

REPORT N° 141-15409-00

**ENVIRONMENTAL  
ASSESSMENT STUDY –  
EAST-WEST CONNECTION  
MOUNT PLEASANT GO  
STATION TO WEST OF  
MISSISSAUGA ROAD**

PHASE 1 – TRAFFIC REPORT

JUNE 2015



**ENVIRONMENTAL ASSESSMENT  
STUDY – EAST-WEST  
CONNECTION MOUNT  
PLEASANT GO STATION TO  
WEST OF MISSISSAUGA ROAD  
PHASE 1 – TRAFFIC REPORT**  
**City of Brampton**

**Draft**

Project no: 141-15409-00  
Date: June 2015

**WSP Canada Inc.**  
600 Cochrane Drive, 5th Floor,  
Markham, Ontario L3R 5K3

Phone: 905-475-7270  
Fax: 905-475-5994  
[www.wspgroup.com](http://www.wspgroup.com)







141-15409-00

June 11, 2015

Andria Oliveira  
Policy Planner, Transportation & Infrastructure  
City of Brampton  
2 Wellington Street West  
Brampton, ON L6Y 4RT

**Subject: Environmental Assessment Study – East-West Connection,  
Mount Pleasant GO Station to West of Mississauga Road –  
Traffic Report**

Dear Ms. Oliveira,

Attached please find the Traffic Report for the Class Environmental Assessment for the East-West Connection, Mount Pleasant GO Station to West of Mississauga Road in the City of Brampton.

Should you have any questions, please feel free to contact the undersigned.

Yours truly,

A handwritten signature in black ink that reads "Mehemed Delibasic".

Mehemed Delibasic, M. Eng., P. Eng.  
Project Manager, Transportation Planning

141-15409Rep20150610EWConnection-Traffic.docm

WSP Canada Inc.  
Address 1  
Address 2

Phone: +1 555-555-5555  
Fax: +1 555-555-5555  
[www.wspgroup.com](http://www.wspgroup.com)



---

## SIGNATURES

PREPARED BY



David Lukezic, M. Eng., LEL, MCIP, RPP  
Senior Transportation Planner

REVIEWED BY



Mehemed Delibasic, M. Eng., P. Eng.  
Project Manager





# TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2</b>	<b>EXISTING CONDITIONS.....</b>	<b>3</b>
<b>2.1</b>	<b>ROADWAY NETWORK.....</b>	<b>3</b>
<b>2.2</b>	<b>EXISTING TRANSIT NETWORK.....</b>	<b>6</b>
2.2.1	BRAMPTON TRANSIT.....	6
2.2.2	GO TRANSIT.....	8
<b>2.3</b>	<b>EXISTING ACTIVE TRANSPORTATION NETWORK.....</b>	<b>9</b>
<b>2.4</b>	<b>2014 EXISTING VOLUMES.....</b>	<b>10</b>
<b>2.5</b>	<b>EXISTING TRAFFIC ANALYSIS.....</b>	<b>13</b>
<b>3</b>	<b>FUTURE TRAFFIC CONDITIONS.....</b>	<b>15</b>
<b>3.1</b>	<b>ROADWAY NETWORK IMPROVEMENTS.....</b>	<b>15</b>
3.1.1	REGION OF PEEL.....	15
3.1.2	CITY OF BRAMPTON.....	17
<b>3.2</b>	<b>TRANSIT NETWORK IMPROVEMENTS.....</b>	<b>20</b>
<b>3.3</b>	<b>FUTURE TRAFFIC VOLUMES.....</b>	<b>20</b>
3.3.1	SCREENLINES IN THE STUDY AREA.....	21
3.3.2	EXISTING (2011) LINK AND SCREENLINE ANALYSIS.....	22
3.3.3	FUTURE ROAD NETWORK.....	25
3.3.4	FUTURE (2021) DO-NOTHING LINK AND SCREENLINE ANALYSIS.....	25
3.3.5	FUTURE (2031) DO-NOTHING LINK AND SCREENLINE ANALYSIS.....	28
3.3.6	FUTURE (2021) LINK AND SCREENLINE ANALYSIS.....	31
3.3.7	FUTURE (2031) LINK AND SCREENLINE ANALYSIS.....	34
3.3.8	FUTURE TRAFFIC ANALYSES CONCLUSIONS.....	37
<b>4</b>	<b>PROBLEMS / OPPORTUNITIES.....</b>	<b>39</b>
<b>5</b>	<b>FUTURE (2031) TRAFFIC ANALYSIS.....</b>	<b>41</b>
<b>5.1</b>	<b>EMME MODEL.....</b>	<b>41</b>

5.2	NCHRP 255 ITERATIVE METHOD .....	41
5.3	ANALYSIS RESULTS .....	46
6	<b>SUMMARY AND RECOMMENDATIONS.....</b>	<b>53</b>
<b>APPENDICES</b>		

---

## T A B L E S

TABLE 2-1	EXISTING TRANSIT SERVICES.....	6
TABLE 2-2	INTERSECTION LEVEL OF SERVICE, 2014 EXISTING TRAFFIC VOLUMES.....	13
TABLE 3-1	2011 EMME MODEL – AUTO VOLUMES.....	23
TABLE 3-2	SUMMARY OF ROADWAY IMPROVEMENTS (NUMBER OF LANES) IN EMME MODEL.....	25
TABLE 3-3	2021 DO NOTHING EMME MODEL – AUTO VOLUMES.....	26
TABLE 3-4	2031 DO NOTHING EMME MODEL – AUTO VOLUMES.....	29
TABLE 3-5	2021 EMME MODEL – AUTO VOLUMES.....	32
TABLE 3-6	2031 EMME MODEL – AUTO VOLUMES.....	35
TABLE 5-1	MISSISSAUGA ROAD AT EAST-WEST CONNECTION, SIGNAL WARRANT ANALYSIS, JUSTIFICATION 7, 2031 TOTAL TRAFFIC ..	47
TABLE 5-2	2031 INTERSECTION CAPACITY ANALYSIS RESULTS.....	50
TABLE 5-3	2031 QUEUE ANALYSIS RESULTS .....	51

# FIGURES

FIGURE 2-1	IMMEDIATE STUDY AREA .....	3
FIGURE 2-2	BROADER STUDY AREA .....	4
FIGURE 2-3	EXISTING LANE CONFIGURATION.....	5
FIGURE 2-4	EXISTING TRANSIT SERVICES.....	7
FIGURE 2-5	GO TRANSIT SYSTEM MAP .....	8
FIGURE 2-6	EXISTING ACTIVE TRANSPORTATION NETWORK IN THE STUDY AREA.....	9
FIGURE 2-7	EXISTING TRAFFIC VOLUMES – AM PEAK HOUR.....	11
FIGURE 2-8	EXISTING TRAFFIC VOLUMES – PM PEAK HOUR.....	12
FIGURE 3-1	PLANNED ROADWAY IMPROVEMENTS, REGION OF PEEL ROAD IMPROVEMENTS PROGRAM .....	16
FIGURE 3-2	APPROXIMATE NSTC LOCATION – HALTON-PEEL FREEWAY OPTION.....	17
FIGURE 3-3	DRAFT RECOMMENDED ROAD NETWORK NEEDS BY 2041.....	18
FIGURE 3-4	DRAFT HERITAGE HEIGHTS PREFERRED NETWORK.....	19
FIGURE 3-5	RECOMMENDED RAPID TRANSIT IMPLEMENTATION BY 2041.....	20
FIGURE 3-6	SCREENLINES IN THE STUDY AREA.....	22
FIGURE 3-7	2011 PEAK DIRECTION PEAK HOUR LINK AND SCREENLINE ANALYSIS.....	24
FIGURE 3-8	FUTURE 2021 DO-NOTHING PEAK DIRECTION PEAK HOUR LINK AND SCREENLINE ANALYSIS.....	27
FIGURE 3-9	FUTURE 2031 DO-NOTHING PEAK DIRECTION PEAK HOUR LINK AND SCREENLINE ANALYSIS.....	30
FIGURE 3-10	FUTURE 2021 PEAK DIRECTION PEAK HOUR LINK AND SCREENLINE ANALYSIS.....	33
FIGURE 3-11	FUTURE 2031 PEAK DIRECTION PEAK HOUR LINK AND SCREENLINE ANALYSIS.....	36
FIGURE 5-1	FUTURE (2031) TRAFFIC VOLUMES, WEEKDAY AM PEAK HOUR	43
FIGURE 5-2	FUTURE (2031) TRAFFIC VOLUMES, WEEKDAY PM PEAK HOUR	44
FIGURE 5-3	FUTURE (2031) TRAFFIC VOLUMES, SATURDAY PEAK HOUR .....	45
FIGURE 5-4	2031 FUTURE LANE CONFIGURATIONS (BOVAIRD DRIVE LANE CONFIGURATION AS PER BOVAIRD DRIVE EA) .....	48
FIGURE 5-5	2031 FUTURE LANE CONFIGURATIONS (ALTERNATIVE BOVAIRD DRIVE LANE CONFIGURATION) .....	49

---

# APPENDICES

APPENDIX A – TMC DATA COLLECTED FOR THE STUDY AREA INTERSECTIONS .....	55
APPENDIX B – TRAFFIC SIGNAL TIMING AND PHASING FOR THE SIGNALIZED INTERSECTIONS IN THE STUDY AREA.....	55
APPENDIX C – DEFINITION OF LEVELS OF SERVICE (LOS) FOR SIGNALIZED AND UNSIGNALIZED INTERSECTION.....	55
APPENDIX D – EXISTING (2014) INTERSECTION CAPACITY ANALYSIS AND QUEUING ANALYSIS SYNCHRO SHEETS .....	55
APPENDIX E – EMME PLOTS .....	55
APPENDIX F – 2031 PEAK HOUR TURNING MOVEMENT FORECAST .....	55
APPENDIX G – FUTURE (2031) INTERSECTION CAPACITY ANALYSIS AND QUEUING ANALYSIS SYNCHRO SHEETS AND SIMTRAFFIC SHEETS .....	55



## 1

## INTRODUCTION

WSP (formerly GENIVAR) has been retained by the City of Brampton to complete the Class Environmental Assessment (EA) for the East-West Connection, Mount Pleasant GO Station to West of Mississauga Road in the City of Brampton. This Traffic Study Report is associated with the subject EA.

The City of Brampton has initiated the EA process to facilitate the continuation of the existing Mount Pleasant GO Station access road to lands west of Mississauga Road. The study will examine the potential alternative alignments for an east-west collector road west of Mississauga Road and will identify the environmental impacts, social impacts, cultural impacts, economic impacts and costs for each of the alternative designs, and determine the preferred alternative.

This Traffic Study includes a traffic operations analysis, transit review, existing and future deficiencies, and recommended geometric improvements. The horizon years are existing (2014), 2021 and 2031 and the time periods contained in the analysis include roadway AM, PM and Saturday peak hours.

It should be noted that the East-West Connection is referred to as Station Road in figures and tables throughout the report.

Information used in the Traffic Study includes:

- City of Brampton Transportation and Transit Master Plan, Sustainable Update, MMM Group, 2009
- City of Brampton Transportation Master Plan Update, Transit Map presented at PIC#2, MMM Group, 2014
- City of Brampton Official Plan, Office Consolidation, 2013
- Brampton's Pathways Master Plan, MMM, 2002
- Peel Region Long Range Transportation Plan (LRTP) Study, Updated in 2012
- Peel Active Transportation Study, IBI Group, 2011
- Mississauga Road Class EA Study (North of Bovaird Drive West to Mayfield Road) Needs Assessment and Traffic Performance Report, AECOM, 2013
- Bovaird Drive (Regional Road 107) Transportation Corridor from Lake Louise Drive/Worthington Avenue to 1.45 km west of Heritage Road in the City of Brampton Class Environmental Assessment, AMEC, 2013
- Bovaird Drive Environmental Assessment Traffic Study, Entra Consultants, 2012
- Mount Pleasant Block 51-1 Collector Road Environmental Assessment Study and Transportation Study, BA Group Transportation Consultants, 2011
- Bovaird Drive & Creditview Road Commercial Properties Draft Plan: Transportation Considerations, BA Group Transportation Consultants, 2011
- Bovaird Drive & Creditview Road Commercial Properties Site Plan: Phase 1 Transportation Considerations, BA Group Transportation Consultants, 2014
- Heritage Heights Transportation Master Plan DRAFT Report, Cole Engineering, 2014

- Mount Pleasant Secondary Plan Area Transportation Master Plan, Entra Consultants, 2009
- Osmington Regional Centre, Mississauga Road and Bovaird Drive, Traffic Impact Study, BA Group Transportation Consultants, 2014
- Halton Peel Boundary Area Transportation Study, Amended Final Report, HDR / ITrans, May 2010
- City of Brampton EMME model plots for 2011, 2021 and 2031
- AM and PM peak hour turning movement counts at key intersections in the study area provided by Peel Region
- Signal Timing Plans for the key study area intersections provided by Peel Region
- Ontario Traffic Manual Book 12, Ministry of Transportation Ontario, 2007

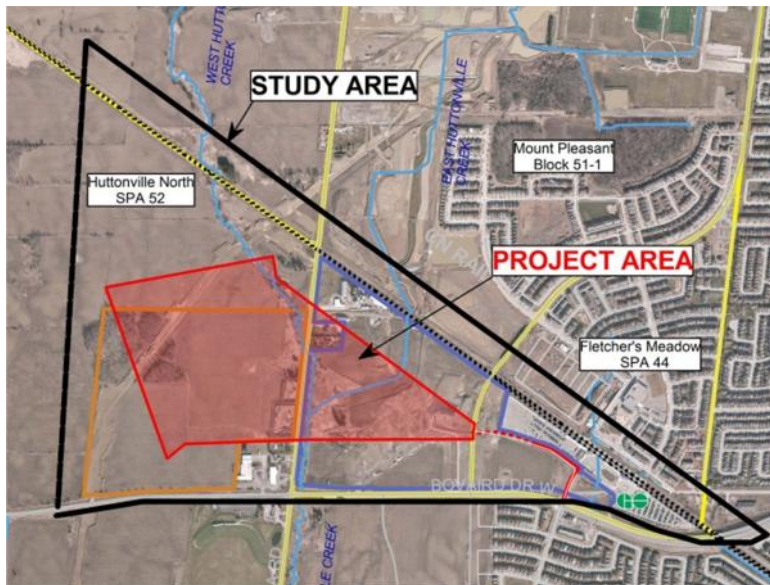


# 2 EXISTING CONDITIONS

## 2.1 ROADWAY NETWORK

The immediate study area is presented in Figure 2-1. The boundaries of the immediate study area are Mississauga Road to the west, Bovaird Drive to the south and CN Railway to the north.

**Figure 2-1 Immediate Study Area**



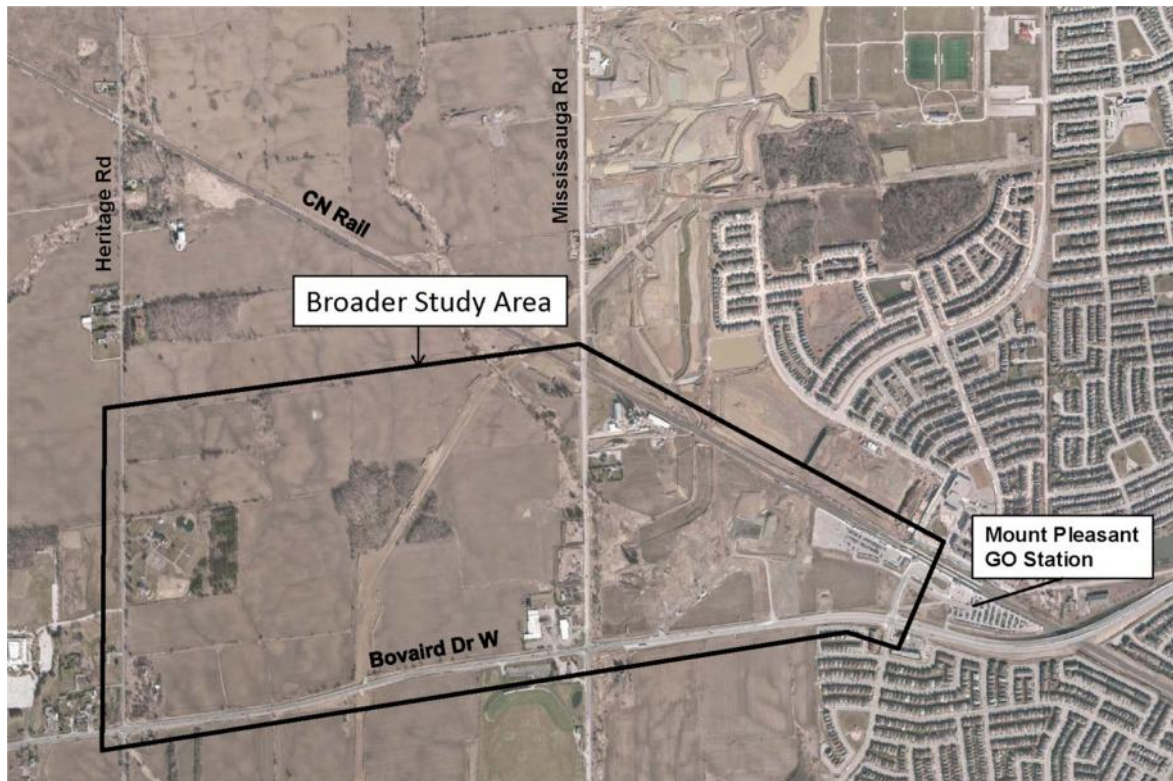
The broader study area for the EA traffic study is shown in Figure 2-2. The boundaries of the broader study area are Heritage Road to the west, Bovaird Drive to the south and CN Railway to the north.

Within the study area, Bovaird Drive West (running east to west) and Mississauga Road and Heritage Road (running north to south) provide the major transportation access to northwestern Brampton. Mississauga Road links with Highways 401 and 407 ETR to the south. Bovaird Drive West is bisected by the Canadian National (CN) Rail Halton Subdivision. GO Transit operates its Georgetown service on the CNR line with the Mount Pleasant GO Station located on the north side of Bovaird Drive West, east of Mississauga Road.

The characteristics of the roadways in the Study Area are:

**Bovaird Drive West** is a major east-west arterial roadway in the Region of Peel. East of Ashby Field Road, it has three eastbound lanes and two westbound lanes and an urban cross-section. West of Ashby Field Road, the cross-section is rural. From Ashby Field Road to Mississauga Road, there are two eastbound lanes and one westbound lane. The section west of Mississauga Road has two lanes. The posted speed limit is 70km/h. It is signal controlled at the intersections with Heritage Road, Mississauga Road and Ashby Field Road. A separate EA for improvements within the Bovaird Drive West corridor was completed in April 2013.

Figure 2-2 Broader Study Area

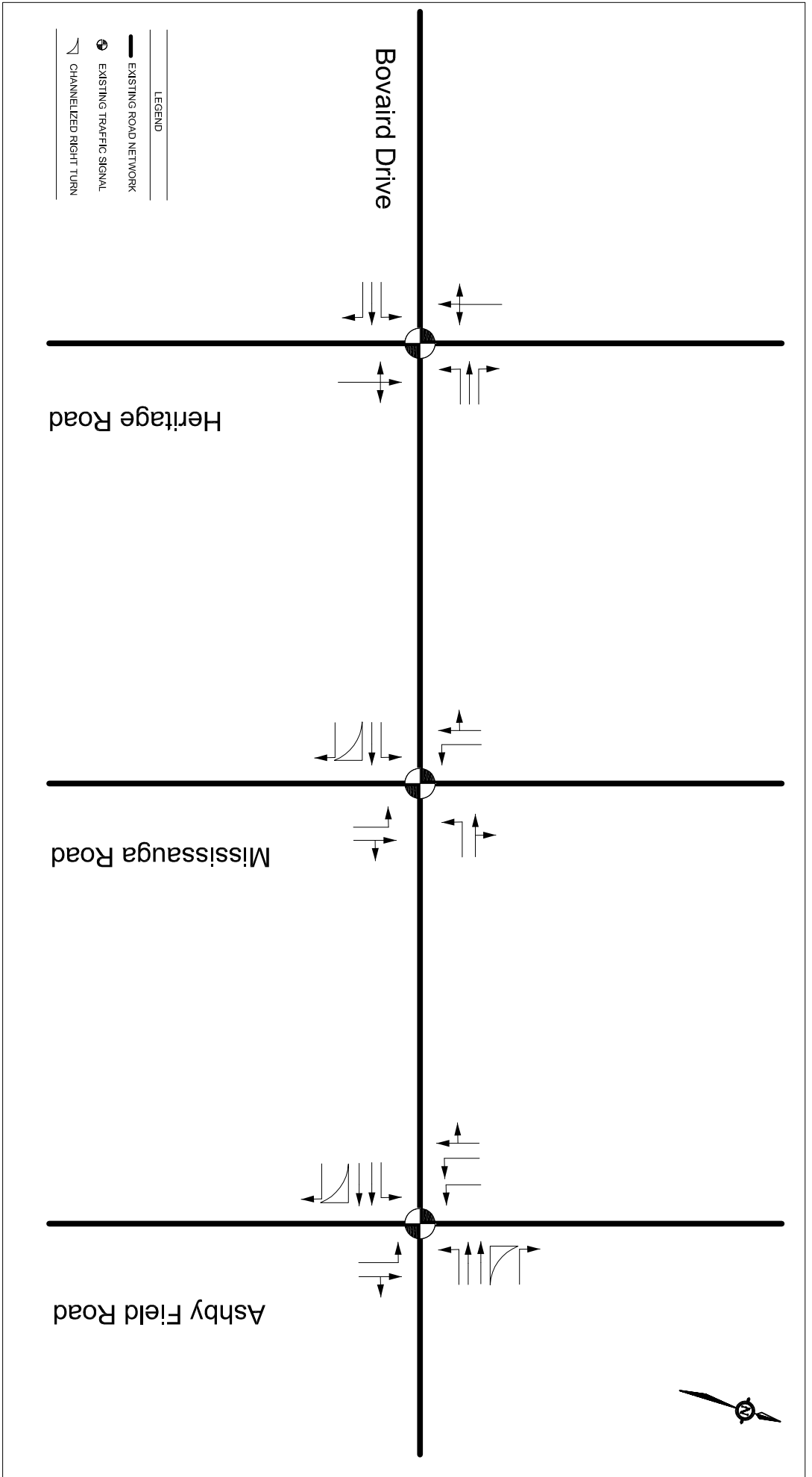


**Heritage Road** is a minor Arterial Road under the jurisdiction of the City of Brampton. It is currently a two-lane road with a rural cross-section. The speed limit is 60km/h south of Bovaird Drive and 70km/h north of Bovaird Drive. The City is currently conducting an EA to widen this road to four lanes.

