delay, d1	12.3	14.9	11.0	16.1	20.2	17.8		16.2	16.2		22.7	16.6
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	0.3	2.4	0.0	0.1	3.3	1.1		0.0	0.0		11.9	0.2
Delay (s)	12.6	17.3	11.0	16.2	23.5	19.0		16.3	16.2		34.6	16.9
Level of Service	B	B	B	B	C	B		B	B		C	B
Approach Delay (s)		16.5			21.1			16.3			30.5	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			22.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			84.8%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	86	56	0	112	44	0
Future Volume (Veh/h)	86	56	0	112	44	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	102	67	0	133	52	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			169		268	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			169		268	136
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1421		725	919
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	169	133	52			
Volume Left	0	0	52			
Volume Right	67	0	0			
cSH	1700	1421	725			
Volume to Capacity	0.10	0.00	0.07			
Queue Length 95th (m)	0.0	0.0	1.8			
Control Delay (s)	0.0	0.0	10.3			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			17.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 SUN
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	86	0	0	112	0	0
Future Volume (Veh/h)	86	0	0	112	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	0	0	122	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			93		215	93
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			93		215	93
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1501		773	964
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	93	122	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1501	1700			
Volume to Capacity	0.05	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			9.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 AM - Summer
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	301	8	21	459	166	9	1	9	124	3	34
Future Volume (vph)	55	301	8	21	459	166	9	1	9	124	3	34
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.7	26.7	26.7	26.7	26.7	26.7	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	53.6	53.6	53.6	53.6	53.6	53.6	26.4	26.4	26.4	26.4	26.4	26.4
Total Split (%)	67.0%	67.0%	67.0%	67.0%	67.0%	67.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
v/c Ratio	0.13	0.30	0.01	0.04	0.46	0.18		0.04	0.02		0.41	0.09
Control Delay	8.3	9.3	0.0	7.3	11.2	1.7		23.0	0.1		29.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	8.3	9.3	0.0	7.3	11.2	1.7		23.0	0.1		29.3	5.7
LOS	A	A	A	A	B	A		C	A		C	A
Approach Delay		9.0			8.7			12.1			24.3	
Approach LOS		A			A			B			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 59.2 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 10.9

Intersection LOS: B

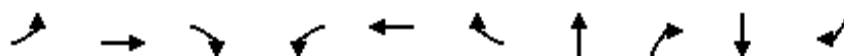
Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A

											
Ø2 (R)											
53.6 s											
											
Ø6 (R)											
53.6 s											



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	59	320	9	22	488	177	11	10	135	36
v/c Ratio	0.13	0.30	0.01	0.04	0.46	0.18	0.04	0.02	0.41	0.09
Control Delay	8.3	9.3	0.0	7.3	11.2	1.7	23.0	0.1	29.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	9.3	0.0	7.3	11.2	1.7	23.0	0.1	29.3	5.7
Queue Length 50th (m)	3.8	23.4	0.0	1.4	40.4	0.0	1.3	0.0	18.0	0.0
Queue Length 95th (m)	9.4	37.8	0.0	4.3	62.8	7.5	5.3	0.0	34.5	5.2
Internal Link Dist (m)	394.9			274.4			50.8		39.1	
Turn Bay Length (m)	125.0			55.0	60.0			80.0		
Base Capacity (vph)	457	1050	964	595	1050	1001	313	447	332	387
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	0.13	0.30	0.01	0.04	0.46	0.18	0.04	0.02	0.41	0.09
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 AM - Summer