**Mississauga Road** is a major north-south arterial road under the jurisdiction of the Region of Peel. It is currently a two-lane road with a rural cross-section and has a posted speed limit of 80km/h. A separate EA for improvements within the Mississauga Road area was completed in April 2013.

**Ashby Field Road** is a local street under the jurisdiction of the City of Brampton leading into the Mount Pleasant GO Station to the north and a residential area to the south. The speed limit is 50km/h.

The existing lane configuration for the study intersections is provided in Figure 2-3.



Scale: N.T.S.

Figure 2-3  
Existing Lane Configuration  
Brampton East West Connection Mount Pleasant EA



## 2.2 EXISTING TRANSIT NETWORK

### 2.2.1 BRAMPTON TRANSIT

Currently, the study area is served by Brampton Transit routes. Brampton Transit buses provide connectivity to the Mount Pleasant GO Station and Mount Pleasant Village. The list of transit services available in the vicinity of the study area are summarized in Table 2-1 and presented in Figure 2-4.

**Table 2-1 Existing Transit Services**

Route No. and Name	Direction	Service Day and Frequency	
		Monday to Friday	Weekend
Routes 4 and 4A - Chinguacousy	Mount Pleasant GO Station via Brisdale Drive, Wanless Drive, Chinguacousy Road and Steeles Avenue to Brampton Gateway Terminal	(both Routes 4 and 4A) AM peak: 20 minutes Off peak: 20 minutes PM peak: 20 minutes	(Route 4 only) 30 minutes
Routes 5 and 5A - Bovaird	Mount Pleasant GO Station via Bovaird Drive and Goreway Drive (Route 5) or Airport Road (Route 5A) to Westwood Mall Terminal	(both Routes 5 and 5A) AM peak: 20 minutes Off peak: 30 minutes PM peak: 20 minutes	(Route 5 only) 20-30 minutes
Route 9 - Vodden	Mount Pleasant GO Station via Vodden Street to Edvac Drive	AM peak: 30 minutes Off peak: 40 minutes PM peak: 30 minutes	50-60 minutes
Route 29 and 29A - Williams	Mount Pleasant GO Station via Williams Parkway and Goreway Drive to Kennedy Street	AM peak: 15 minutes Off peak: 30 minutes PM peak: 15 minutes	30 minutes
Route 56 - Springbrook	Mount Pleasant GO Station via James Potter Road, Williams Parkway and Queen Street West to Downtown Brampton Terminal via to	AM peak: 30 minutes Off peak: 30 minutes PM peak: 30 minutes	(Saturday only) 60 minutes

Route No. and Name	Direction	Service Day and Frequency	
		Monday to Friday	Weekend
Route 23 - Sandalwood	Mount Pleasant Village via Sandalwood Parkway to Queen Street at Highway 50	AM peak: 15 minutes Off Peak: 30 minutes PM peak: 30 minutes	30 minutes
Route 26 – Mount Pleasant	Mount Pleasant Village via Mississauga Road, Sandalwood Parkway and Creditview Road to Mount Pleasant Village	AM peak: 30 minutes Off Peak: no service PM peak: 30 minutes	No service
Route 505 – Züm Bovaird	Mount Pleasant GO Station via Bovaird Drive to Queen Street and Goreway Drive	AM peak: 15 minutes Off Peak: 20minutes PM peak: 15 minutes	20 minutes

Source: Brampton Transit Web site

Figure 2-4 Existing Transit Services

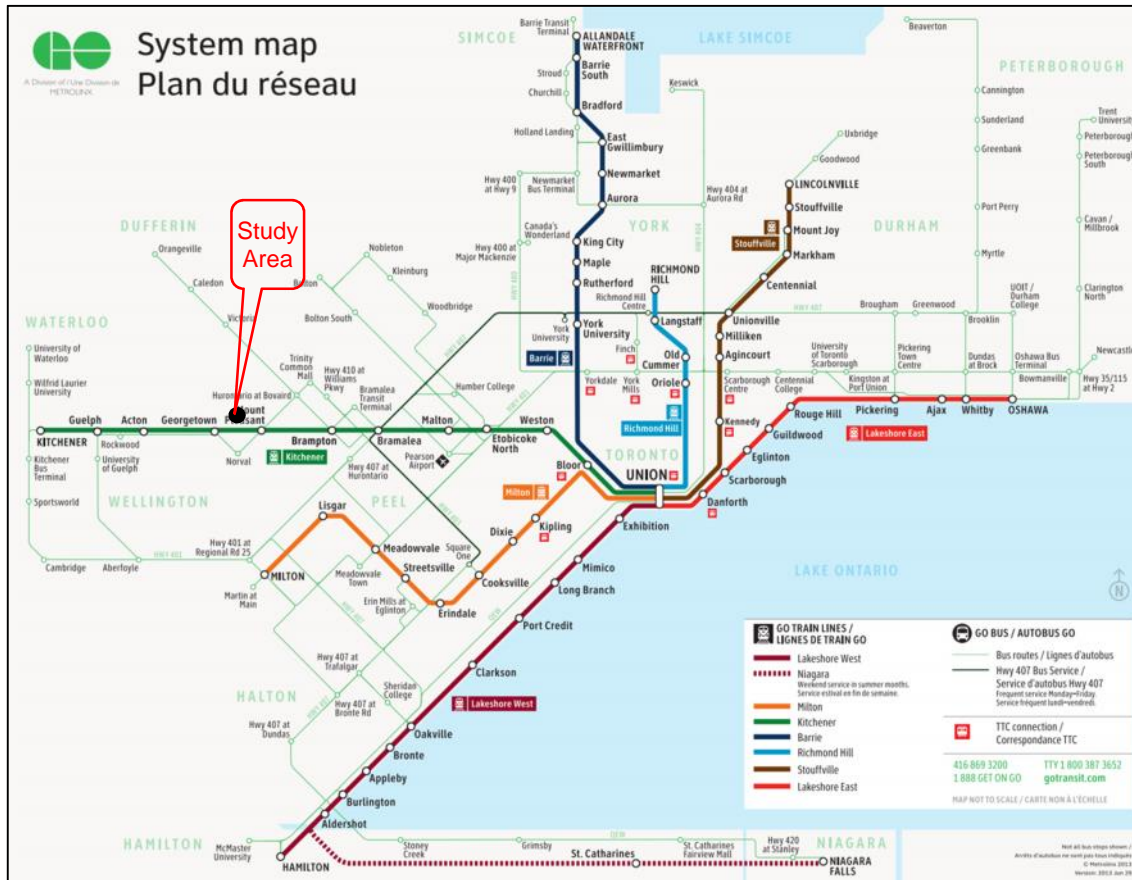


Source: Brampton Transit Website

## 2.2.2 GO TRANSIT

GO Transit operates the Kitchener Rail line close to the study area, with the Mount Pleasant GO Station located north of Bovaird Drive, east of Mississauga Road. The trains operate during the AM and PM peak periods. The GO Transit system map is presented in Figure 2-5.

Figure 2-5 GO Transit System Map



Source: GO Transit website

In addition to the train service GO Transit operates four bus routes that stop at Mount Pleasant GO Station:

- Route 30: Kitchener – Bramalea
- Route 31: Georgetown
- Route 33: Guelph – North York
- Route 39: Guelph – Bramalea

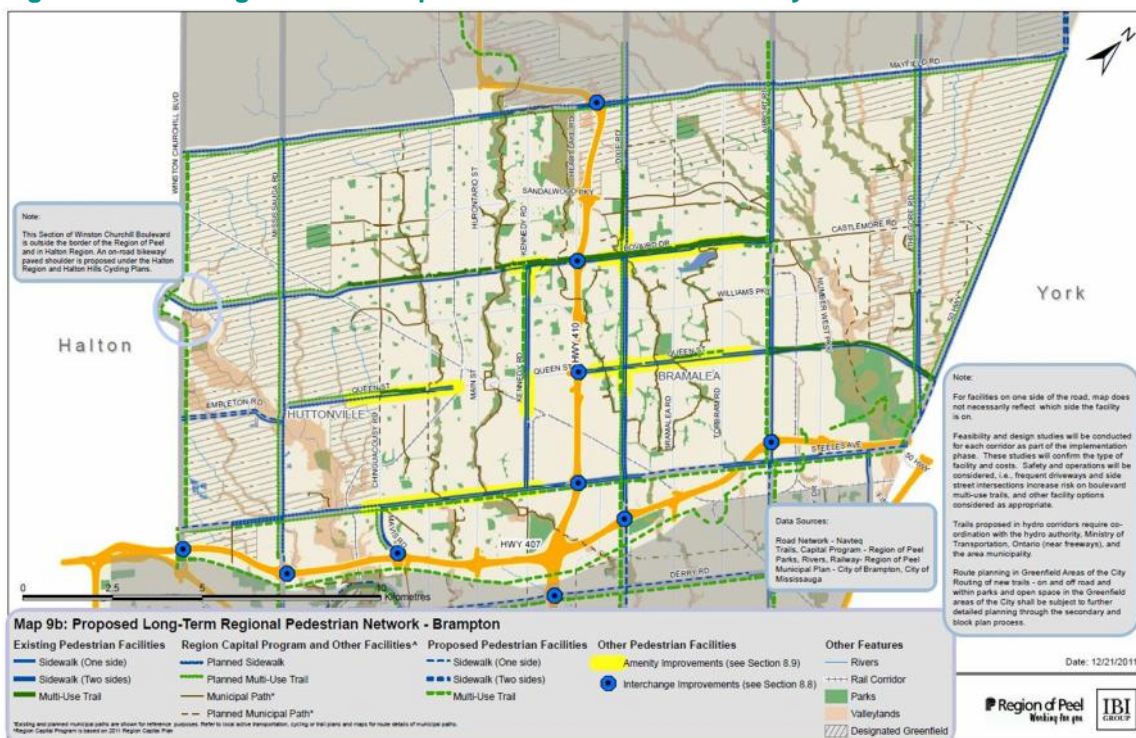
## 2.3 EXISTING ACTIVE TRANSPORTATION NETWORK

The City of Brampton has a large pathway system that connects parks and valleys, and provides convenient pedestrian and cycling routes across Brampton. Brampton’s existing bicycle facilities include:

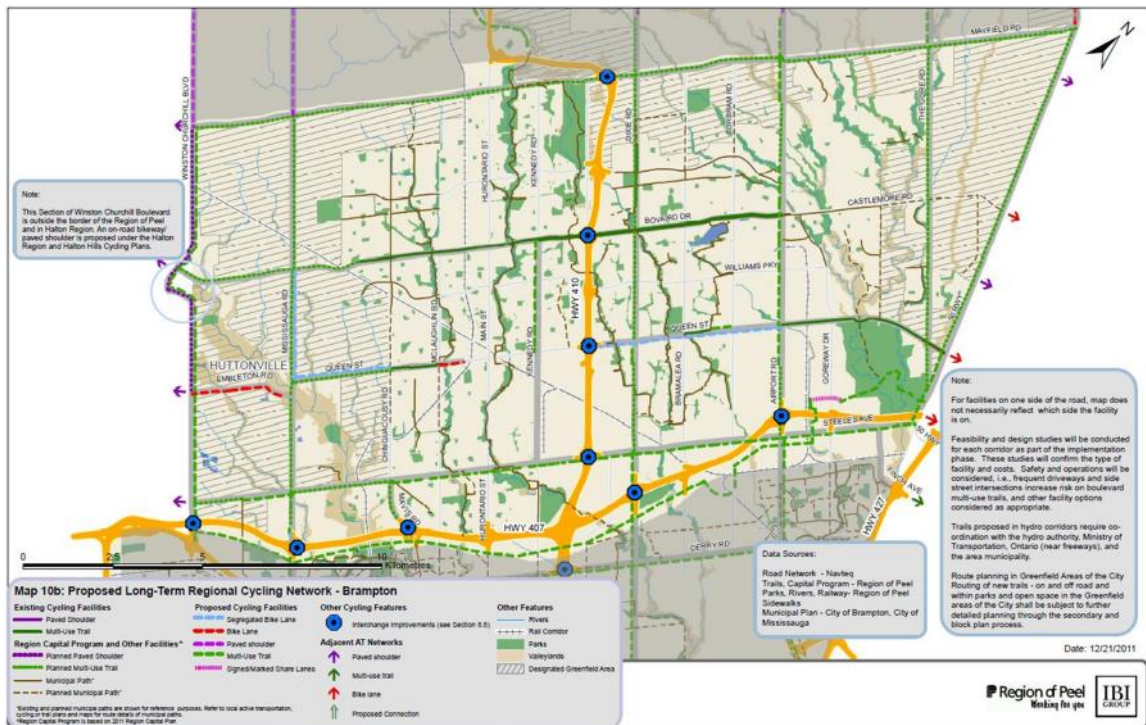
- bicycle lanes
- bicycle detectors at traffic signals
- multi-use paths and trails

The existing pathway system is shown in Figure 2-6 and further improvements are identified in the Brampton Pathways Master Plan which is discussed under future condition sections of this report.

**Figure 2-6 Existing Active Transportation Network in the Study Area**



Source: Peel Active Transportation Study Map 9b – Brampton Pedestrian Network



Source: Peel Active Transportation Study Map 10b – Brampton Cycling Network

## 2.4 2014 EXISTING VOLUMES

The existing traffic AM and PM peak hour turning movement count (TMC) data for the study area intersections were obtained from the Region of Peel. The TMC data collected for the study area intersections are from 2012 and 2013 and are provided in Appendix A. The next section of the report shows that the intersections are operating at capacity and therefore no adjustments were made to the existing counts. The existing AM and PM peak hours traffic volumes are shown in Figure 2-7 and Figure 2-8.

The study area intersections considered for the intersection capacity analysis are:

- Bovaird Drive at Heritage Road (signalized)
- Bovaird Drive at Mississauga Road (signalized)
- Bovaird Drive at Ashby Field Road (signalized)

Examination of the existing volumes reveals the approximate range of two-way traffic volumes along Bovaird Drive is:

- about 1,400 vehicles per hour west of Heritage Road to 2,170 vehicles per hour east of Ashby Field Road in the AM peak hour
- about 1,620 vehicles per hour west of Heritage Road to 2,340 vehicles per hour east of Ashby Field Road in the PM peak hour



Heritage Road												Mississauga Road												Ashby Field Road											
				Wbd 465				Wbd 820				Wbd 848				Wbd 1001				Wbd 1007				Wbd 1105											
L 32				R 83				L 15				L 22				L 35				L 80															
T 820				T 438				T 689				T 734				T 847				T 944															
Ebd 935				Ebd 840				Ebd 802				Ebd 893				Ebd 912				Ebd 1059															
R 83				L 371				R 98				L 245				R 30				L 81															
				11				820				1001				1007				1105															
R				T				R				T				R				T															
8				525				5				28				304				5				33											
L				L				L				L				L				L															
5				5				40				40				83				83															
1				1				2				2				4				4															
19				67				15				86				115				58				67											
L				L				L				L				L				L															
T				T				T				T				T				T															
R				R				R				R				R				R															
101				101				365				365				254				254															
				TMC Date:				TMC Date:				TMC Date:				TMC Date:				TMC Date:															
				June 14, 2012				June 14, 2012				June 11, 2013				June 11, 2013				June 14, 2012															
Sbd				Sbd				Sbd				Sbd				Sbd				Sbd															
Heritage Road				Heritage Road				Mississauga Road				Mississauga Road				Ashby Field Road				Ashby Field Road															
121				121				144				144				144				144															
Nbd				Nbd				Nbd				Nbd				Nbd				Nbd															
182				182				254				254				254				254															

Figure 2-7

Existing Traffic Volumes - AM Peak Hour  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



Heritage Road				Mississauga Road				Ashby Field Road							
Wbd 992		Ebd 633		Wbd 807		Ebd 875		Wbd 915		Ebd 976		Wbd 998		Ebd 1343	
L	T	R	L	L	T	R	L	L	T	R	L	L	T	R	L
10	606	17	12	830	141	858	30	76	940	915	976	36	816	146	1343
1	1	1	1	2	2	2	2	2	2	2	2	4	4	4	4
6	37	1	21	136	17	21	174	136	17	21	136	73	73	311	68
44	327	44	174	416	174	416	174	416	174	416	174	457	457	68	68
Sbd		Nbd		Sbd		Nbd		Sbd		Nbd		Sbd		Nbd	
195		712		401		672		251		146		251		146	
Heritage Road		Heritage Road		Mississauga Road		Mississauga Road		Ashby Field Road		Ashby Field Road		Ashby Field Road		Ashby Field Road	
TMC Date: June 14, 2012		TMC Date: June 14, 2012		TMC Date: June 11, 2013		TMC Date: June 11, 2013		TMC Date: June 14, 2012		TMC Date: June 14, 2012		TMC Date: June 14, 2012		TMC Date: June 14, 2012	



Figure 2-8  
 Existing Traffic Volumes - PM Peak Hour  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

## 2.5 EXISTING TRAFFIC ANALYSIS

Intersection capacity analyses for the study intersections for existing traffic conditions for the AM and PM peak hours was analyzed using Highway Capacity Manual (HCM) methodology and Synchro 8 software.

Traffic signal timing and phasing for the signalized intersections in the study area were obtained from the Region of Peel and are provided in Appendix B. The analysis assumes the existing lane configuration and speed limits at the intersections.

The report documents the overall level of service (LOS), overall volume-to-capacity (V/C) ratios plus critical movements for all signalized intersections. For this study, critical movements are those where the individual movement V/C ratio exceeds 1.0 (exclusive lanes) or 0.85 (shared lanes) as required in Peel Region's Guidelines for Traffic Impact Studies.

The definitions of LOS for signalized intersections are provided in Appendix C.

A summary of the capacity analysis is provided in Table 2-2. A more detailed summary of the intersection capacity analysis and queuing analysis results are presented in Appendix D.

**Table 2-2 Intersection Level of Service, 2014 Existing Traffic Volumes**

Intersection  Movement	AM Peak Hour			PM Peak Hour		
	V/C	Delay (sec.)	LOS	V/C	Delay (sec.)	LOS
<b>Heritage Road and Bovaird Drive</b>	<b>1.45</b>	<b>139</b>	<b>F</b>	<b>1.12</b>	<b>76</b>	<b>E</b>
Eastbound Through	0.99	50	D	0.91	48	D
Westbound Left	1.33	212	F	0.92	73	E
Westbound Through	0.38	7	A	1.06	78	E
Northbound Through	0.85	80	E	1.11	103	F
Southbound Through	1.76	401	F	0.06	20	C
<b>Mississauga Road and Bovaird Drive</b>	<b>0.90</b>	<b>43</b>	<b>D</b>	<b>1.05</b>	<b>62</b>	<b>E</b>
Eastbound Through	0.98	63	E	1.16	123	F
Westbound Through	0.78	13	B	0.91	53	D
Southbound Through	0.85	59	E	0.39	39	D
<b>Ashby Field Road and Bovaird Drive</b>	<b>0.53</b>	<b>30</b>	<b>C</b>	<b>0.64</b>	<b>33</b>	<b>C</b>

The analysis of existing conditions identifies that at the assessed intersections (except Bovaird Drive at Ashby Field Road), the V/C ratio reported by Synchro 8 for at least one turning movement during one of the peak hours is over capacity. This implies more traffic may travel through an intersection than is considered physically feasible when using typical default Synchro parameters. Once traffic volumes reach the theoretical capacity of a lane, drivers tend to change their driving behaviour and become more aggressive, which may result in increased saturation flow rates at intersections, which are higher than those used in the study.

Under these conditions, it is customary for the intersection results to be calibrated to reflect actual roadway conditions and travel patterns; however, this was not completed for the purpose of the EA

study. Signal timing adjustments at study intersections can improve LOS and queuing at study intersections and will be reviewed under future conditions.

# 3 FUTURE TRAFFIC CONDITIONS

## 3.1 ROADWAY NETWORK IMPROVEMENTS

There are a number of roadway improvements anticipated in the study area. These roadway improvements are outlined below.

### 3.1.1 REGION OF PEEL

The Peel Region Long Range Transportation Plan (LRTP) study was initiated in late 2002 as part of the Regional Official Plan Strategic Update and was recently updated in 2012. The purpose of the study was to identify and address the transportation challenges anticipated by the forecasted growth in the Region over the next 10, 15 and 25 years and to develop appropriate policies, strategies and a road improvement plan to address the challenges.

The Peel Region LRTP includes a Planned Roadway Improvement map (see Figure 3-1) from the Region's Road Improvements Program and the following roadway improvements are identified in the study area:

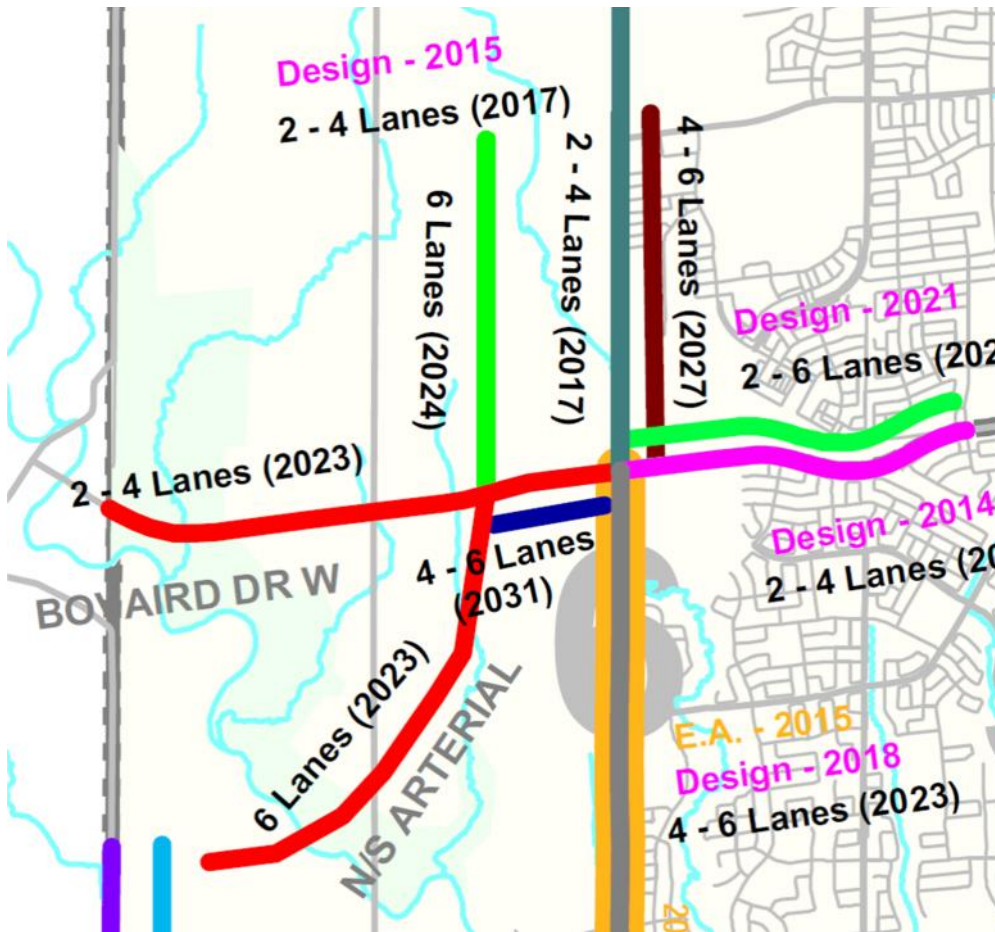
- widen Bovaird Drive to six lanes by 2018 between CN Overpass to Creditview Road
- widen Bovaird Drive from two to four lanes by 2015 (Creditview Road to Mississauga Road)
- widen Bovaird Drive from two to six lanes by 2025 (Creditview Road to Mississauga Road)
- widen Bovaird Drive from two to four lanes by 2023 (west of Mississauga Road)
- widen Bovaird Drive from four to six lanes by 2031 (between Mississauga Road and North-South Transportation Corridor (NSTC))
- widen Mississauga Road from two to four lanes by 2017 (north of Bovaird Drive to Mayfield Road)
- widen Mississauga Road from four to six lanes by 2027 (north of Bovaird Drive to Sandalwood Parkway)
- widen Mississauga Road from four to six lanes by 2023 (south of Bovaird Drive to Queen Street)
- construct North-South Transportation Corridor with six lanes by 2023

The recommended preferred alternatives from the recently completed EA studies for Bovaird Drive and Mississauga Road confirm the need to widen Bovaird Drive and Mississauga Road in accordance with the Region's Capital Program.

The Halton-Peel Boundary Area Transportation Study (HPBATS) identified the Halton-Peel Freeway Option as the preferred North-South Transportation Corridor (NSTC). The corridor will connect to Highway 401/407 to the south and extend north past Bovaird Drive and Wanless Drive by the 2031 horizon year. The approximate location of the NSTC is shown in Figure 3-2. It should be noted that in the Brampton EMME model, the NSTC is coded to intersect Bovaird Drive between Heritage Road and Mississauga Road. The HPBATS Report was adopted by the Councils of participating municipalities including the Region of Peel, the City of Brampton, the Town of Caledon, Halton Region and the Town of Halton Hills.

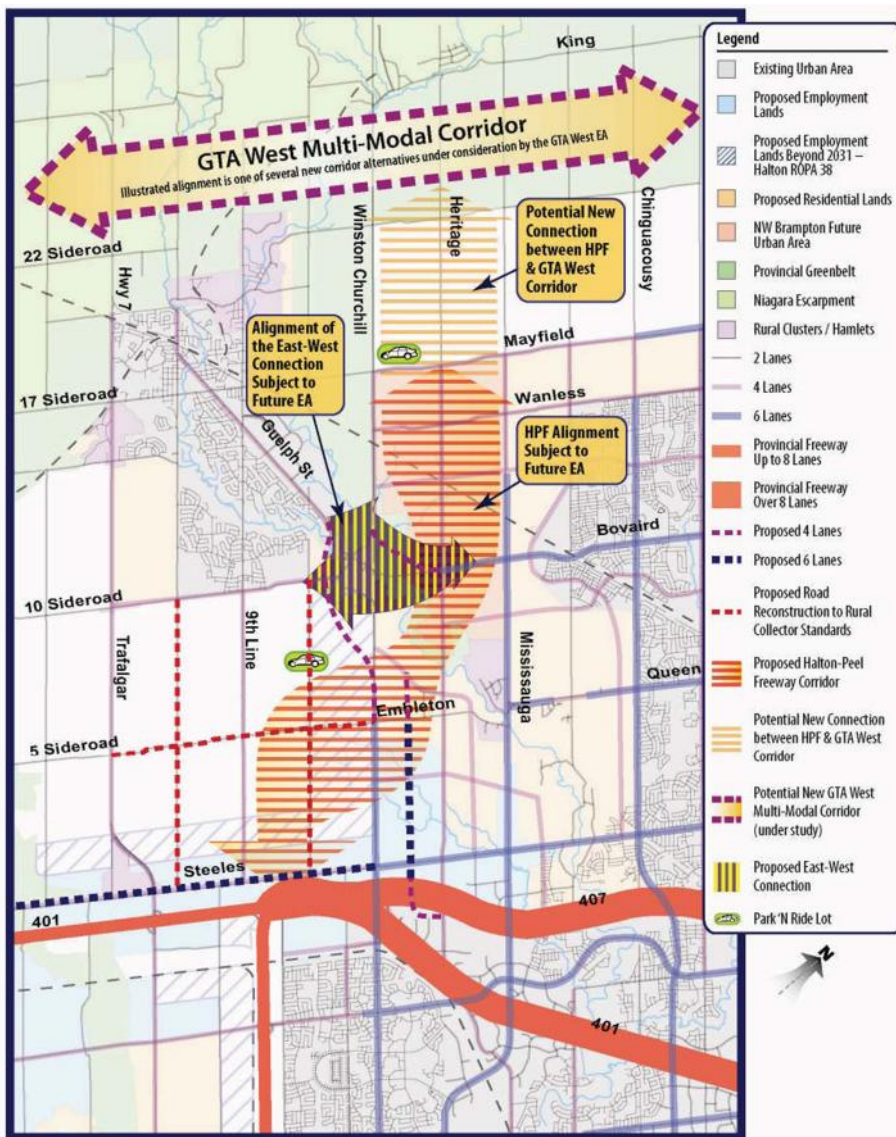
It should be noted that the Region's Capital Program is reviewed on an annual basis with respect to project schedules (accelerated or deferred), new projects and overall capital cost estimates and budget. Since the Capital Program is approved by Regional Council annually, the noted schedule for roadway improvements are potentially subject to change.

Figure 3-1 Planned Roadway Improvements, Region of Peel Road Improvements Program



Source: Provided by Peel Region staff on May 2015

Figure 3-2 Approximate NSTC Location – Halton-Peel Freeway Option



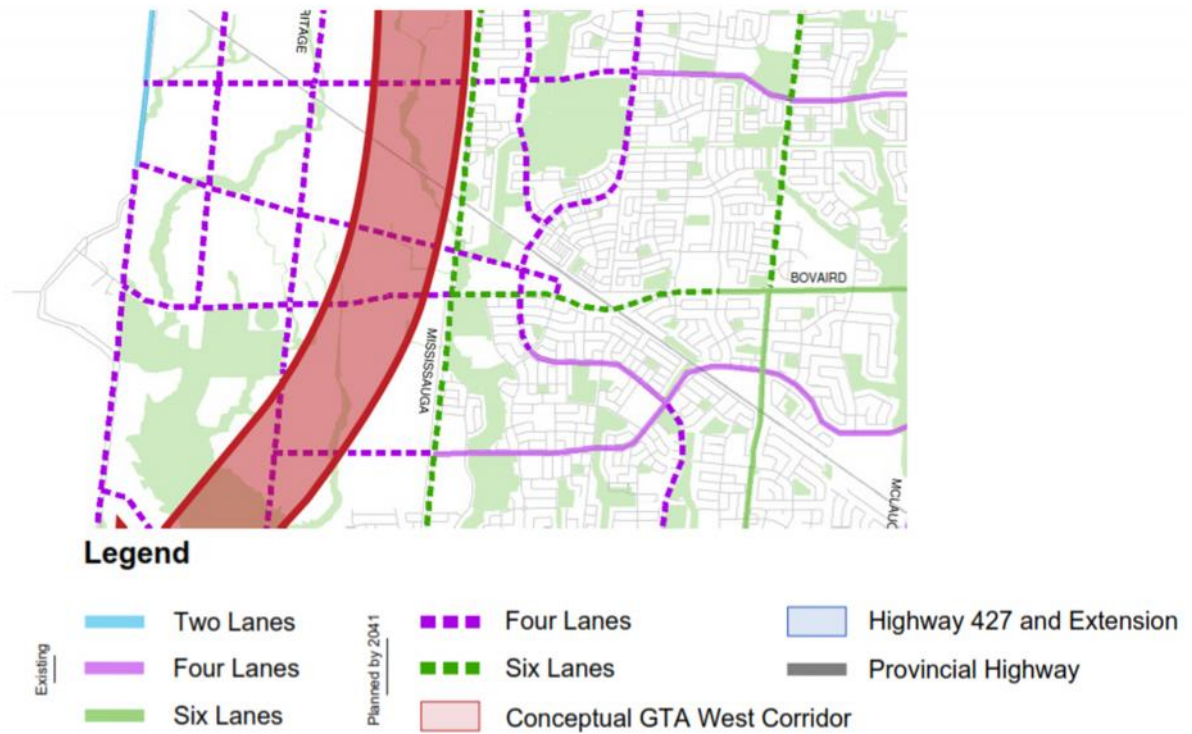
Source: Halton Peel Boundary Area Transportation Study, May 2010

### 3.1.2 CITY OF BRAMPTON

City of Brampton Transportation Master Plan Update, Transit Map presented at PIC#2, 2014, MMM Group (see Figure 3-3), shows the following additional roadway improvements by 2041:

- realign Creditview Road and widen to four lanes
- widen Heritage Road from two to four lanes north and south of Bovard Drive
- construct the East-West Connection from Creditview Road to Winston Churchill Boulevard

Figure 3-3 Draft Recommended Road Network Needs by 2041



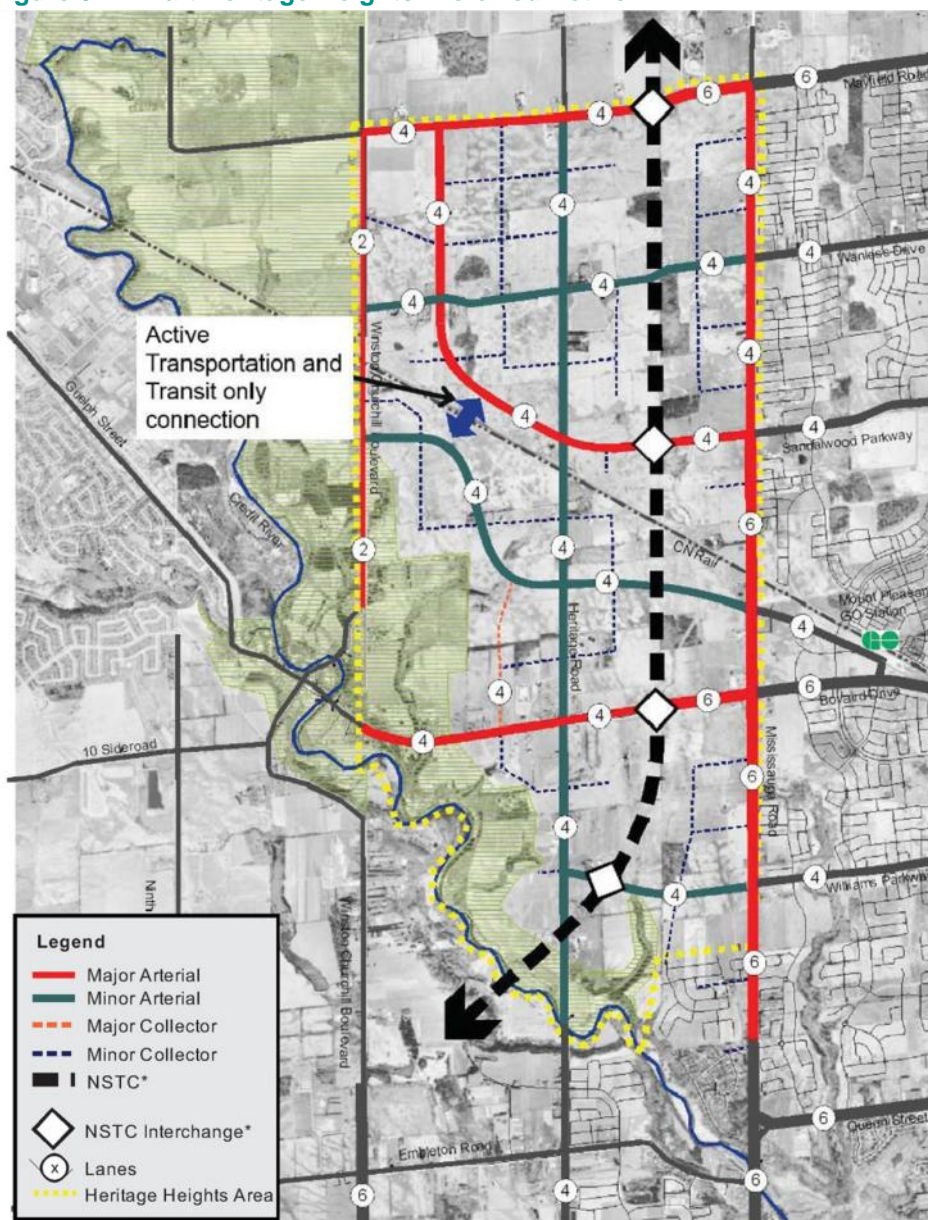
Source: City of Brampton Transportation Master Plan Update, Roadway Map presented at PIC#2

The secondary planning for Secondary Plan Areas 52 (Huttonville North) and 53 (Mount Pleasant West), collectively referred to as the “Heritage Heights Community”, is currently in process. The Heritage Heights Transportation Master Plan recommends a preferred network as shown in Figure 3-4.

The East-West Connection is identified in the preferred network as a key transit and active transportation spine to achieve community connections and sustainable modes of travel.



Figure 3-4 Draft Heritage Heights Preferred Network



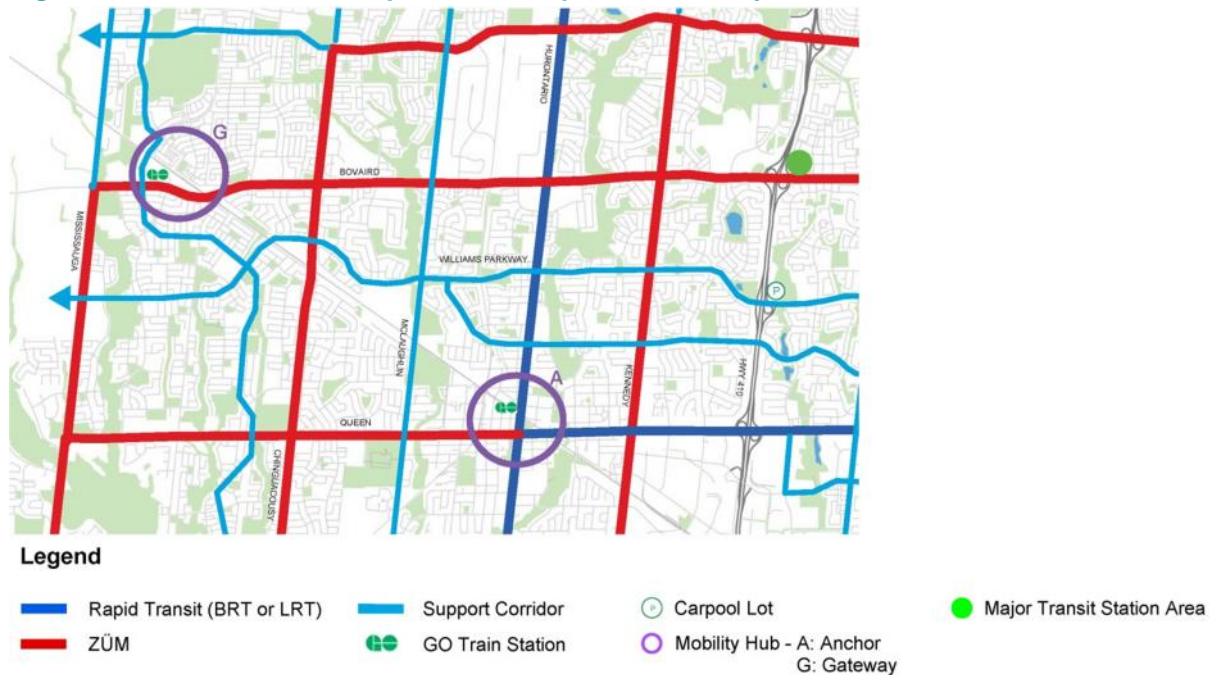
Source: City of Brampton

### 3.2 TRANSIT NETWORK IMPROVEMENTS

City of Brampton Transportation Master Plan Update, Transit Map presented at PIC#2, 2014, MMM Group (see Figure 3-5), shows that Brampton Transit is expected to expand substantially and includes:

- Züm on Bovaird Drive across Brampton and on Mississauga Road south of Bovaird Drive
- support corridors (Creditview Road and Mississauga Road)
- Mount Pleasant GO station is identified as a mobility hub gateway

**Figure 3-5 Recommended Rapid Transit Implementation By 2041**



Source: City of Brampton Transportation Master Plan Update, Transit Map presented at PIC#2

### 3.3 FUTURE TRAFFIC VOLUMES

In planning analyses such as transportation master plans and transportation studies for environmental assessments, typically the focus is more on link capacity and screenline capacity. The primary service quality measures for LOS are V/C ratio for a road link or series of links across a barrier or other screenline. Screenline analyses recognize that, while one facility may be projected to operate at capacity and below service standards, an adjacent facility may have significant reserve capacity; and the system as a whole is assessed balancing service across screenlines. The demand to capacity analysis planning approach adopted for this study examines the capability of the auto network to address existing levels of transportation activity as well as to determine the magnitude of the surplus capacity available in the future roadway network. A V/C ratio greater than 1.0 indicates above-capacity operations and a need for additional capacity along screenline corridors. A threshold value of 0.85 for the roadway V/C ratio is used to identify the critical capacity issues on a roadway.