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	301	8	21	459	166	9	1	9	124	3	34
Future Volume (vph)	55	301	8	21	459	166	9	1	9	124	3	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1736	1792	1615	1719	1792	1583		1481	1615		1727	1380
Flt Permitted	0.43	1.00	1.00	0.56	1.00	1.00		0.80	1.00		0.72	1.00
Satd. Flow (perm)	781	1792	1615	1015	1792	1583		1233	1615		1310	1380
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	59	320	9	22	488	177	10	1	10	132	3	36
RTOR Reduction (vph)	0	0	4	0	0	73	0	0	7	0	0	27
Lane Group Flow (vph)	59	320	5	22	488	104	0	11	3	0	135	9
Heavy Vehicles (%)	4%	6%	0%	5%	6%	2%	25%	0%	0%	5%	0%	17%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Effective Green, g (s)	46.9	46.9	46.9	46.9	46.9	46.9		20.3	20.3		20.3	20.3
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.25	0.25		0.25	0.25
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	457	1050	946	595	1050	928		312	409		332	350
v/s Ratio Prot		0.18			c0.27							
v/s Ratio Perm	0.08		0.00	0.02		0.07		0.01	0.00		c0.10	0.01
v/c Ratio	0.13	0.30	0.01	0.04	0.46	0.11		0.04	0.01		0.41	0.03
Uniform Delay, d1	7.4	8.3	6.9	7.0	9.4	7.3		22.5	22.3		24.8	22.4
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	0.7	0.0	0.1	1.5	0.2		0.2	0.0		3.7	0.1
Delay (s)	8.0	9.1	6.9	7.1	10.9	7.6		22.7	22.3		28.5	22.6
Level of Service	A	A	A	A	B	A		C	C		C	C
Approach Delay (s)		8.9			9.9			22.5			27.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			12.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			70.1%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 AM - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	70	27	0	221	26	0
Future Volume (Veh/h)	70	27	0	221	26	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	80	31	0	254	30	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			111		350	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			111		350	96
tC, single (s)			4.1		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.7	3.3
p0 queue free %			100		95	100
cM capacity (veh/h)			1492		611	967
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	111	254	30			
Volume Left	0	0	30			
Volume Right	31	0	0			
cSH	1700	1492	611			
Volume to Capacity	0.07	0.00	0.05			
Queue Length 95th (m)	0.0	0.0	1.2			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			21.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 AM - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	70	0	0	221	0	0
Future Volume (Veh/h)	70	0	0	221	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	0	0	240	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			76		316	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			76		316	76
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1523		677	985
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	76	240	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1523	1700			
Volume to Capacity	0.04	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS						
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS						
Intersection Summary						
Average Delay						
			0.0			
Intersection Capacity Utilization			15.0%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 PM - Summer
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	543	4	17	309	388	7	0	17	451	4	148
Future Volume (vph)	134	543	4	17	309	388	7	0	17	451	4	148
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	40.0	40.0	29.6	29.6	29.6	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	13.0%	50.0%	50.0%	37.0%	37.0%	37.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	37.0	33.3	33.3	23.1	23.1	23.1		33.9	33.9		33.9	33.9
Actuated g/C Ratio	0.46	0.42	0.42	0.29	0.29	0.29		0.42	0.42		0.42	0.42
v/c Ratio	0.33	0.73	0.01	0.09	0.59	0.54		0.03	0.02		0.82	0.20
Control Delay	14.9	26.3	0.0	22.6	29.8	5.5		14.0	0.1		34.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	14.9	26.3	0.0	22.6	29.8	5.5		14.0	0.1		34.6	3.3
LOS	B	C	A	C	C	A		B	A		C	A
Approach Delay		23.9			16.5			4.0			26.9	
Approach LOS		C			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 21.9

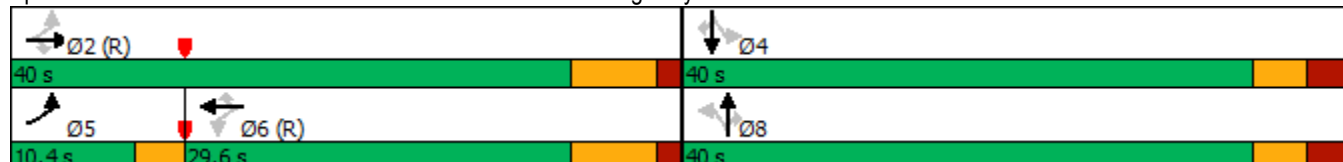
Intersection LOS: C

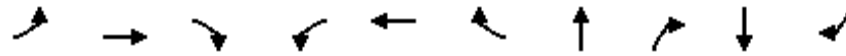
Intersection Capacity Utilization 93.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	141	572	4	18	325	408	7	18	479	156
v/c Ratio	0.33	0.73	0.01	0.09	0.59	0.54	0.03	0.02	0.82	0.20
Control Delay	14.9	26.3	0.0	22.6	29.8	5.5	14.0	0.1	34.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	26.3	0.0	22.6	29.8	5.5	14.0	0.1	34.6	3.3
Queue Length 50th (m)	12.6	74.4	0.0	2.1	44.5	0.0	0.6	0.0	65.5	0.0
Queue Length 95th (m)	23.3	113.4	0.0	7.3	71.3	20.2	3.0	0.0	#121.0	10.4
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	429	782	696	194	548	756	270	736	582	774
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	0.33	0.73	0.01	0.09	0.59	0.54	0.03	0.02	0.82	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 PM - Summer