As a part of the initial phase of the EA study, screenline and link analyses for the area were conducted to review the need for the proposed East-West Connection.

WSP collected the network attributes (number of lanes and capacity) and assigned auto trips (PM peak hour) for the following scenarios from City of Brampton:

- 2011
- 2021 Do-Nothing (all 2021 planned roadway and transit improvements, no East-West Connection)
- 2031 Do-Nothing (all 2031 planned roadway and transit improvements, no East-West Connection)

In addition to the above information, WSP collected 2021 and 2031 EMME plots with improvements (all 2021 and 2031 planned roadway and transit improvements, including the East-West Connection).

The EMME plots collected from City of Brampton are presented in Appendix E.

### 3.3.1 SCREENLINES IN THE STUDY AREA

A total of five screenlines, as summarized below, were evaluated for the study area:

- Screenline #1 – East of Winston Churchill Boulevard
- Screenline #2 – East of Heritage Road
- Screenline #3 – West of Mississauga Road
- Screenline #4 – East of Transit Spine Road
- Screenline #5 – East of Creditview Road

The screenlines adopted in the study area are presented in Figure 3-6.

Figure 3-6 Screenlines in the Study Area



### 3.3.2 EXISTING (2011) LINK AND SCREENLINE ANALYSIS

The existing (2011) link volumes and the capacities on the major roadways across the screenlines were obtained from the 2011 EMME plots. The V/C ratios on the individual roadways and overall across the screenlines were computed and are summarized in Table 3-1.

Figure 3-7 shows the existing (2011) link volumes and V/C ratios for the peak direction of the peak hour. The existing (2011) link analyses show the following:

- all screenlines are below capacity
- Bovaird Drive east of Heritage Road has near capacity link volumes (V/C = 0.85).

## 2011 Model - Auto Volumes

Screenline #	Screenline Name	Roadway Name	Eastbound Direction			Westbound Direction			Both Directions							
			Approach Volume (vph)	Number of Lanes	Capacity	Link Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	Link Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	Link Capacity
1	East of Winston Churchill Boulevard	Wanless Drive	72	1	500	500	0.14	256	1	500	0.51	328	2	500	1000	0.33
		Bovard Drive	548	1	900	900	0.61	748	1	900	0.63	1296	2	900	1800	0.72
		<b>Screenline Total</b>	<b>620</b>	<b>2</b>	<b>1400</b>	<b>1400</b>	<b>0.44</b>	<b>1004</b>	<b>2</b>	<b>1400</b>	<b>0.72</b>	<b>1624</b>	<b>4</b>	<b>500</b>	<b>2800</b>	<b>0.58</b>
2	East of Heritage Road	Wanless Drive	157	1	500	500	0.31	211	1	500	0.42	368	2	500	1000	0.37
		Bovard Drive	660	1	900	900	0.73	769	1	900	<b>0.85</b>	1429	2	900	1800	0.79
		<b>Screenline Total</b>	<b>817</b>	<b>2</b>	<b>1400</b>	<b>1400</b>	<b>0.58</b>	<b>980</b>	<b>2</b>	<b>1400</b>	<b>0.70</b>	<b>1797</b>	<b>4</b>	<b>500</b>	<b>2800</b>	<b>0.64</b>
3	East of Mississauga Road	Wanless Drive	225	1	500	500	0.45	171	1	500	0.34	396	2	500	1000	0.40
		Bovard Drive	1121	2	900	1800	0.62	995	2	900	0.55	2116	4	900	3600	0.59
		<b>Screenline Total</b>	<b>1346</b>	<b>3</b>	<b>2300</b>	<b>2300</b>	<b>0.59</b>	<b>1166</b>	<b>3</b>	<b>2300</b>	<b>0.51</b>	<b>2512</b>	<b>6</b>	<b>500</b>	<b>4600</b>	<b>0.55</b>
5	East of Creditview Road	Wanless Drive	133	1	500	500	0.27	110	1	500	0.22	243	2	500	1000	0.24
		Buick Boulevard	129	1	500	500	0.26	44	1	500	0.09	173	2	500	1000	0.17
		<b>Screenline Total</b>	<b>262</b>	<b>2</b>	<b>800</b>	<b>1600</b>	<b>0.00</b>	<b>0</b>	<b>2</b>	<b>800</b>	<b>0.00</b>	<b>2</b>	<b>4</b>	<b>800</b>	<b>3200</b>	<b>0.00</b>
		Bovard Drive	1353	3	900	2700	0.50	981	3	900	0.36	2334	6	900	5400	0.43
		<b>Screenline Total</b>	<b>1617</b>	<b>7</b>	<b>5300</b>	<b>5300</b>	<b>0.31</b>	<b>1135</b>	<b>7</b>	<b>5300</b>	<b>0.21</b>	<b>2752</b>	<b>14</b>	<b>5000</b>	<b>10600</b>	<b>0.26</b>

Screenline #	Screenline Name	Eastbound Direction			Westbound Direction			Both Directions						
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	Link Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	Link Capacity
1	East of Winston Churchill Boulevard	620	2	1400	0.44	1004	2	1400	0.72	1624	4	2800	2800	0.58
2	East of Heritage Road	817	2	1400	0.58	980	2	1400	0.70	1797	4	2800	2800	0.64
3	East of Mississauga Road	1346	3	2300	0.59	1166	3	2300	0.51	2512	6	4600	4600	0.55
5	East of Creditview Road	1617	7	5300	0.31	1135	7	5300	0.21	2752	14	10600	10600	0.26

Table 3-1  
2011 EMME Model - Auto Volumes  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



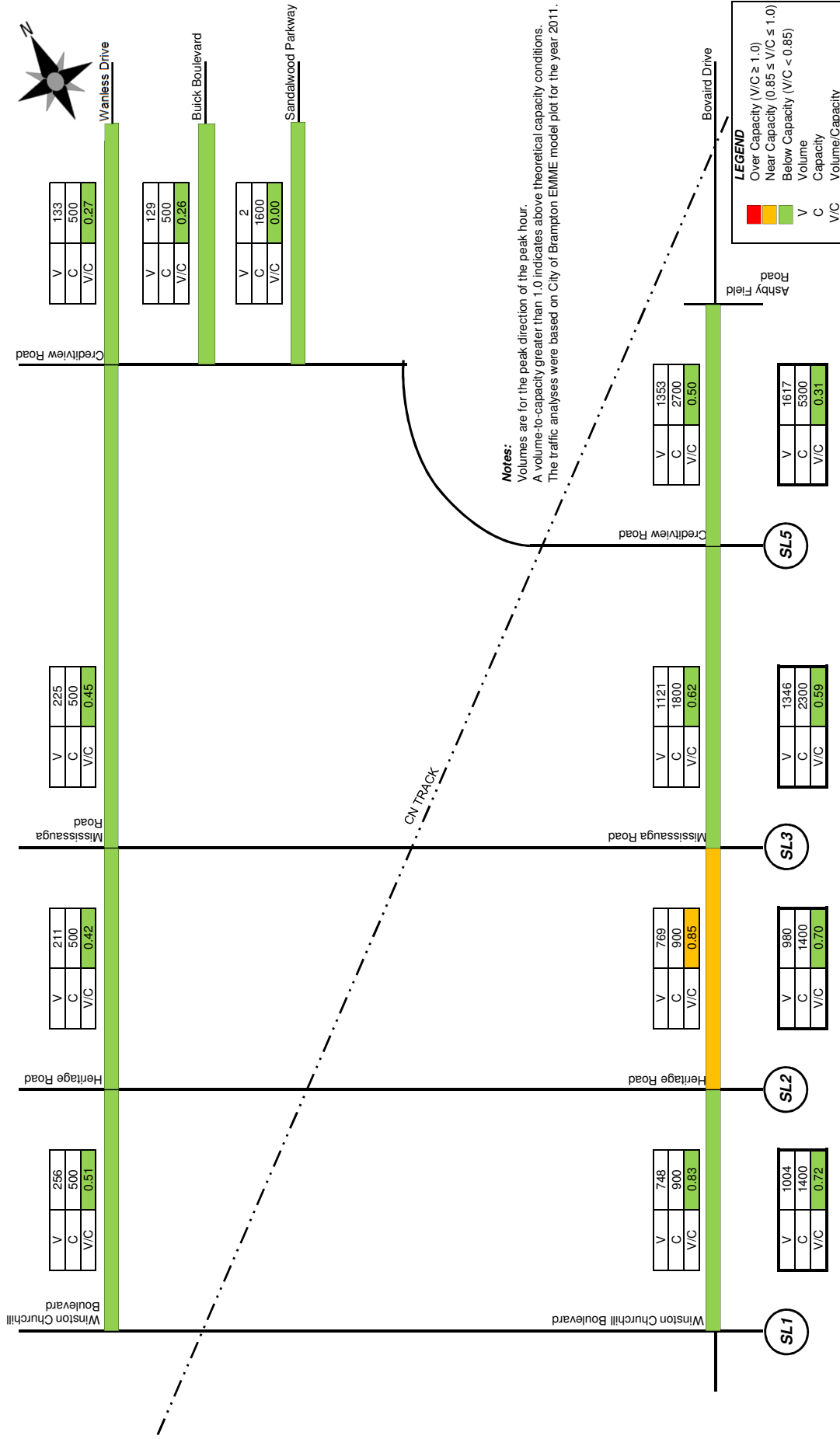


Figure 3-7  
 2011 Peak Direction Peak Hour Link and Screenline Analysis  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

### 3.3.3 FUTURE ROAD NETWORK

The future road network included in the EMME model for 2021 and 2031 conditions are consistent with the roadway network improvements identified in Section 3.1 of this report. A summary of the improvements that are relevant to the screenline analysis are shown in Table 3-2.

**Table 3-2 Summary of Roadway Improvements (Number of Lanes) in EMME Model**

Roadway Link	2011	2021 Do Nothing	2031 Do Nothing	2021	2031
Bovaird Drive West of NSTC	2L	2L	4L	2L	4L
Bovaird Drive between NSTC and Mississauga Road	2L	2L	4L-6L	2L	4L-6L
Bovaird Drive east of Mississauga Road	4L	4L	6L	4L	6L
Bovaird Drive east of Creditview Road	6L	6L	6L	6L	6L
Station Road between Heritage Road and Creditview Road	0L	0L	0L	4L	4L
Station Road west of Heritage Road	0L	0L	0L	0L	4L
Heritage Road North and South of Bovaird Drive	2L	2L	4L	2L	4L
Mississauga Road North of Bovaird Drive	2L	4L	6L	4L	6L
Mississauga Road South of Bovaird Drive	4L	4L	6L	4L	6L
NSTC	0L	0L	6L	0L	6L
Creditview Road Realignment	0L	4L	4L	4L	4L

#L = number of lanes

### 3.3.4 FUTURE (2021) DO-NOTHING LINK AND SCREENLINE ANALYSIS

The future (2021) Do-Nothing scenario link volumes and the capacities on the major roadways across the screenlines were obtained from the 2021 Do-Nothing EMME plots. The V/C ratios on the individual roadways and overall across the screenline are summarized in Table 3-3.

Figure 3-8 shows the future (2021) Do-Nothing scenario link volumes and V/C ratios for the peak direction of the peak hour. The future (2021) Do-Nothing analyses show the following:

- all screenlines are below capacity
- Screenline #1 – East of Winston Churchill Boulevard has near capacity link volumes (V/C = 0.86)
- Bovaird Drive between Winston Churchill Boulevard and Mississauga Road has near capacity link volumes (V/C = 0.91 to 0.92)
- Bovaird Drive between Mississauga Road and Creditview Road has over capacity link volumes (V/C = 1.16)

## 2021 Do Nothing Model - Auto Volumes

Screenline #	Screenline Name	Eastbound Direction				Westbound Direction				Both Directions				
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	
1	East of Winston Churchill Boulevard	Wanless Drive	545	1	700	0.78	565	700	0.81	1110	2	700	1400	0.79
		Bovard Drive	822	1	900	<b>0.91</b>	1632	900	<b>0.90</b>	1632	2	900	1800	<b>0.91</b>
		<b>Screenline Total</b>	<b>1367</b>	<b>2</b>	<b>1600</b>	<b>0.85</b>	<b>1375</b>	<b>1600</b>	<b>0.86</b>	<b>2742</b>	<b>4</b>	<b>1600</b>	<b>3200</b>	<b>0.86</b>
		Wanless Drive	370	1	700	0.53	212	700	0.30	582	2	700	1400	0.42
		Sandaiwood Parkway	682	2	800	0.43	563	800	0.35	1245	4	800	3200	0.39
3	East of Mississauga Road	Bovard Drive	825	1	900	<b>0.92</b>	809	900	<b>0.90</b>	1634	2	900	1800	<b>0.91</b>
		<b>Screenline Total</b>	<b>1877</b>	<b>4</b>	<b>3200</b>	<b>0.59</b>	<b>1584</b>	<b>3200</b>	<b>0.50</b>	<b>3461</b>	<b>8</b>	<b>6400</b>	<b>6400</b>	<b>0.54</b>
		Wanless Drive	639	2	700	0.46	430	700	0.31	1069	4	700	2800	0.38
		Sandaiwood Parkway	854	2	800	0.53	590	800	0.37	1444	4	800	3200	0.45
		Bovard Drive	2070	2	900	<b>1.15</b>	2086	900	<b>1.16</b>	4156	4	900	3600	<b>1.15</b>
4	East of Transitspine Road	<b>Screenline Total</b>	<b>3563</b>	<b>6</b>	<b>4800</b>	<b>0.74</b>	<b>3106</b>	<b>4800</b>	<b>0.65</b>	<b>6669</b>	<b>12</b>	<b>9600</b>	<b>9600</b>	<b>0.69</b>
		Wanless Drive	585	2	700	0.42	563	700	0.40	1148	4	700	2800	0.41
		Sandaiwood Parkway	838	2	800	0.52	731	800	0.46	1569	4	800	3200	0.49
		<b>Screenline Total</b>	<b>1423</b>	<b>4</b>	<b>3000</b>	<b>0.47</b>	<b>1294</b>	<b>3000</b>	<b>0.43</b>	<b>2717</b>	<b>8</b>	<b>6000</b>	<b>6000</b>	<b>0.45</b>
		Wanless Drive	595	2	800	0.37	710	800	0.44	1305	4	800	3200	0.41
5	East of Creditview Road	Buick Boulevard	337	1	500	0.67	113	500	0.23	450	2	500	1000	0.45
		Sandaiwood Parkway	679	2	800	0.42	943	800	0.59	1622	4	800	3200	0.51
		Bovard Drive	1631	3	900	0.60	1466	2700	0.54	3097	6	900	5400	0.57
		<b>Screenline Total</b>	<b>3242</b>	<b>8</b>	<b>6400</b>	<b>0.51</b>	<b>3232</b>	<b>6400</b>	<b>0.51</b>	<b>6474</b>	<b>16</b>	<b>12800</b>	<b>12800</b>	<b>0.51</b>

Screenline #	Screenline Name	Eastbound Direction				Westbound Direction				Both Directions			
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio
1	East of Winston Churchill Boulevard	1367	2	1600	<b>0.85</b>	1375	2	1600	<b>0.86</b>	2742	4	3200	<b>0.86</b>
2	East of Heritage Road	1877	4	3200	0.59	1584	4	3200	0.50	3461	8	6400	0.54
3	East of Mississauga Road	3563	6	4800	0.74	3106	6	4800	0.65	6669	12	9600	0.69
4	East of Transitspine Road	1423	4	3000	0.47	1294	4	3000	0.43	2717	8	6000	0.45
5	East of Creditview Road	3242	8	6400	0.51	3232	8	6400	0.51	6474	16	12800	0.51

Table 3-3

2021 Do Nothing EMM Model - Auto Volumes  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study





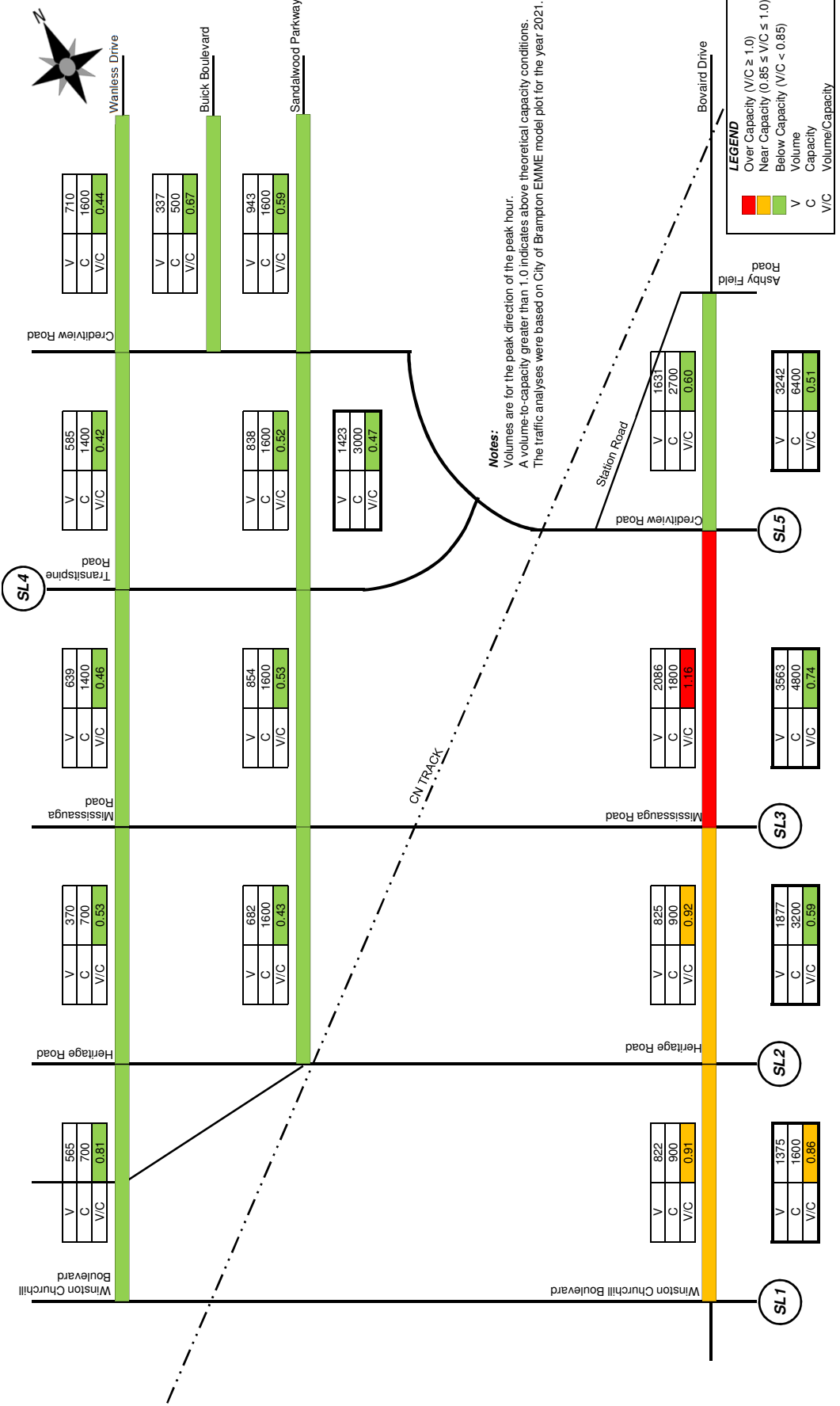


Figure 3-8  
 Future 2021 Do Nothing Peak Direction Peak Hour Link and Screenline Analysis  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

### 3.3.5 FUTURE (2031) DO-NOTHING LINK AND SCREENLINE ANALYSIS

The future (2031) Do-Nothing scenario link volumes and the capacities on the major roadways across the screenlines were obtained from the 2031 Do-Nothing EMME plots. The V/C ratios on the individual roadways and overall across the screenline are summarized in Table 3-4.

Figure 3-9 shows the future (2031) Do-Nothing scenario link volumes and V/C ratios for the peak direction of the peak hour. The future (2031) Do-Nothing analyses show the following:

- all screenlines are below capacity
- Screenline #3 – East of Mississauga Road has near capacity volumes (V/C = 0.88)
- Sandalwood Parkway between Mississauga Road and Transit Spine Road has near capacity link volumes (V/C = 0.85)
- Bovaird Drive between Winston Churchill Boulevard and Mississauga Road has near capacity link volumes (V/C = 0.87 to 0.88)
- Bovaird Drive between Mississauga Road and Creditview Road has over capacity link volumes (V/C = 1.15)

## 2031 Do Nothing Model - Auto Volumes

Screenline #	Screenline Name	Roadway Name	Eastbound Direction				Westbound Direction				Both Directions				
			Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	
1	East of Winston Churchill Boulevard	Wanless Drive	343	2	700	0.25	151	2	1400	0.11	494	4	700	2800	0.18
		Bovaird Drive	784	1	900	0.87	566	1	900	0.63	1350	2	900	1800	0.75
		<b>Screenline Total</b>	<b>1127</b>	<b>3</b>	<b>2300</b>	<b>0.49</b>	<b>1127</b>	<b>3</b>	<b>2300</b>	<b>0.31</b>	<b>1844</b>	<b>6</b>	<b>4600</b>	<b>0.40</b>	
2	East of Heritage Road	Wanless Drive	747	2	700	0.53	556	2	700	0.40	1303	4	700	2800	0.47
		Sandalwood Parkway	1019	2	800	0.64	1110	2	800	0.69	2129	4	800	3200	0.67
		<b>Screenline Total</b>	<b>1412</b>	<b>2</b>	<b>800</b>	<b>0.88</b>	<b>1187</b>	<b>2</b>	<b>800</b>	<b>0.74</b>	<b>2599</b>	<b>4</b>	<b>800</b>	<b>3200</b>	<b>0.81</b>
3	East of Mississauga Road	Wanless Drive	933	2	700	0.67	662	2	700	0.47	1595	4	700	2800	0.57
		Buick Boulevard	336	1	500	0.67	122	1	500	0.24	458	2	500	1000	0.46
		<b>Screenline Total</b>	<b>1359</b>	<b>2</b>	<b>800</b>	<b>0.85</b>	<b>900</b>	<b>2</b>	<b>800</b>	<b>0.56</b>	<b>2259</b>	<b>4</b>	<b>800</b>	<b>3200</b>	<b>0.71</b>
4	East of Transitspine Road	Bovaird Drive	2549	3	800	1.06	2770	3	2400	1.15	5319	6	800	4800	1.11
		<b>Screenline Total</b>	<b>5177</b>	<b>8</b>	<b>5900</b>	<b>0.88</b>	<b>4454</b>	<b>8</b>	<b>5900</b>	<b>0.75</b>	<b>9631</b>	<b>16</b>	<b>11800</b>	<b>0.82</b>	
		Wanless Drive	881	2	700	0.63	761	2	700	0.54	1642	4	700	2800	0.59
5	East of Creditview Road	Buick Boulevard	260	1	500	0.52	153	1	500	0.31	413	2	500	1000	0.41
		Sandalwood Parkway	1071	2	800	0.67	898	2	800	0.56	1969	4	800	3200	0.62
		<b>Screenline Total</b>	<b>2212</b>	<b>5</b>	<b>3500</b>	<b>0.63</b>	<b>1812</b>	<b>5</b>	<b>3500</b>	<b>0.52</b>	<b>4024</b>	<b>10</b>	<b>7000</b>	<b>0.57</b>	
6	East of Creditview Road	Wanless Drive	985	1	800	0.62	836	1	800	0.52	1821	2	800	3200	0.57
		Buick Boulevard	419	1	500	0.84	252	1	500	0.50	671	2	500	1000	0.67
		<b>Screenline Total</b>	<b>1050</b>	<b>2</b>	<b>800</b>	<b>0.66</b>	<b>1087</b>	<b>2</b>	<b>800</b>	<b>0.68</b>	<b>2137</b>	<b>4</b>	<b>800</b>	<b>3200</b>	<b>0.67</b>
7	East of Creditview Road	Bovaird Drive	1879	3	800	0.78	1391	3	2400	0.58	3270	6	800	4800	0.68
		<b>Screenline Total</b>	<b>4333</b>	<b>8</b>	<b>6100</b>	<b>0.71</b>	<b>3566</b>	<b>8</b>	<b>6100</b>	<b>0.58</b>	<b>7899</b>	<b>16</b>	<b>12200</b>	<b>0.65</b>	

Screenline #	Screenline Name	Eastbound Direction				Westbound Direction				Both Directions			
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio
1	East of Winston Churchill Boulevard	1127	3	2300	0.49	717	3	2300	0.31	1844	6	4600	0.40
2	East of Heritage Road	3178	6	4600	0.69	2853	6	4600	0.62	6031	12	9200	0.66
3	East of Mississauga Road	5177	8	5900	0.88	4454	8	5900	0.75	9631	16	11800	0.82
4	East of Transitspine Road	2212	5	3500	0.63	1812	5	3500	0.52	4024	10	7000	0.57
5	East of Creditview Road	4333	8	6100	0.71	3566	8	6100	0.58	7899	16	12200	0.65

Table 3-4

2031 Do Nothing EMME Model - Auto Volumes  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



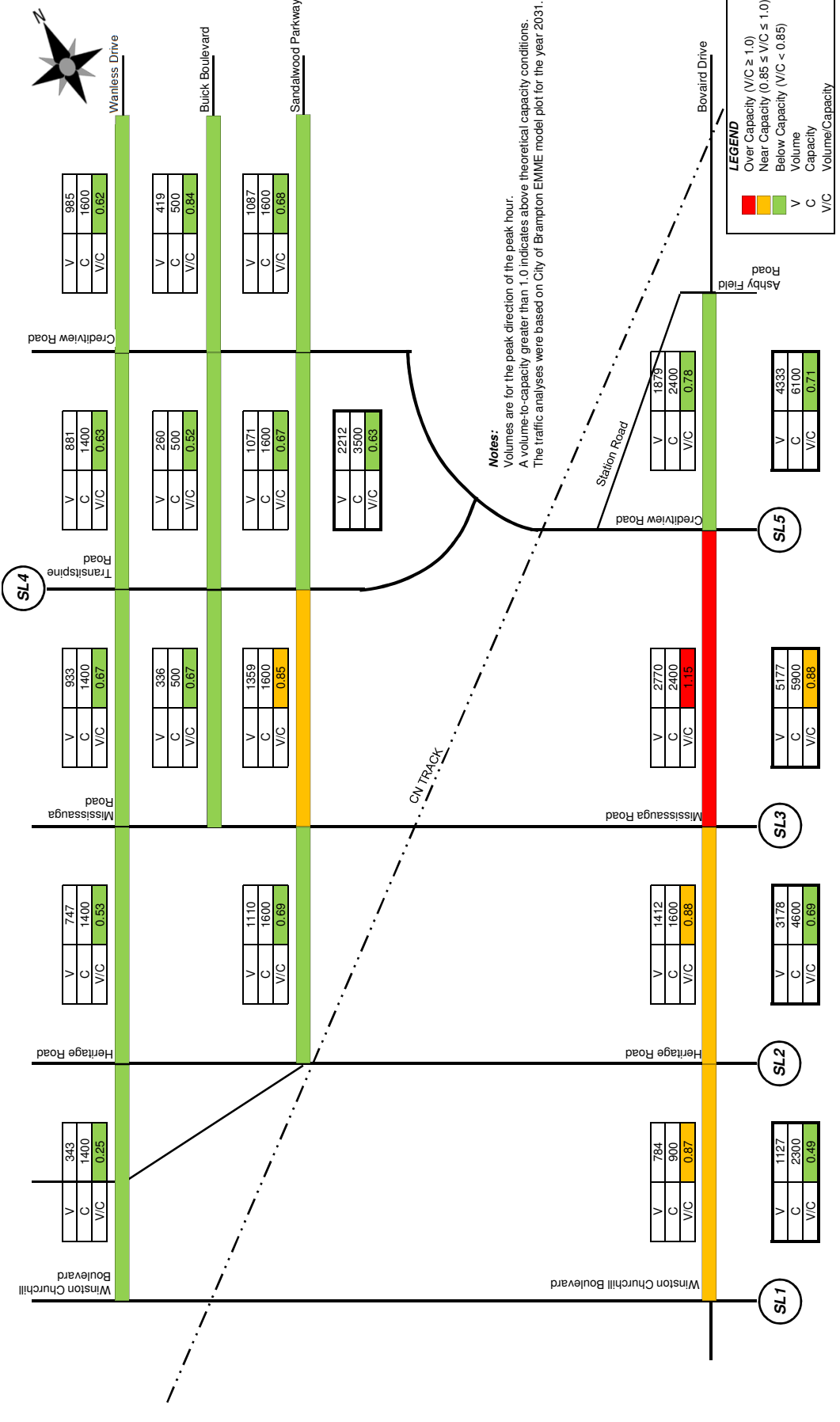


Figure 3-9  
 Future 2031 Do Nothing Peak Direction Peak Hour Link and Screenline Analysis  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

### 3.3.6 FUTURE (2021) LINK AND SCREENLINE ANALYSIS

The future (2021) scenario link volumes and the capacities on the major roadways across the screenlines were obtained from the 2021 EMME plots. The V/C ratios on the individual roadways and overall across the screenline are summarized in Table 3-5.

Figure 3-10 shows the future (2021) scenario link volumes and V/C ratios for the peak direction of the peak hour. The future (2021) analyses show the following:

- all screenlines are below capacity
- Screenline #1 – East of Winston Churchill Boulevard has near capacity link volumes (V/C = 0.89)
- Bovaird Drive between Winston Churchill Boulevard and Mississauga Road has near capacity link volumes (V/C = 0.86 to 0.94)
- The East-West Connection alleviates approximately 270 vph from Bovaird Drive between Mississauga Road and Creditview Road compared to the 2021 Do-Nothing network and the link V/C ratio reduces from 1.15 to 1.01

## 2021 Model - Auto Volumes

Screenline #	Screenline Name	Roadway Name	Eastbound Direction				Westbound Direction				Both Directions			
			Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio
1	East of Winston Churchill Boulevard	Wanless Drive	564	1	700	0.81	573	1	700	0.82	1137	2	700	0.81
		Bovard Drive	848	1	900	0.94	845	1	900	0.94	1693	2	900	0.94
		<b>Screenline Total</b>	<b>1412</b>	<b>2</b>	<b>1600</b>	<b>0.88</b>	<b>1418</b>	<b>2</b>	<b>1600</b>	<b>0.89</b>	<b>2830</b>	<b>4</b>	<b>1600</b>	<b>0.88</b>
2	East of Heritage Road	Wanless Drive	359	1	700	0.51	215	1	700	0.31	574	2	700	0.41
		Sandalwood Parkway	473	2	800	0.30	337	2	800	0.21	810	4	800	0.25
		<b>Proposed E-W Corridor</b>	<b>197</b>	<b>2</b>	<b>650</b>	<b>0.15</b>	<b>287</b>	<b>2</b>	<b>650</b>	<b>0.22</b>	<b>484</b>	<b>4</b>	<b>650</b>	<b>0.19</b>
3	East of Mississauga Road	Bovard Drive	775	1	900	0.86	750	1	900	0.83	1525	2	900	0.85
		<b>Screenline Total</b>	<b>1804</b>	<b>6</b>	<b>4500</b>	<b>0.40</b>	<b>1589</b>	<b>6</b>	<b>4500</b>	<b>0.35</b>	<b>3393</b>	<b>12</b>	<b>4500</b>	<b>0.38</b>
		Wanless Drive	641	2	700	0.46	437	2	700	0.31	1078	4	700	0.39
4	East of Transitspine Road	Sandalwood Parkway	655	2	800	0.41	373	2	800	0.23	1028	4	800	0.32
		<b>Proposed E-W Corridor</b>	<b>802</b>	<b>2</b>	<b>650</b>	<b>0.62</b>	<b>880</b>	<b>2</b>	<b>650</b>	<b>0.68</b>	<b>1682</b>	<b>4</b>	<b>650</b>	<b>0.65</b>
		Bovard Drive	1817	2	900	1.01	1797	2	900	1.00	3614	4	900	1.00
5	East of Creditview Road	<b>Screenline Total</b>	<b>3915</b>	<b>8</b>	<b>6100</b>	<b>0.64</b>	<b>3487</b>	<b>8</b>	<b>6100</b>	<b>0.57</b>	<b>7402</b>	<b>16</b>	<b>6100</b>	<b>0.61</b>
		Wanless Drive	568	2	700	0.41	523	2	700	0.37	1091	4	700	0.39
		Sandalwood Parkway	724	2	800	0.45	634	2	800	0.40	1358	4	800	0.42
5	East of Creditview Road	<b>Screenline Total</b>	<b>1292</b>	<b>4</b>	<b>3000</b>	<b>0.43</b>	<b>1157</b>	<b>4</b>	<b>3000</b>	<b>0.39</b>	<b>2449</b>	<b>8</b>	<b>3000</b>	<b>0.41</b>
		Wanless Drive	587	2	800	0.37	694	2	800	0.43	1281	4	800	0.40
		Buick Boulevard	344	1	500	0.69	114	1	500	0.23	458	2	500	0.46
5	East of Creditview Road	Sandalwood Parkway	688	2	800	0.43	917	2	800	0.57	1605	4	800	0.50
		<b>Proposed E-W Corridor</b>	<b>1733</b>	<b>3</b>	<b>2700</b>	<b>0.64</b>	<b>1578</b>	<b>3</b>	<b>2700</b>	<b>0.58</b>	<b>3311</b>	<b>6</b>	<b>2700</b>	<b>0.61</b>
		<b>Screenline Total</b>	<b>3352</b>	<b>8</b>	<b>6400</b>	<b>0.52</b>	<b>3303</b>	<b>8</b>	<b>6400</b>	<b>0.52</b>	<b>6655</b>	<b>16</b>	<b>6400</b>	<b>0.52</b>

Screenline #	Screenline Name	Eastbound Direction				Westbound Direction				Both Directions			
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio
1	East of Winston Churchill Boulevard	1412	2	1600	0.88	1418	2	1600	0.89	2830	4	3200	0.88
2	East of Heritage Road	1804	6	4500	0.40	1589	6	4500	0.35	3393	12	9000	0.38
3	East of Mississauga Road	3915	8	6100	0.64	3487	8	6100	0.57	7402	16	12200	0.61
4	East of Transitspine Road	1292	4	3000	0.43	1157	4	3000	0.39	2449	8	6000	0.41
5	East of Creditview Road	3352	8	6400	0.52	3303	8	6400	0.52	6655	16	12800	0.52

Table 3-5  
 2021 EMME Model - Auto Volumes  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



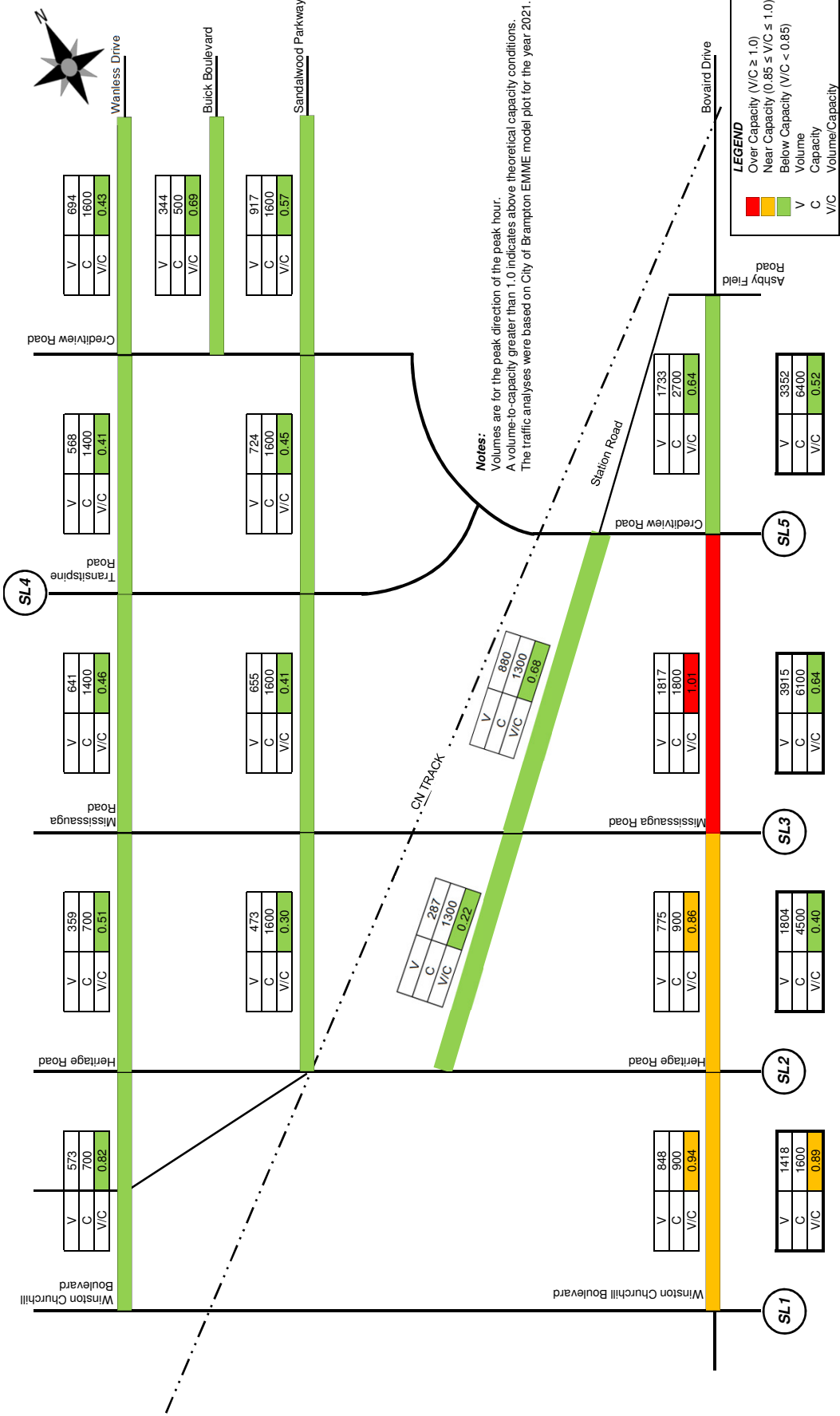


Figure 3-10 Future 2021 Peak Direction Peak Hour Link and Screenline Analysis Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

### 3.3.7 FUTURE (2031) LINK AND SCREENLINE ANALYSIS

The future (2031) scenario link volumes and the capacities on the major roadways across the screenlines were obtained from the 2031 EMME plots. The V/C ratios on the individual roadways and overall across the screenline are summarized in Table 3-6.