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	543	4	17	309	388	7	0	17	451	4	148
Future Volume (vph)	134	543	4	17	309	388	7	0	17	451	4	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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)	1805	1881	1615	1805	1900	1615		1805	1615		1810	1615
Flt Permitted	0.37	1.00	1.00	0.35	1.00	1.00		0.34	1.00		0.72	1.00
Satd. Flow (perm)	709	1881	1615	674	1900	1615		639	1615		1375	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	141	572	4	18	325	408	7	0	18	475	4	156
RTOR Reduction (vph)	0	0	2	0	0	290	0	0	10	0	0	90
Lane Group Flow (vph)	141	572	2	18	325	118	0	7	8	0	479	66
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	33.3	33.3	33.3	23.1	23.1	23.1		33.9	33.9		33.9	33.9
Effective Green, g (s)	33.3	33.3	33.3	23.1	23.1	23.1		33.9	33.9		33.9	33.9
Actuated g/C Ratio	0.42	0.42	0.42	0.29	0.29	0.29		0.42	0.42		0.42	0.42
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	393	782	672	194	548	466		270	684		582	684
v/s Ratio Prot	0.03	c0.30			0.17							
v/s Ratio Perm	0.12		0.00	0.03		0.07		0.01	0.00		c0.35	0.04
v/c Ratio	0.36	0.73	0.00	0.09	0.59	0.25		0.03	0.01		0.82	0.10
Uniform Delay, d1	15.3	19.6	13.6	20.8	24.4	21.8		13.4	13.3		20.4	13.8
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	6.0	0.0	0.9	4.7	1.3		0.2	0.0		12.4	0.3
Delay (s)	15.9	25.6	13.7	21.7	29.1	23.1		13.6	13.4		32.8	14.1
Level of Service	B	C	B	C	C	C		B	B		C	B
Approach Delay (s)		23.6			25.7			13.4			28.2	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			25.6				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			93.4%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 PM - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	140	116	0	175	63	0
Future Volume (Veh/h)	140	116	0	175	63	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	163	135	0	203	73	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			298		434	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			298		434	230
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		87	100
cM capacity (veh/h)			1275		570	814
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	298	203	73			
Volume Left	0	0	73			
Volume Right	135	0	0			
cSH	1700	1275	570			
Volume to Capacity	0.18	0.00	0.13			
Queue Length 95th (m)	0.0	0.0	3.5			
Control Delay (s)	0.0	0.0	12.2			
Lane LOS	B					
Approach Delay (s)	0.0	0.0	12.2			
Approach LOS	B					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			24.6%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 PM - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	140	0	0	175	0	0
Future Volume (Veh/h)	140	0	0	175	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	152	0	0	190	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			152		342	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			152		342	152
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1429		654	894
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	152	190	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1429	1700			
Volume to Capacity	0.09	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			12.5%	ICU Level of Service		A
Analysis Period (min)			15			

Timings
3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SAT - Summer
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	446	6	18	375	521	4	8	21	492	4	161
Future Volume (vph)	137	446	6	18	375	521	4	8	21	492	4	161
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	38.0	38.0	27.6	27.6	27.6	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (%)	13.0%	47.5%	47.5%	34.5%	34.5%	34.5%	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	35.0	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.44	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
v/c Ratio	0.42	0.62	0.01	0.07	0.78	0.65		0.02	0.03		0.83	0.20
Control Delay	17.8	24.1	0.0	23.3	40.5	6.7		12.4	0.0		33.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.8	24.1	0.0	23.3	40.5	6.7		12.4	0.0		33.1	3.0
LOS	B	C	A	C	D	A		B	A		C	A
Approach Delay		22.4			20.9			4.5			25.7	
Approach LOS		C			C			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 22.5

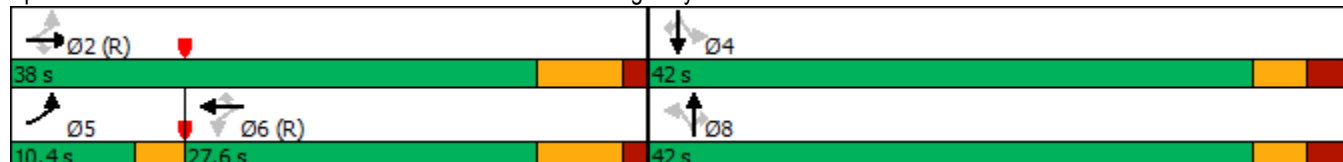
Intersection LOS: C

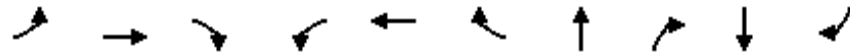
Intersection Capacity Utilization 90.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	140	455	6	18	383	532	12	21	506	164
v/c Ratio	0.42	0.62	0.01	0.07	0.78	0.65	0.02	0.03	0.83	0.20
Control Delay	17.8	24.1	0.0	23.3	40.5	6.7	12.4	0.0	33.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	24.1	0.0	23.3	40.5	6.7	12.4	0.0	33.1	3.0
Queue Length 50th (m)	13.2	57.0	0.0	2.2	56.9	0.0	1.0	0.0	68.0	0.0
Queue Length 95th (m)	24.5	88.1	0.0	7.4	#99.9	24.5	3.9	0.0	#125.8	10.1
Internal Link Dist (m)		394.9			274.4		50.8		39.1	
Turn Bay Length (m)	125.0		55.0	60.0		80.0				
Base Capacity (vph)	340	735	657	250	491	817	763	774	613	815
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	0.41	0.62	0.01	0.07	0.78	0.65	0.02	0.03	0.83	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SAT - Summer

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	446	6	18	375	521	4	8	21	492	4	161
Future Volume (vph)	137	446	6	18	375	521	4	8	21	492	4	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1805	1881	1615	1805	1863	1615		1869	1615		1810	1615
Flt Permitted	0.26	1.00	1.00	0.50	1.00	1.00		0.90	1.00		0.72	1.00
Satd. Flow (perm)	501	1881	1615	951	1863	1615		1703	1615		1367	1615
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	140	455	6	18	383	532	4	8	21	502	4	164
RTOR Reduction (vph)	0	0	4	0	0	392	0	0	12	0	0	90
Lane Group Flow (vph)	140	455	2	18	383	140	0	12	9	0	506	74
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Effective Green, g (s)	31.3	31.3	31.3	21.1	21.1	21.1		35.9	35.9		35.9	35.9
Actuated g/C Ratio	0.39	0.39	0.39	0.26	0.26	0.26		0.45	0.45		0.45	0.45
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	313	735	631	250	491	425		764	724		613	724
v/s Ratio Prot	0.04	c0.24			c0.21							
v/s Ratio Perm	0.13		0.00	0.02		0.09		0.01	0.01		c0.37	0.05
v/c Ratio	0.45	0.62	0.00	0.07	0.78	0.33		0.02	0.01		0.83	0.10
Uniform Delay, d1	17.2	19.6	14.8	22.1	27.3	23.8		12.2	12.2		19.3	12.7
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	1.0	3.9	0.0	0.6	11.6	2.1		0.0	0.0		12.0	0.3
Delay (s)	18.2	23.5	14.9	22.7	38.9	25.8		12.3	12.3		31.3	13.0
Level of Service	B	C	B	C	D	C		B	B		C	B
Approach Delay (s)		22.1			31.1			12.3			26.9	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			27.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.8		
Intersection Capacity Utilization			90.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 SAT - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	101	58	0	112	73	0
Future Volume (Veh/h)	101	58	0	112	73	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	116	67	0	129	84	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			183		278	150
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			183		278	150
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		88	100
cM capacity (veh/h)			1404		716	902
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	183	129	84			
Volume Left	0	0	84			
Volume Right	67	0	0			
cSH	1700	1404	716			
Volume to Capacity	0.11	0.00	0.12			
Queue Length 95th (m)	0.0	0.0	3.2			
Control Delay (s)	0.0	0.0	10.7			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.7			
Approach LOS						
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			19.6%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 SAT - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	101	0	0	112	0	0
Future Volume (Veh/h)	101	0	0	112	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	0	0	122	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			110	232		110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			110	232		110
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			1480	756		943
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	110	122	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1480	1700			
Volume to Capacity	0.06	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			9.2%	ICU Level of Service		A
Analysis Period (min)			15			