Figure 3-11 shows the future (2031) scenario link volumes and V/C ratios for the peak direction of the peak hour. The future (2031) analyses show the following:

- all screenlines are below capacity
- Screenline #3 – East of Mississauga Road improves from near capacity volumes (V/C = 0.88) to below capacity volumes (V/C = 0.79) when compared to the 2031 Do-Nothing scenario
- Sandalwood Parkway between Mississauga Road and Transit Spine Road has near capacity link volumes (V/C = 0.87)
- Bovaird Drive between Heritage Road and Mississauga Road improves from near capacity link volumes (V/C = 0.88) to below capacity link volumes (V/C = 0.73) when compared to the 2031 Do-Nothing scenario; the section between Winston Churchill Boulevard and Heritage Road remains at near capacity volumes (V/C = 0.90)
- The East-West Connection alleviates approximately 260 vph from Bovaird Drive between Mississauga Road and Creditview Road compared to the 2031 Do-Nothing network and the link V/C ratio reduces from 1.15 to 1.05



## 2031 Model - Auto Volumes

Screenline #	Screenline Name	Roadway Name	Eastbound Direction				Westbound Direction				Both Directions						
			Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio			
1	East of Winston Churchill Boulevard	Wanless Drive	290	2	700	1400	0.21	205	2	700	1400	0.15	495	4	700	2800	0.18
		Proposed E-W Corridor	150	2	650	1300	0.12	20	2	650	1300	0.02	170	4	650	2600	0.07
		Bovaird Drive	811	1	900	900	0.90	592	1	900	900	0.66	1403	2	900	1800	0.78
		<b>Screenline Total</b>	<b>1251</b>	<b>5</b>	<b>3600</b>	<b>3600</b>	<b>0.35</b>	<b>817</b>	<b>5</b>	<b>3600</b>	<b>3600</b>	<b>0.23</b>	<b>2066</b>	<b>10</b>	<b>7200</b>	<b>2800</b>	<b>0.38</b>
		Wanless Drive	623	2	700	1400	0.44	444	2	700	1400	0.32	1067	4	700	2800	0.39
2	East of Heritage Road	Sandalwood Parkway	834	2	800	1600	0.52	843	2	800	1600	0.53	1677	4	800	3200	0.52
		Proposed E-W Corridor	701	2	650	1300	0.54	739	2	650	1300	0.57	1440	4	650	2600	0.55
		Bovaird Drive	1172	2	800	1600	0.73	1003	2	800	1600	0.63	2175	4	800	3200	0.68
		<b>Screenline Total</b>	<b>3330</b>	<b>8</b>	<b>5900</b>	<b>5900</b>	<b>0.56</b>	<b>3029</b>	<b>8</b>	<b>5900</b>	<b>5900</b>	<b>0.51</b>	<b>6359</b>	<b>16</b>	<b>11800</b>	<b>4800</b>	<b>0.54</b>
		Wanless Drive	947	2	700	1400	0.68	645	2	700	1400	0.46	1592	4	700	2800	0.57
3	East of Mississauga Road	Buick Boulevard	334	1	500	500	0.67	124	1	500	500	0.25	458	2	500	1000	0.46
		Sandalwood Parkway	1395	2	800	1600	0.87	887	2	800	1600	0.55	2282	4	800	3200	0.71
		Proposed E-W Corridor	726	2	650	1300	0.56	818	2	650	1300	0.63	1544	4	650	2600	0.59
		Bovaird Drive	2275	3	800	2400	0.95	2508	3	800	2400	1.05	4783	6	800	4800	1.00
		<b>Screenline Total</b>	<b>5677</b>	<b>10</b>	<b>7200</b>	<b>7200</b>	<b>0.79</b>	<b>4982</b>	<b>10</b>	<b>7200</b>	<b>7200</b>	<b>0.69</b>	<b>10659</b>	<b>20</b>	<b>14400</b>	<b>4800</b>	<b>0.74</b>
4	East of Transitspine Road	Wanless Drive	893	2	700	1400	0.64	754	2	700	1400	0.54	1647	4	700	2800	0.59
		Buick Boulevard	254	1	500	500	0.51	153	1	500	500	0.31	407	2	500	1000	0.41
		Sandalwood Parkway	1086	2	800	1600	0.68	912	2	800	1600	0.57	1998	4	800	3200	0.62
		<b>Screenline Total</b>	<b>2233</b>	<b>5</b>	<b>3500</b>	<b>3500</b>	<b>0.64</b>	<b>1819</b>	<b>5</b>	<b>3500</b>	<b>3500</b>	<b>0.52</b>	<b>4052</b>	<b>10</b>	<b>7000</b>	<b>3200</b>	<b>0.58</b>
		Wanless Drive	981	2	800	1600	0.61	809	2	800	1600	0.51	1790	4	800	3200	0.56
5	East of Creditview Road	Buick Boulevard	423	1	500	500	0.85	245	1	500	500	0.49	668	2	500	1000	0.67
		Sandalwood Parkway	1056	2	800	1600	0.66	1062	2	800	1600	0.66	2118	4	800	3200	0.66
		Bovaird Drive	2027	3	800	2400	0.84	1594	3	800	2400	0.66	3621	6	800	4800	0.75
		<b>Screenline Total</b>	<b>4487</b>	<b>8</b>	<b>6100</b>	<b>6100</b>	<b>0.74</b>	<b>3710</b>	<b>8</b>	<b>6100</b>	<b>6100</b>	<b>0.61</b>	<b>8197</b>	<b>16</b>	<b>12200</b>	<b>4800</b>	<b>0.67</b>

Screenline #	Screenline Name	Eastbound Direction				Westbound Direction				Both Directions			
		Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio	Approach Volume (vph)	Number of Lanes	Capacity	V/C Ratio
1	East of Winston Churchill Boulevard	1251	5	3600	0.35	817	5	3600	0.23	2068	10	7200	0.29
2	East of Heritage Road	3330	8	5900	0.56	3029	8	5900	0.51	6359	16	11800	0.54
3	East of Mississauga Road	5677	10	7200	0.79	4982	10	7200	0.69	10659	20	14400	0.74
4	East of Transitspine Road	2233	5	3500	0.64	1819	5	3500	0.52	4052	10	7000	0.58
5	East of Creditview Road	4487	8	6100	0.74	3710	8	6100	0.61	8197	16	12200	0.67

Table 3-6  
2031 EMME Model - Auto Volumes  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



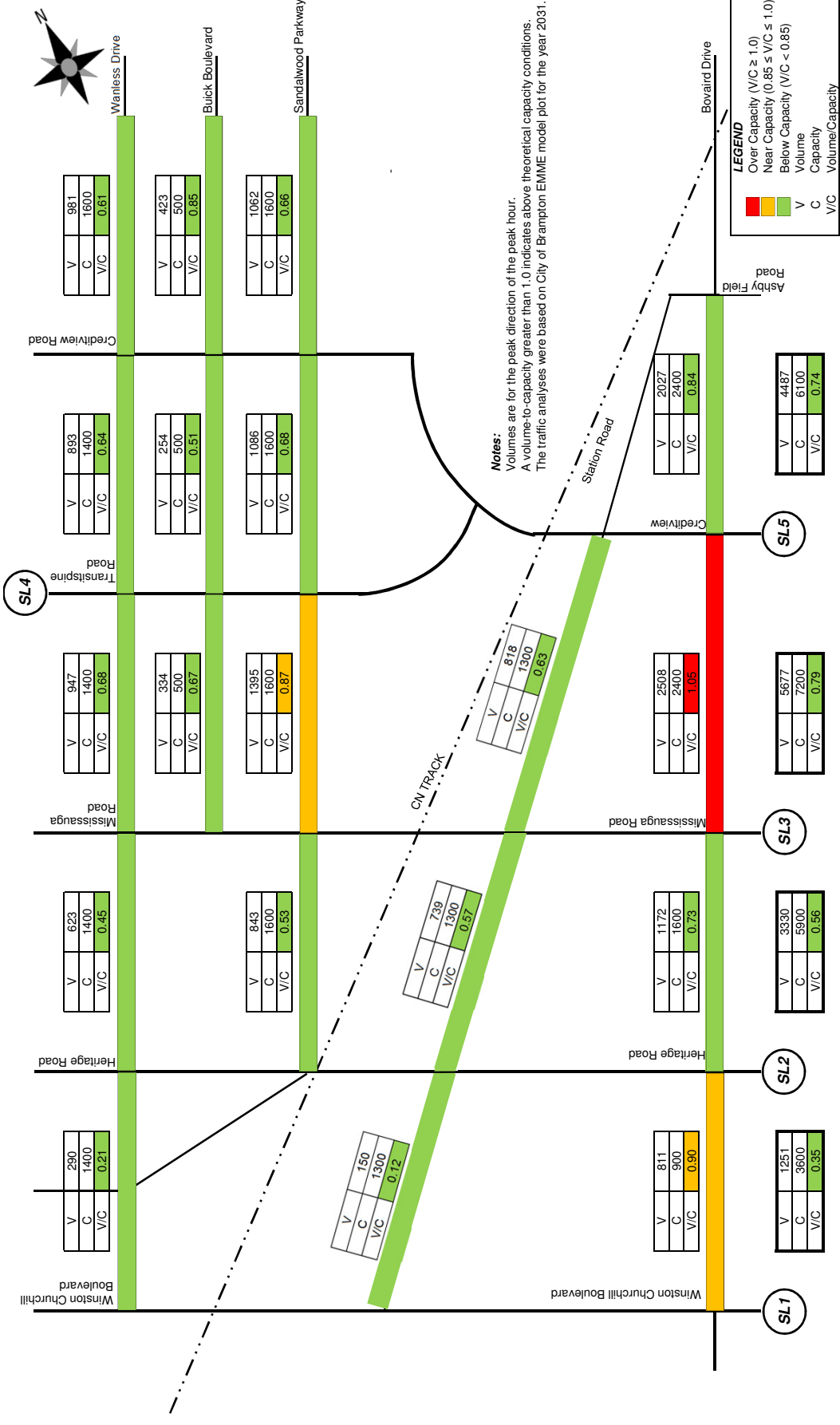


Figure 3-11 Future 2031 Peak Direction Peak Hour Link and Screenline Analysis  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

### 3.3.8 FUTURE TRAFFIC ANALYSES CONCLUSIONS

In summary, the existing (2011) link analyses show that all screenlines are below capacity and that Bovaird Drive east of Heritage Road has near capacity link volumes.

With planned roadway improvements but without the East-West Connection, the following links and screenlines would have near capacity or above capacity link volumes:

- Screenline #1 – East of Winston Churchill Boulevard has near capacity link volumes (2021)
- Screenline #3 – East of Mississauga Road has near capacity volumes (2031)
- Bovaird Drive between Winston Churchill Boulevard and Mississauga Road has near capacity link volumes (2021 and 2031).
- Bovaird Drive between Mississauga Road and Creditview Road has over capacity link volumes (2021 and 2031).
- Sandalwood Parkway between Mississauga Road and Transit Spine Road has near capacity link volumes (2031).

With the East-West Connection, the following screenline and link capacity improvements would be realized:

- Screenline #3 – East of Mississauga Road improves from near capacity volumes to below capacity volumes (2031)
- Bovaird Drive between Heritage Road and Mississauga Road improves from near capacity link volumes to below capacity link volumes (2031)
- The East-West Connection alleviates approximately 260 to 270 vph from Bovaird Drive between Mississauga Road and Creditview Road compared to the networks without the East-West Connection and the link V/C ratio reduces from 1.15 (2021 and 2031) to 1.01 (2021) and 1.05 (2031)



# 4

## PROBLEMS / OPPORTUNITIES

The City of Brampton, especially within the study area, will experience high growth in population and employment over the next several decades. The results of future (2031) traffic analyses reveal at or over capacity operations along the east-west corridors in the study area in spite of planned future roadway improvements.

As presently configured, the roadway network in the immediate area will not be able to accommodate the east-west travel demand growth anticipated over the next 15 years. As such, roadway capacity and intersection operations will deteriorate without improvements.

Future opportunities in the study area include:

- network opportunities with a new road link
- localized operational improvements
- increased transit service
- implementation of transportation demand management measures

The following is the summary and justification for improvements in the study area:

- The City of Brampton is experiencing high growth in population and employment that will continue over the next several decades:
  - the result of the traffic analysis suggested near and over capacity volumes along Bovaird Drive between Winston Churchill Road and Creditview Road, near capacity volumes along Sandalwood Parkway between Mississauga Road and Transit Spine Road, near capacity operation of Screenline #1 – East of Winston Churchill Boulevard and Screenline #3 – East of Mississauga Road
  - the future planned parallel road improvements within the study area will not address capacity deficiencies anticipated by year 2031 and roadway capacity and intersection operations will deteriorate without improvements
  - no continuous mid-block east-west link is present in the study area and an East-West Connection from Mount Pleasant GO Station extending westward into Heritage Heights will be necessary
- The East-West Connection will:
  - provide needed roadway capacity and multi-modal connectivity to enhance the grid network and provide transit/active transportation oriented development near Mount Pleasant GO Station.
  - facilitate direct travel for all modes and reduce the reliance/pressure placed on intersections at Bovaird Drive
  - support the City's endorsed Community Design Principles that include Transit Oriented Development in an Urban Core around Mount Pleasant GO Station.
  - provide a mid-block, pedestrian friendly community collector road that can attract an array of multi-modal transportation users (pedestrian, cyclists, local and regional transit users).

- Roadway capacity and intersection operations will deteriorate without improvements therefore:

*"As presently configured, the roadway network in the immediate area will not be able to accommodate the east-west travel demand growth anticipated over the next 17 years."*

*"Without an East-West Connection there would be a lack of community connectivity, place-making and sustainable modes of travel."*

*"Existing transportation system of roads, transit, pedestrian linkages and pathways will not adequately accommodate the mobility needs of future residents and workers in a growing community"*

# 5

## FUTURE (2031) TRAFFIC ANALYSIS

The 2031 total traffic analysis was completed for the key intersections in the study area to determine the required lane configurations and the anticipated operation of the intersections. The key intersections that were assessed include:

- Bovaird Drive at Heritage Road
- Bovaird Drive at Mississauga Road
- Bovaird Drive at Creditview Road / James Potter Road
- Bovaird Drive at Ashby Fields Road
- Station Road at Heritage Road
- Station Road at Mississauga Road
- Station Road at Creditview Road

The 2031 total peak hour volumes were forecasted with the application of the National Cooperative Highway Research Program (NCHRP) 255 Report Iterative Method using the travel demand model (EMME model) information and existing turning movement counts.

The primary purpose of travel demand models is to provide system-level traffic forecasts used to identify transportation needs in the development of long-range transportation plans. The resulting transportation plans provide a basis for the more detailed evaluation required for specific project developments. Traffic forecasting procedures are used to forecast peak hour turning movement counts in order to establish specific improvements such as the required geometry of an intersection.

### 5.1 EMME MODEL

City of Brampton provided WSP with EMME model plots that include 2011, 2021 and 2031 PM peak hour auto link volumes. The model plots are provided in Appendix E.

### 5.2 NCHRP 255 ITERATIVE METHOD

The NCHRP 255 Report Iterative Method employs the traditional Fratar method, which has been widely used in practice to balance trip tables. The iterative method is based on an incremental procedure of applying implied growth between the base year and the future year to actual traffic counts. For more refined results, the traffic forecasts at the turning movement level were derived incrementally for 2021 and 2031 rather than using 2011 as a base to forecast 2031.

The traffic link volumes which are required as input to the NCHRP 255 Report Iterative Method were forecasted as follows:

- For the PM peak hour, the 2031 link volumes were determined by applying the difference between 2021 and 2011 and 2031 and 2021 from the model plots to the link volumes calculated from the turning movement counts.
- Since the EMME model does not have AM peak hour volumes, the reciprocal PM peak hour growth was applied to the AM peak hour. For example, if in a 10-year horizon, the EMME model forecast a link to grow in the PM peak hour by 200 vehicles per hour (vph) in the eastbound direction and 100 vph in the westbound direction, the estimated growth in the AM peak hour would be 100 vph in the eastbound direction and 200 vph in the westbound direction.

- The Osmington Inc., Mixed Use Regional Centre, Mississauga Road and Bovaird Drive TIS, February 2010 prepared by Read, Voorhees & Associates notes that the Saturday volumes at other arterial road intersections has shown that the two-way peak hour total volume is about equal to the PM peak hour total traffic, but the volume is divided equally by direction. Since the EMME model does not have AM peak hour volumes, the same principle used in the Osmington TIS was applied to forecast the Saturday link volumes.
- Traffic volumes from Mississauga Road Class EA Study (North of Bovaird Drive West to Mayfield Road) Needs Assessment and Traffic Performance, AECOM, 2013 were used to forecast link volumes along Mississauga Road.
- The EMME model forecasts no eastbound traffic on the East-West Connection west of Heritage Road in 2031. A nominal 50vph was assumed for this link in the off-peak direction.
- The EMME model does not include a link for Ashby Fields Road, therefore, link volumes were derived from the Bovaird Drive & Creditview Road Commercial Properties Draft Plan: Transportation Considerations Report, BA Group, November 2011.
- The EMME model does not include a link for the East-West Connection, east of Creditview Road. An assumption was made that the traffic on East-West Connection, east of Creditview Road is 75 percent of the traffic west of Creditview Road.

The traffic forecast at the link level is provided in Appendix F.

The 2031 total peak hour turning movement volumes were forecasted with the application of the NCHRP 255 Report Iterative Method using targeted forecast link volumes and forecasted 2021 turning movement counts. The peak hour turning movement forecast calculations from the NCHRP 255 Iterative Method is provided in Appendix F and the results are shown schematically in Figure 5-1 (AM peak hour), Figure 5-2 (PM peak hour) and Figure 5-3 (Saturday peak hour).





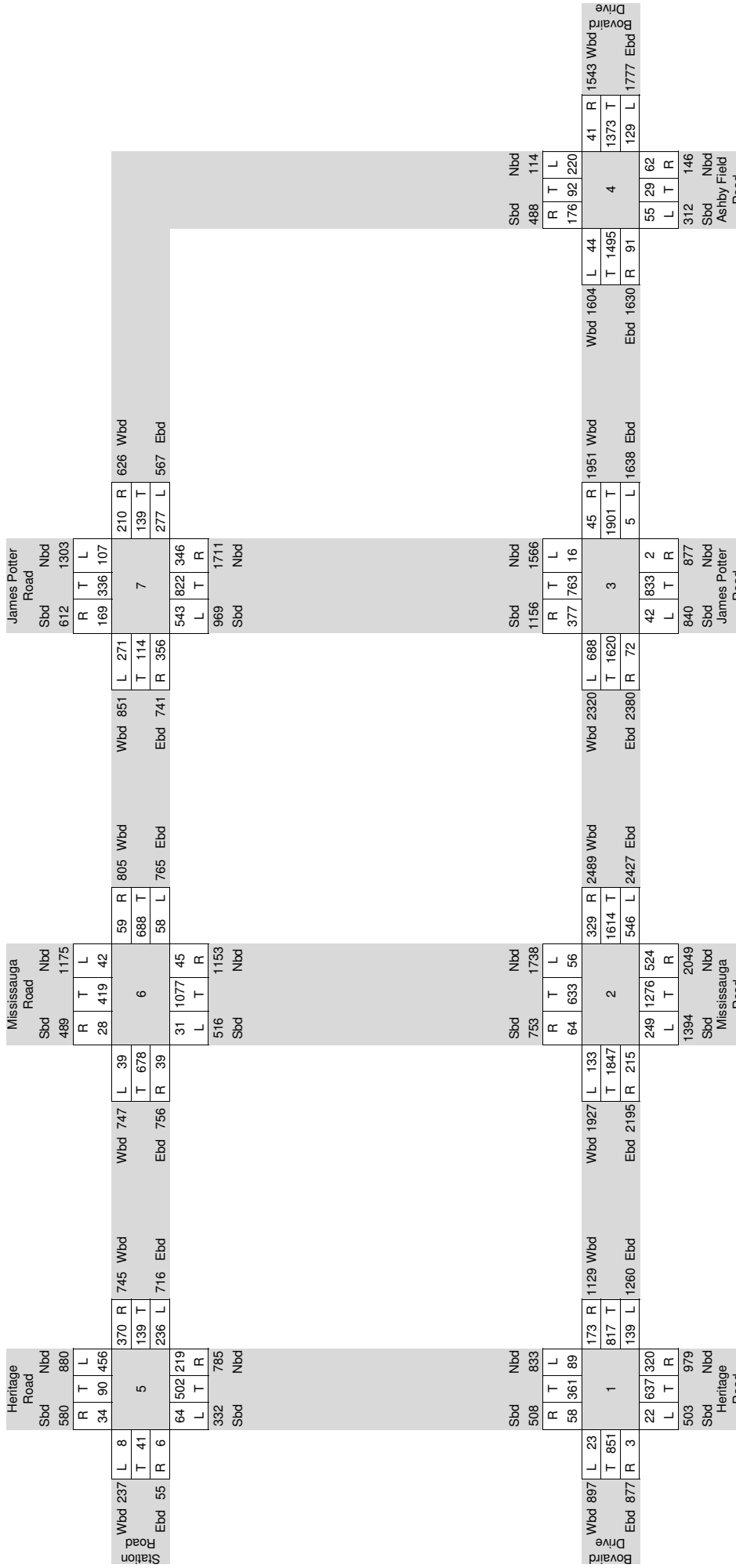


Figure 5-2  
 2031 PM Peak Hour Traffic  
 Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study

Heritage Road			Mississauga Road			James Potter Road		
Sbd	Nbd		Sbd	Nbd		Sbd	Nbd	
723	726		825	823		955	956	
R	T	L	R	T	L	R	T	L
24	199	500	35	720	70	223	575	157
312	R	737	42	R	789	157	R	598
Wbd	734	Wbd	796	L	796	123	T	598
Ebd	761	Ebd	824	R	824	318	L	Ebd
32	386	141	29	759	57	450	576	318
L	T	R	L	T	R	L	T	R
563	559		839	845		1342	1344	
Sbd	Nbd		Sbd	Nbd		Sbd	Nbd	
654	692		1235	1224		1410	1408	
R	T	L	R	T	L	R	T	L
52	534	68	111	1018	106	602	785	23
168	R	1211	238	R	2454	28	R	1737
Wbd	2056	Wbd	2364	L	2364	1706	T	1629
Ebd	2061	Ebd	2482	R	2482	3	L	1630
17	488	224	255	903	578	56	787	2
L	T	R	L	T	R	L	T	R
767	729		1724	1736		844	845	
Sbd	Nbd		Sbd	Nbd		Sbd	Nbd	
104	R	1643	104	R	1643	104	R	1643
Wbd	1643	Wbd	1437	T	1437	1437	T	1646
Ebd	1646	Ebd	102	L	1646	102	L	1646
69	88	70	69	88	70	69	88	70
L	T	R	L	T	R	L	T	R
226	227		226	227		226	227	
Sbd	Nbd		Sbd	Nbd		Sbd	Nbd	
102	L	1646	102	L	1646	102	L	1646
Wbd	1646	Wbd	1437	T	1437	1437	T	1646
Ebd	1646	Ebd	102	L	1646	102	L	1646

Figure 5-3  
2031 Saturday Peak Hour Traffic  
Environmental Assessment Study, East-West Connection, Mount Pleasant GO Station to Mississauga Road - Traffic Study



### 5.3 ANALYSIS RESULTS

The intersection capacity analysis for 2031 was undertaken using Synchro 8. The following assumptions were used for future conditions planning analysis:

- Heavy vehicle percentages from existing turning movement counts.
- PHF of 1.0 for all movements.
- Roadway improvements identified in Section 3.1 of this report and summarized in Table 3-2.