Timings 3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SUN - Summer
260084

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	512	6	4	407	442	2	4	10	399	2	118
Future Volume (vph)	93	512	6	4	407	442	2	4	10	399	2	118
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	6	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	8.0	26.7	26.7	26.7	26.7	26.7	16.1	16.1	16.1	16.1	16.1	16.1
Total Split (s)	10.4	44.8	44.8	34.4	34.4	34.4	35.2	35.2	35.2	35.2	35.2	35.2
Total Split (%)	13.0%	56.0%	56.0%	43.0%	43.0%	43.0%	44.0%	44.0%	44.0%	44.0%	44.0%	44.0%
Yellow Time (s)	3.0	5.1	5.1	5.1	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	0.0	1.6	1.6	1.6	1.6	1.6	2.8	2.8	2.8	2.8	2.8	2.8
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)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Act Effect Green (s)	41.8	38.1	38.1	29.9	29.9	29.9		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.52	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
v/c Ratio	0.24	0.60	0.01	0.01	0.61	0.52		0.01	0.02		0.84	0.19
Control Delay	11.2	18.9	0.0	17.5	25.8	4.4		16.3	0.0		41.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	11.2	18.9	0.0	17.5	25.8	4.4		16.3	0.0		41.2	4.3
LOS	B	B	A	B	C	A		B	A		D	A
Approach Delay		17.6			14.7			5.8			32.8	
Approach LOS		B			B			A			C	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 16 (20%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 20.2

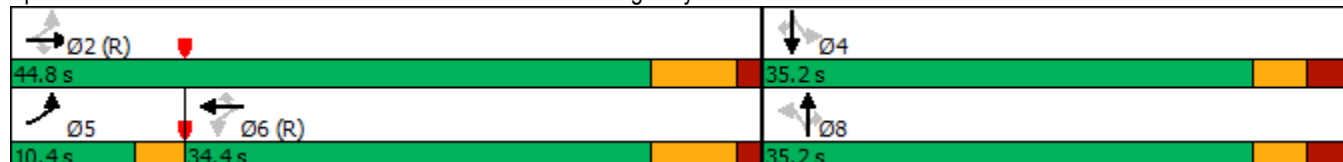
Intersection LOS: C

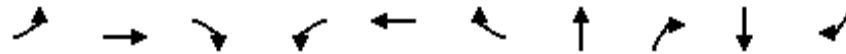
Intersection Capacity Utilization 88.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 3: Ford D/W/SmartCentres D/W Main & Highway 7A





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	98	539	6	4	428	465	6	11	422	124
v/c Ratio	0.24	0.60	0.01	0.01	0.61	0.52	0.01	0.02	0.84	0.19
Control Delay	11.2	18.9	0.0	17.5	25.8	4.4	16.3	0.0	41.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	18.9	0.0	17.5	25.8	4.4	16.3	0.0	41.2	4.3
Queue Length 50th (m)	7.4	60.3	0.0	0.4	57.0	0.0	0.6	0.0	60.7	0.0
Queue Length 95th (m)	14.9	92.4	0.0	2.4	88.6	19.3	3.0	0.0	#112.8	10.4
Internal Link Dist (m)	394.9				274.4		50.8		39.1	
Turn Bay Length (m)	125.0	55.0		60.0	80.0					
Base Capacity (vph)	420	895	791	301	702	894	630	645	500	666
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	0.23	0.60	0.01	0.01	0.61	0.52	0.01	0.02	0.84	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: Ford D/W/SmartCentres D/W Main & Highway 7A