The lane configurations along Bovaird Drive were consistent with the recommendations from the Bovaird Drive EA (see Figure 5-4). The lane configurations recommended for the East-West Connection intersections are also included in the Figure

- WSP performed Synchro analysis for alternative lane configurations on Bovaird Drive for comparison (see Figure 5-5). The alternative lane configurations along Bovaird Drive were generally consistent with the recommendations from the traffic studies prepared for the Bovaird Drive EA and Mississauga Road EA. The following are exceptions based on forecasted traffic volumes:
  - At the intersection of Heritage Road and Bovaird Drive, a northbound right-turn lane was assumed as a result of forecasted northbound right-turn volumes in the PM peak hour (320 vph) and Saturday peak hour (224 vph). A shared eastbound through/right lane was assumed as a result of forecasted eastbound right-turn volumes (less than 20 vph during the three peak hours)
  - At the intersection of Mississauga Road at Bovaird Drive, a westbound right-turn lane was assumed as a result of forecasted westbound right-turn volumes in the PM peak hour (329 vph) and Saturday peak hour (238 vph). This is consistent with the recommendations from the Bovaird Drive Environmental Assessment Traffic Study whereas the Mississauga Road EA assumed no eastbound right-turn lane.
  - At the intersection of Creditview Road / James Potter Road at Bovaird Drive, a dual eastbound left-turn lane was assumed as a result of forecasted eastbound left-turn volumes in the PM peak hour (688 vph) and Saturday peak hour (593 vph). Significant eastbound left-turn volumes (more than 450 vph during the peak hours) were also forecasted in the traffic study prepared for the Bovaird Drive EA. A shared westbound and northbound through/right lane was assumed as a result of forecasted right-turn volumes (less than 50 vph during the three peak hours).

As requested by the Region, WSP undertook a signal warrant analysis for 2031 condition for the intersection of Mississauga Road at the East-west Connection,

WSP completed the signal warrant analysis using OTM Book 12 Justification 7 – Projected Volumes and the forecasted 2031 traffic volumes. This methodology involves the calculation of an Average Hourly Volume (AHV) based on peak hour volumes and, for a future intersection either Justification 1 (Volume) or Justification 2 (Delay) needs to be met at 150%. The calculations are provided in Table 5-1. The calculations show that a traffic signal is required in 2031 and the intersection was assessed as a signalized intersection.

**Table 5-1 Mississauga Road at East-West Connection, Signal Warrant Analysis, Justification 7, 2031 Total Traffic**

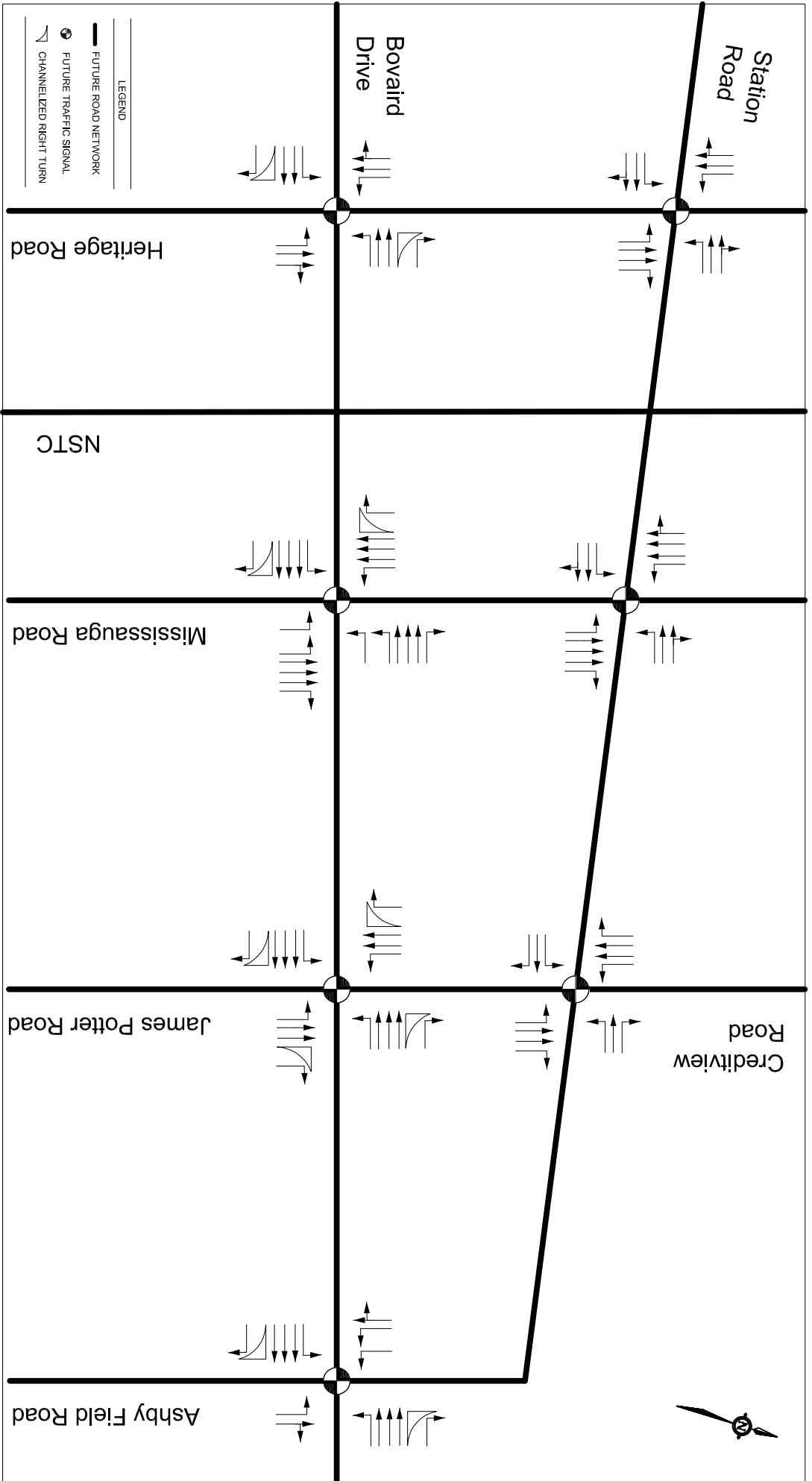
Justification	Explanation	Threshold (veh/h)	From To	7:00 8:00	16:00 17:00	AHV	120% Threshold Met?	150% Threshold Met?	
Volume	1A	Total Traffic	900	veh/h %	3249	3203	1613 179%	Yes	Yes
	1B	Side Street Traffic	170	veh/h %	1593	1561	789 464%		
Delay	2A	Main Road Traffic	900	veh/h %	1656	1642	825 92%	No	No
	2B	Crossing Traffic & Peds	75	veh/h %	838	785	406 541%		

The report documents the overall LOS, overall V/C ratios plus critical movements for all signalized intersections. For this study, critical movements are those where the individual movement V/C ratio exceeds 1.0 (exclusive lanes) or 0.85 (shared lanes) as required in Peel Region's Guidelines for Traffic Impact Studies. The results of the alternative lane configurations on Bovaird Drive are not summarized in a table as the EA has already been completed but discussed for Regions consideration.

The definitions of LOS for signalized intersections are provided in Appendix C.

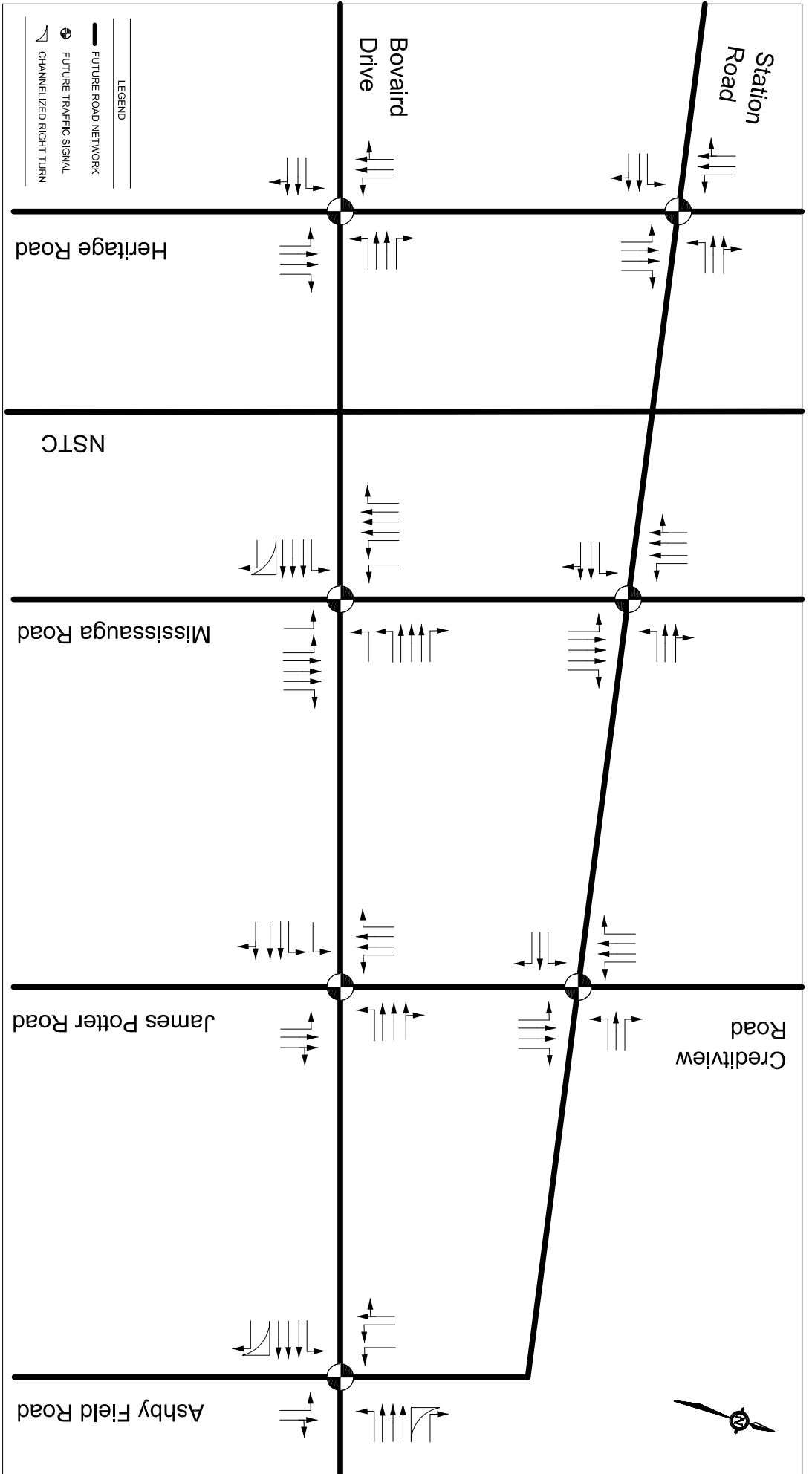
A summary of the capacity analysis results are provided in Table 5-2. The queue analysis results for the east-west corridor intersections are provided in Table 5-3 2031 Queue Analysis Results. As requested by the City of Brampton, the queue analysis was completed with both Synchro and SimTraffic with five simulation runs.

The Synchro and SimTraffic sheets are provided in Appendix G.



**Figure 5-4**  
**2031 Future Lane Configuration (Bovaird Drive Lane Configuration as Per Bovaird Drive EA)**  
**Brampton East West Connection Mount Pleasant EA**





**Figure 5-5**  
**2031 Future Lane Configuration (Alternative Bovaird Drive Lane Configuration)**  
**Brampton East West Connection Mount Pleasant EA**



**Table 5-2 2031 Intersection Capacity Analysis Results**

Intersection	AM Peak Hour		PM Peak Hour		SAT Peak Hour	
	V/C	Delay (sec.)	V/C	Delay (sec.)	V/C	Delay (sec.)
<b>Heritage Road &amp; Bovaird Drive</b>	<b>0.83</b>	<b>31</b>	<b>0.75</b>	<b>21</b>	<b>0.65</b>	<b>26</b>
<b>Mississauga Road &amp; Bovaird Drive</b>	<b>1.15</b>	<b>79</b>	<b>1.12</b>	<b>53</b>	<b>0.95</b>	<b>42</b>
Eastbound Left	0.58	66	1.15	164	0.91	108
Eastbound Through	1.08	93	0.83	36	0.95	48
Westbound Left	1.18	121	1.17	132	0.95	56
Northbound Left	1.26	220	0.81	72	0.91	85
Northbound Through	0.27	39	1.07	97	0.71	51
Southbound Through	1.17	131	0.71	53	0.96	65
<b>James Potter Road &amp; Bovaird Drive</b>	<b>0.98</b>	<b>34</b>	<b>1.19</b>	<b>63</b>	<b>1.07</b>	<b>41</b>
Eastbound Left	0.99	46	1.19	114	1.07	59
Eastbound Through	0.75	18	0.48	5	0.52	6
Westbound Through	0.96	37	1.07	68	0.97	31
Northbound Through	0.61	35	1.10	113	0.98	74
<b>Station Road &amp; Bovaird Drive</b>	<b>0.68</b>	<b>24</b>	<b>0.59</b>	<b>22</b>	<b>0.54</b>	<b>23</b>
<b>Heritage Road &amp; Station Road</b>	<b>0.64</b>	<b>17</b>	<b>0.82</b>	<b>21</b>	<b>0.85</b>	<b>23</b>
<b>Mississauga Road &amp; Station Road</b>	<b>0.56</b>	<b>18</b>	<b>0.51</b>	<b>17</b>	<b>0.44</b>	<b>17</b>
<b>James Potter Road &amp; Station Road</b>	<b>0.93</b>	<b>33</b>	<b>0.81</b>	<b>23</b>	<b>0.88</b>	<b>25</b>



**Table 5-3 2031 Queue Analysis Results**

Intersection	Movement	Predicted 95th Percentile Queue (m)			Predicted 95th Percentile Queue (m)			Recommended Storage Length (m)
		Synchro			SimTraffic			
		AM	PM	Sat	AM	PM	Sat	
<b>Station Road &amp; Bovaird Drive</b>	Southbound Left	31	41	26	30	42	32	50
	Eastbound Left	13	4	12	16	6	16	20
	Westbound Left	63	60	72	61	66	101	110
	Northbound Left	3	19	12	3	17	15	20
	Northbound Right	11	16	14	22	24	21	30
Southbound Left	78	58	72	78	87	113	120	
<b>Mississauga Road &amp; Station Road</b>	Eastbound Left	8	12	7	13	8	10	20
	Westbound Left	22	17	23	28	20	28	30
	Northbound Left	9	7	7	15	7	7	20
	Northbound Right	6	5	6	13	12	12	20
	Southbound Left	12	11	15	18	28	29	30
<b>James Potter Road &amp; Station Road</b>	Eastbound Left	34	58	47	53	110	68	110
	Eastbound Right	103	23	36	249	71	95	250 (continued from through lane)
	Westbound Left	75	59	69	276	125	169	280 (continued from through lane)
	Westbound Right	7	25	15	22	32	40	40
	Northbound Left	91	80	76	163	180	148	180
Northbound Right	15	11	11	23	29	25	30	
Southbound Left	30	33	44	43	38	46	50	
Southbound Right	17	13	15	25	18	23	30	

The capacity analysis results show that Mississauga Road at Bovaird Drive will operate over capacity, with long delays and several critical movements in the AM and PM peak hours. The delays for the critical movements would be long and vehicles would need to wait for more than one cycle to clear the intersection. The intersection would operate near capacity in the Saturday peak hour. The results are similar to those reported in the traffic report for the Mississauga Road EA.

Bovaird Drive at Creditview Drive/James Potter Road would operate over capacity in the PM and Saturday peak hours and at capacity in the AM peak hour. The delays for the critical movements would be long and vehicles would need to wait for more than one cycle to clear the intersection. The alternative scenario with dual eastbound left turn lane would improve the operation of the intersection and the intersection would operate with an overall V/C of 0.92 (LOS C) in the AM peak hour, 0.95 (LOS D) in the PM peak hour and 0.87 (LOS D) in the Saturday peak hour.

Bovaird Drive will operate at acceptable levels at the remaining study intersections with overall LOS C or better.

The East-West Connection intersections will operate with overall LOS C or better and no critical movements.

The queue analysis results provide the lengths of the storage lanes that are required to accommodate the predicted 95th percentile queues. The actual geometry and length of the storage lanes will be confirmed at the concept design phase.

# 6

## SUMMARY AND RECOMMENDATIONS

The Traffic Report associated with the Traffic Report for the Class Environmental Assessment for the East-West Connection, Mount Pleasant GO Station to West of Mississauga Road in the City of Brampton is summarized as follows:

- The existing roadways in the study area, Bovaird Drive West (running east to west) and Mississauga Road and Heritage Road (running north to south) provide the major transportation access to northwestern Brampton.
- Currently, the study area is served by Brampton Transit and GO Transit. Brampton transit provides bus services and GO Transit operates the Kitchener Rail line close to the study area, with the Mount Pleasant GO Station located north of Bovaird Drive, east of Mississauga Road as well as four bus routes that stop at Mount Pleasant GO Station.
- The City of Brampton has a large pathway system that connects parks and valleys, and provides convenient pedestrian and cycling routes across Brampton.
- The analysis of existing conditions identifies that at the assessed intersections (except Bovaird Drive at Ashby Field Road), the V/C ratio for at least one turning movement during one of the peak hours is over capacity.
- The Region of Peel Road Improvements Program identifies a number of roadway improvements in the study area that are scheduled to be completed by 2031. In addition the Halton-Peel Boundary Area Transportation Study (HPBATS) identified the Halton-Peel Freeway Option as the preferred North-South Transportation Corridor (NSTC). The corridor will connect to Highway 401/407 to the south and extend north past Bovaird Drive and Wanless Drive by the 2031 horizon year.
- The East-West Connection is identified in the City of Brampton Transportation Master Plan Update preferred network as a key transit and active transportation spine to achieve community connections and sustainable modes of travel.
- The City of Brampton Transportation Master Plan Update shows that Brampton Transit is expected to expand substantially.
- Screenline and link analysis for 2021 Do-Nothing Conditions show that Bovaird Drive between Winston Churchill Boulevard and Mississauga Road will operate near capacity, Bovaird Drive between Mississauga Road and Creditview Road will operate over capacity.
- Screenline and link analysis for 2031 Do-Nothing Conditions show that Sandalwood Parkway between Mississauga Road and Transit Spine Road will operate near capacity, Bovaird Drive between Winston Churchill Boulevard and Mississauga Road will operate near capacity and Bovaird Drive between Mississauga Road and Creditview Road will operate over capacity.
- In 2021 and 2031 the East-West Connection alleviates approximately 260 to 270 vehicles per hour from Bovaird Drive between Mississauga Road and Creditview Road compared to the Do-Nothing networks and Bovaird Drive would have traffic volumes closer to capacity.
- The 2031 intersection capacity analysis results show that the East-West Connection intersections will operate with overall LOS C or better and no critical movements.

WSP recommends signaling the East-West Connection at the study intersections (Heritage Road, Mississauga Road, James Potter Road) and providing storage lanes as shown in Table 5-3. The actual geometry and length of the storage lanes will be confirmed at the concept design phase.