FT 2038 SUN - Summer

260084

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	512	6	4	407	442	2	4	10	399	2	118
Future Volume (vph)	93	512	6	4	407	442	2	4	10	399	2	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Lane Util. Factor	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	1881	1615	1805	1881	1615		1869	1615		1810	1615
Flt Permitted	0.32	1.00	1.00	0.43	1.00	1.00		0.91	1.00		0.72	1.00
Satd. Flow (perm)	597	1881	1615	808	1881	1615		1732	1615		1375	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	98	539	6	4	428	465	2	4	11	420	2	124
RTOR Reduction (vph)	0	0	3	0	0	295	0	0	7	0	0	79
Lane Group Flow (vph)	98	539	3	4	428	170	0	6	4	0	422	45
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Effective Green, g (s)	38.1	38.1	38.1	29.3	29.3	29.3		29.1	29.1		29.1	29.1
Actuated g/C Ratio	0.48	0.48	0.48	0.37	0.37	0.37		0.36	0.36		0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	6.7	6.7	6.7		6.1	6.1		6.1	6.1
Vehicle Extension (s)	3.0	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	369	895	769	295	688	591		630	587		500	587
v/s Ratio Prot	0.02	c0.29			0.23							
v/s Ratio Perm	0.11		0.00	0.00		0.11		0.00	0.00		c0.31	0.03
v/c Ratio	0.27	0.60	0.00	0.01	0.62	0.29		0.01	0.01		0.84	0.08
Uniform Delay, d1	12.6	15.4	11.0	16.1	20.8	18.0		16.2	16.2		23.4	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	0.4	3.0	0.0	0.1	4.2	1.2		0.0	0.0		15.9	0.3
Delay (s)	13.0	18.4	11.0	16.2	25.0	19.2		16.3	16.3		39.2	16.9
Level of Service	B	B	B	B	C	B		B	B		D	B
Approach Delay (s)		17.5			22.0			16.3			34.2	
Approach LOS		B			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.8			
Intersection Capacity Utilization			88.7%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 8: SmartCentres D/W Rear #1 & Scugog Line 6

FT 2038 SUN - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	94	60	0	123	47	0
Future Volume (Veh/h)	94	60	0	123	47	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	112	71	0	146	56	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			183		294	148
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			183		294	148
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		92	100
cM capacity (veh/h)			1404		702	905
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	183	146	56			
Volume Left	0	0	56			
Volume Right	71	0	0			
cSH	1700	1404	702			
Volume to Capacity	0.11	0.00	0.08			
Queue Length 95th (m)	0.0	0.0	2.1			
Control Delay (s)	0.0	0.0	10.6			
Lane LOS						
Approach Delay (s)	0.0	0.0	10.6			
Approach LOS						
B						
Intersection Summary						
Average Delay						
			1.5			
Intersection Capacity Utilization			18.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 10: SmartCentres D/W Rear #2 & Scugog Line 6

FT 2038 SUN - Summer
260084

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	94	0	0	123	0	0
Future Volume (Veh/h)	94	0	0	123	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	102	0	0	134	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			102		236	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			102		236	102
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1490		752	953
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	102	134	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1490	1700			
Volume to Capacity	0.06	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			9.8%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix H

AutoTURN Outputs

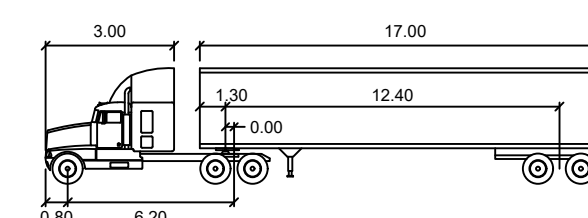




NOTES

1. THIS AUTOTURN SWEEP PATH ANALYSIS HAS BEEN PREPARED USING BASE PLANS PROVIDED BY OTHERS. THE PRACTITIONER HAS NOT INSPECTED THE ACCURACY AND/OR THE COMPLETENESS OF THESE BASE PLANS AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

DESIGN VEHICLE:



WB-20

		meters					
Tractor Width	: 2.60	Lock to Lock Time	: 6.0				
Trailer Width	: 2.60	Steering Angle	: 28.2				
Tractor Track	: 2.60	Articulating Angle	: 70.0				
Trailer Track	: 2.60						

[illegible]

AUTOTURN ASSESSMENT
1535 HIGHWAY 7
PORT PERRY

PROJECT NO.: 260084	DATE: JUNE 2026	SCALE: 1:750	DRAWING NO.: 01
DESIGN: SC	DRAWN: SC	CHECK: ASa	