# APPENDICES

**Appendix A – TMC Data Collected for the Study Area Intersections**

**Appendix B – Traffic Signal Timing and Phasing for the Signalized Intersections in the Study Area**

**Appendix C – Definition of Levels of Service (LOS) for Signalized and Unsignalized Intersection**

**Appendix D – Existing (2014) Intersection Capacity Analysis and Queuing Analysis Synchro Sheets**

**Appendix E – EMME Plots**

**Appendix F – 2031 Peak Hour Turning Movement Forecast**

**Appendix G – Future (2031) Intersection Capacity Analysis and Queuing Analysis Synchro Sheets and SimTraffic Sheets**



# Appendix A

**TMC DATA COLLECTED FOR THE STUDY AREA INTERSECTIONS**





# MG8 ENG

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:30:00

**To:** 8:30:00

**Municipality:** Region of Peel  
**Site #:** 0010720341  
**Intersection:** Bovaird Drive & Heritage Road  
**TFR File #:** 8  
**Count date:** 14-Jun-2012

**Weather conditions:**  
 Normal weather conditions  
**Person(s) who counted:**  
 ZORAN

**\*\* Signalized Intersection \*\***

**Major Road:** Bovaird Drive runs W/E

North Leg Total: 648  
 North Entering: 538  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	3	0	3
Trucks	0	2	1	3
Cars	8	520	4	532
<b>Totals</b>	<b>8</b>	<b>525</b>	<b>5</b>	

Cyclists	1
Trucks	7
Cars	102
<b>Totals</b>	<b>110</b>

East Leg Total: 1850  
 East Entering: 820  
 East Peds: 0  
 Peds Cross:  $\times$

Cyclists	0
Trucks	43
Cars	422
<b>Totals</b>	<b>465</b>

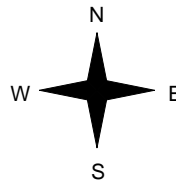
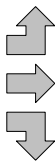


Heritage Road

Cars	8	3	0	11
Trucks	397	41	0	438
Cyclists	367	4	0	371
<b>Totals</b>	<b>772</b>	<b>48</b>	<b>0</b>	



Cyclists	1
Trucks	0
Cars	31
<b>Totals</b>	<b>32</b>
Cyclists	4
Trucks	37
Cars	879
<b>Totals</b>	<b>920</b>
Cyclists	1
Trucks	6
Cars	76
<b>Totals</b>	<b>83</b>
Cyclists	6
Trucks	43
Cars	986
<b>Totals</b>	<b>1030</b>



Bovaird Drive

Bovaird Drive



Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 1035  
 West Leg Total: 1500

Cars	963	17	63	102	1143
Trucks	12	2	4	3	21
Cyclists	4	0	0	0	4
<b>Totals</b>	<b>979</b>	<b>19</b>	<b>67</b>	<b>105</b>	



Heritage Road



Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 191  
 South Leg Total: 1170

## Comments

# MG8 ENG

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 16:30:00

**To:** 17:30:00

**Municipality:** Region of Peel  
**Site #:** 0010720341  
**Intersection:** Bovaird Drive & Heritage Road  
**TFR File #:** 8  
**Count date:** 14-Jun-2012

**Weather conditions:**  
 Normal weather conditions  
**Person(s) who counted:**  
 ZORAN

**\*\* Signalized Intersection \*\***

**Major Road:** Bovaird Drive runs W/E

North Leg Total: 371  
 North Entering: 44  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	1	2	0	3
Cars	5	35	1	41
<b>Totals</b>	<b>6</b>	<b>37</b>	<b>1</b>	



Cyclists	5
Trucks	3
Cars	319
<b>Totals</b>	<b>327</b>

East Leg Total: 1841  
 East Entering: 983  
 East Peds: 0  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
15	43	934	992

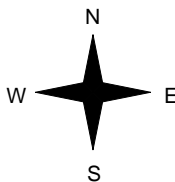


Heritage Road

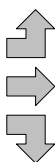
Cars	Trucks	Cyclists	Totals
10	2	0	12
777	40	13	830
139	1	1	141
<b>926</b>	<b>43</b>	<b>14</b>	



Bovaird Drive



Cyclists	Trucks	Cars	Totals
0	0	10	10
3	28	575	606
0	0	17	17
<b>3</b>	<b>28</b>	<b>602</b>	



Bovaird Drive



Cars	Trucks	Cyclists	Totals
824	30	4	858



Heritage Road

Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 633  
 West Leg Total: 1625

Cars	191
Trucks	3
Cyclists	1
<b>Totals</b>	<b>195</b>



Cars	152	299	248	699
Trucks	2	1	2	5
Cyclists	2	5	1	8
<b>Totals</b>	<b>156</b>	<b>305</b>	<b>251</b>	

Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 712  
 South Leg Total: 907

## Comments

# MG8 ENG

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:30:00

**To:** 8:30:00

**Municipality:** Region of Peel  
**Site #:** 0000121018  
**Intersection:** Bovaird Dr West & Mississauga Rd  
**TFR File #:** 1  
**Count date:** 11-Jun-2013

**Weather conditions:**  
**Person(s) who counted:**  
 BARRY

**\*\* Signalized Intersection \*\***

**Major Road:** Bovaird Dr West runs W/E

North Leg Total: 524  
 North Entering: 372  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	1	0	1
Trucks	1	21	5	27
Cars	27	282	35	344
<b>Totals</b>	<b>28</b>	<b>304</b>	<b>40</b>	



Cyclists	0
Trucks	24
Cars	128
<b>Totals</b>	<b>152</b>

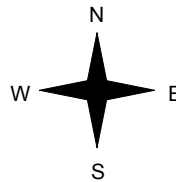
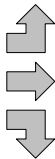
East Leg Total: 1894  
 East Entering: 1001  
 East Peds: 0  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
0	40	808	848



Bovaird Drive West

Cyclists	Trucks	Cars	Totals
0	6	9	15
1	23	665	689
0	10	88	98
1	39	762	



Mississauga Road

Cars	Trucks	Cyclists	Totals
20	2	0	22
704	30	0	734
234	11	0	245
958	43	0	



Bovaird Drive West



Cars	Trucks	Cyclists	Totals
843	49	1	893

Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 802  
 West Leg Total: 1650

Cars	604	Cars	77	99	143	319
Trucks	42	Trucks	9	16	21	46
Cyclists	1	Cyclists	0	0	0	0
<b>Totals</b>	<b>647</b>	<b>Totals</b>	<b>86</b>	<b>115</b>	<b>164</b>	



Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 365  
 South Leg Total: 1012

## Comments

# MG8 ENG

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00

**To:** 18:00:00

### One Hour Peak

**From:** 17:00:00

**To:** 18:00:00

**Municipality:** Region of Peel  
**Site #:** 0000121018  
**Intersection:** Bovaird Dr West & Mississauga Rd  
**TFR File #:** 1  
**Count date:** 11-Jun-2013

### Weather conditions:

### Person(s) who counted:

BARRY

### \*\* Signalized Intersection \*\*

**Major Road:** Bovaird Dr West runs W/E

North Leg Total: 590

North Entering: 174

North Peds: 0

Peds Cross:  $\times$

Cyclists	0	1	0	1
Trucks	2	7	0	9
Cars	19	128	17	164
<b>Totals</b>	<b>21</b>	<b>136</b>	<b>17</b>	



Cyclists 0

Trucks 5

Cars 411

Totals 416

East Leg Total: 1977

East Entering: 940

East Peds: 0

Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
3	28	776	807

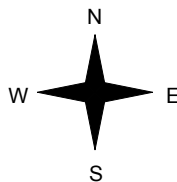


Mississauga Road

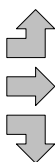
Cars	Trucks	Cyclists	Totals
75	1	0	76
642	18	3	663
187	12	2	201
<b>904</b>	<b>31</b>	<b>5</b>	



Bovaird Drive West



Cyclists	Trucks	Cars	Totals
0	0	30	30
6	26	749	781
1	1	62	64
<b>7</b>	<b>27</b>	<b>841</b>	



Mississauga Road



Bovaird Drive West



Cars	Trucks	Cyclists	Totals
991	40	6	1037

Peds Cross:  $\times$

West Peds: 0

West Entering: 875

West Leg Total: 1682

Cars	377	Cars	115	306	225	646
Trucks	20	Trucks	8	4	14	26
Cyclists	4	Cyclists	0	0	0	0
<b>Totals</b>	<b>401</b>	<b>Totals</b>	<b>123</b>	<b>310</b>	<b>239</b>	



Peds Cross:  $\times$

South Peds: 0

South Entering: 672

South Leg Total: 1073

## Comments

# MG8 ENG

## Morning Peak Diagram

### Specified Period

**From:** 7:00:00

**To:** 9:00:00

### One Hour Peak

**From:** 7:15:00

**To:** 8:15:00

**Municipality:** Region of Peel  
**Site #:** 0010718002  
**Intersection:** Bovaird Drive & GO Station  
**TFR File #:** 8  
**Count date:** 14-Jun-2012

**Weather conditions:**  
 Normal weather conditions  
**Person(s) who counted:**  
 VELE

**\*\* Signalized Intersection \*\***

**Major Road:** Bovaird Drive runs W/E

North Leg Total: 303  
 North Entering: 121  
 North Peds: 0  
 Peds Cross:  $\times$

Cyclists	0	0	0	0
Trucks	0	6	17	23
Cars	5	27	66	98
<b>Totals</b>	<b>5</b>	<b>33</b>	<b>83</b>	



Cyclists	0
Trucks	21
Cars	161
<b>Totals</b>	<b>182</b>

East Leg Total: 2164  
 East Entering: 1105  
 East Peds: 1  
 Peds Cross:  $\times$

Cyclists	Trucks	Cars	Totals
1	67	939	1007

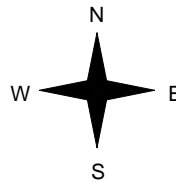


GO Station

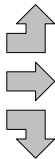
Cars	Trucks	Cyclists	Totals
64	16	0	80
886	57	1	944
76	5	0	81
<b>1026</b>	<b>78</b>	<b>1</b>	



Bovaird Drive



Cyclists	Trucks	Cars	Totals
0	0	35	35
0	34	813	847
0	11	19	30
<b>0</b>	<b>45</b>	<b>867</b>	



Bovaird Drive



Peds Cross:  $\times$   
 West Peds: 0  
 West Entering: 912  
 West Leg Total: 1919

Cars	122	Cars	48	62	126	236
Trucks	22	Trucks	10	5	3	18
Cyclists	0	Cyclists	0	0	0	0
<b>Totals</b>	<b>144</b>	<b>Totals</b>	<b>58</b>	<b>67</b>	<b>129</b>	



Ashby Field Road



Peds Cross:  $\times$   
 South Peds: 0  
 South Entering: 254  
 South Leg Total: 398

## Comments

# MG8 ENG

## Afternoon Peak Diagram

### Specified Period

**From:** 15:00:00  
**To:** 18:00:00

### One Hour Peak

**From:** 17:00:00  
**To:** 18:00:00

**Municipality:** Region of Peel  
**Site #:** 0010718002  
**Intersection:** Bovaird Drive & GO Station  
**TFR File #:** 8  
**Count date:** 14-Jun-2012

**Weather conditions:**  
Normal weather conditions  
**Person(s) who counted:**  
VELE

**\*\* Signalized Intersection \*\***

**Major Road:** Bovaird Drive runs W/E

North Leg Total: 525  
North Entering: 457  
North Peds: 0  
Peds Cross:  $\nabla$

Cyclists	0	0	0	0
Trucks	1	6	18	25
Cars	72	67	293	432
Totals	73	73	311	

Cyclists	0
Trucks	20
Cars	48
Totals	68

East Leg Total: 2341  
East Entering: 998  
East Peds: 9  
Peds Cross:  $\nabla$

Cyclists	8
Trucks	18
Cars	889
Totals	915

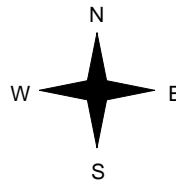


GO Station

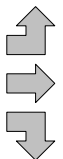
Cars	21	15	0	36
Trucks	791	17	8	816
Cyclists	143	1	2	146
Totals	955	33	10	



Bovaird Drive



Cyclists	0
Trucks	0
Cars	12
Totals	12
Cyclists	1
Trucks	23
Cars	908
Totals	932
Cyclists	0
Trucks	0
Cars	32
Totals	32
Cyclists	1
Trucks	23
Cars	952
Totals	



Bovaird Drive



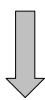
Cars	1300	42	1	1343
Trucks				
Cyclists				
Totals				

Ashby Field Road



Peds Cross:  $\nabla$   
West Peds: 0  
West Entering: 976  
West Leg Total: 1891

Cars	242	26	15	99	140
Trucks	7	0	5	1	6
Cyclists	2	0	0	0	0
Totals	251	26	20	100	



Peds Cross:  $\nabla$   
South Peds: 0  
South Entering: 146  
South Leg Total: 397

## Comments

# Appendix B

**TRAFFIC SIGNAL TIMING AND PHASING FOR THE SIGNALIZED  
INTERSECTIONS IN THE STUDY AREA**





# REGIONAL MUNICIPALITY OF PEEL

## Traffic Signal Timing Parameters

Database Date		September 9, 2013		Prepared Date:		April 28, 2014				
Database Rev		7		Completed By:		MT				
Timing Card / Field rev		---		Checked By:		A.K.				
Location: <b>Bovaird Dr @ Heritage Rd</b>										
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green + Amber + All Red)			
			WALK	FDWALK			AM MAX	OP MAX	PM MAX	
1	Bovaird - WB P.P. LT	5.0	-	-	3.0	-	18.0	18.0	18.0	-
2	Bovaird - EB	12.0	8.0	8.0	5.4	2.0	70.4	70.4	70.4	-
3	NIU									
4	Heritage - NB	8.0	8.0	11.0	4.2	2.0	26.2	26.2	61.2	-
5	NIU									
6	Bovaird - WB	12.0	8.0	8.0	5.4	2.0	70.4	70.4	70.4	-
7	NIU									
8	Heritage - SB	8.0	8.0	11.0	4.2	2.0	26.2	26.2	61.2	-

System Control	Yes
Local Control	No
Semi-Actuated Mode	Yes

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
07:00-09:00	AM	Local	Free
09:00-15:00	OP	Local	Free
15:00-18:30	PM	Local	Free
-	-	-	-

# REGIONAL MUNICIPALITY OF PEEL

## Traffic Signal Timing Parameters

Database Date		March 10, 2014		Prepared Date:		April 28, 2014				
Database Rev		20		Completed By:		MT				
Timing Card / Field rev		---		Checked By:		A.K				
Location: <b>Bovaird Dr @ Mississauga Rd</b>										
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green + Amber + All Red)			
			WALK	FDWALK			AM MAX	OP MAX	PM1 MAX	
1	Bovaird - WB P.P. LT	5.0	-	-	3.0	-	20.0	10.0	15.0	-
2	Bovaird - EB	12.0	8.0	12.0	4.6	2.0	50.0	52.0	50.0	-
3	NIU									
4	Mississauga - NB	12.0	8.0	12.0	4.6	2.0	50.0	48.0	55.0	-
5	NIU									
6	Bovaird - WB	12.0	8.0	12.0	4.6	2.0	70.0	62.0	65.0	-
7	Mississauga - NB P.P. LT	5.0	-	-	3.0	-	10.0	10.0	20.0	-
8	Mississauga - SB	12.0	8.0	12.0	4.6	2.0	40.0	38.0	35.0	-

System Control	Yes
Local Control	No
Semi-Actuated Mode	Yes

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	120	97
09:00-15:00	OP	110	71
15:00-19:00	PM	120	61
-	-	-	-

# REGIONAL MUNICIPALITY OF PEEL

## Traffic Signal Timing Parameters

Database Date	March 25, 2013	Prepared Date:	April 28, 2014
Database Rev	12	Completed By:	MT
Timing Card / Field rev	---	Checked By:	A.K

**Location:** **Bovaird Dr @ Go Station / Ashby Field Rd**

Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.)		Amber (sec.)	All Red (sec.)	TIME PERIOD (sec.) (Green + Amber + All Red)				
			WALK	FDWALK			AM MAX	OP MAX	PM1 MAX	PM2 MAX	
1	Bovaird - WB P.P. LT	5.0	-	-	3.0	-	10.0	0.0	10.0	10.0	10.0
2	Bovaird - EB	12.0	8.0	18.0	4.2	2.0	50.0	53.0	50.0	50.0	40.0
3	GO Station - SB Prot. LT	8.0	-	-	3.0	2.0	23.0	20.0	23.0	23.0	33.0
4	Ashby Field - NB	8.0	8.0	21.0	4.0	2.7	37.0	37.0	37.0	37.0	37.0
5	Bovaird - EB P.P LT	5.0	-	-	3.0	-	18.0	0.0	0.0	0.0	0.0
6	Bovaird - WB	12.0	8.0	18.0	4.2	2.0	42.0	53.0	60.0	60.0	50.0
7	NIU										
8	Go Station - SB	8.0	8.0	21.0	4.0	2.7	60.0	57.0	60.0	60.0	70.0

System Control	Yes
Local Control	No
Semi-Actuated Mode	Yes

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	120	46
09:00-15:00	OP	110	26
15:00-17:00	PM1	120	10
17:00-19:00	PM2	120	10



# Appendix C

**DEFINITION OF LEVELS OF SERVICE (LOS) FOR SIGNALIZED AND  
UNSIGNALIZED INTERSECTIONS**



# Levels of Service – Highway Capacity Manual

## Signalized Intersections

Level of Service	Stopped Delay per Vehicle (sec)	Expected delay to Minor Street traffic from the Major Street
A	< 10	Most vehicles arrive during the green phase and do not stop; traffic progression is extremely favourable.
B	10.1 - 20.0	More vehicles stop than for LOS A; traffic progression is good.
C	20.1 - 35.0	Individual cycle failures may appear and the number of vehicles stopping is significant; traffic progression is fair.
D	35.1 - 55.0	Individual cycle failures are noticeable and many vehicles stop; traffic progression is unfavourable.
E	55.1 - 80.0	Individual cycle failures are frequent; traffic progression is poor; acceptable delay is at its limit.
F	> 80	Many individual cycle failures; arrival flow rate exceeds capacity; delay is unacceptable to most drivers.

Source: Highway Capacity Manual, HCM2000

HIGHWAY LOS Signalized 12-09-18

# Levels of Service – Highway Capacity Manual

## Unsignalized Intersection

---

Level of Service	Average Control Delays (s/veh)	Expected delay to Minor Street traffic from the Major Street
A	0 - 10	Little or no delay.
B	> 10 – 15	Short traffic delay.
C	> 15 – 25	Average traffic delay.
D	> 25 – 35	Long traffic delay.
E	> 35 – 50	Very long traffic delay.
F	> 50	Extreme delay encountered with queuing, which may cause severe congestion affecting other traffic movements in the intersection.

---

Source: Highway Capacity Manual, HCM 2000

UNSIGNALIZED LOS 12-09-18



# Appendix D

**EXISTING (2014) INTERSECTION CAPACITY ANALYSIS AND  
QUEUING ANALYSIS SYNCHRO SHEETS**



Queues  
1: Heritage Road & Bovaird Drive

<Existing> AM Peak Hour  
6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	35	1000	90	403	476	12	208	585
v/c Ratio	0.07	0.99	0.11	1.31	0.38	0.01	0.87	1.76
Control Delay	12.6	51.1	5.5	192.3	7.8	0.5	70.0	382.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	51.1	5.5	192.3	7.8	0.5	70.0	382.6
Queue Length 50th (m)	3.5	210.2	3.1	~99.9	38.1	0.0	36.3	~197.3
Queue Length 95th (m)	8.5	#306.2	10.3	#159.9	54.3	0.6	#79.1	#264.8
Internal Link Dist (m)		326.4			1357.6		68.2	421.7
Turn Bay Length (m)	60.0		10.0	40.0		20.0		
Base Capacity (vph)	518	1015	845	307	1245	844	238	333
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.99	0.11	1.31	0.38	0.01	0.87	1.76






















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

<Existing> AM Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	920	83	371	438	11	19	67	105	5	525	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	3.0	7.4	7.4		6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00		1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.93			1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			1.00	
Satd. Flow (prot)	1825	1847	1490	1807	1762	1183		1688			1912	
Flt Permitted	0.49	1.00	1.00	0.06	1.00	1.00		0.68			1.00	
Satd. Flow (perm)	943	1847	1490	115	1762	1183		1149			1908	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	1000	90	403	476	12	21	73	114	5	571	9
RTOR Reduction (vph)	0	0	27	0	0	4	0	38	0	0	1	0
Lane Group Flow (vph)	35	1000	63	403	476	8	0	170	0	0	584	0
Confl. Bikes (#/hr)			5									3
Heavy Vehicles (%)	0%	4%	7%	1%	9%	38%	11%	6%	3%	20%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	63.0	63.0	63.0	81.0	81.0	81.0		20.0			20.0	
Effective Green, g (s)	63.0	63.0	63.0	81.0	81.0	81.0		20.0			20.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.71	0.71	0.71		0.17			0.17	
Clearance Time (s)	7.4	7.4	7.4	3.0	7.4	7.4		6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	518	1015	819	302	1245	836		200			332	
v/s Ratio Prot		0.54		c0.17	0.27							
v/s Ratio Perm	0.04		0.04	c0.76		0.01		0.15			c0.31	
v/c Ratio	0.07	0.99	0.08	1.33	0.38	0.01		0.85			1.76	
Uniform Delay, d1	12.1	25.3	12.1	40.1	6.7	5.0		45.8			47.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.1	24.5	0.0	171.4	0.2	0.0		34.0			353.9	
Delay (s)	12.1	49.8	12.2	211.5	6.9	5.0		79.8			401.2	
Level of Service	B	D	B	F	A	A		E			F	
Approach Delay (s)		45.6			99.4			79.8			401.2	
Approach LOS		D			F			E			F	

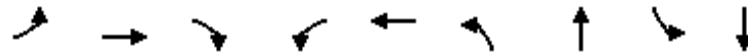
Intersection Summary

HCM 2000 Control Delay	139.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	114.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
2: Mississauga Road & Bovaird Drive

<Existing> AM Peak Hour

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	749	107	266	822	93	303	43	360
v/c Ratio	0.15	0.98	0.16	0.88	0.78	0.46	0.56	0.18	0.86
Control Delay	30.4	64.5	8.3	70.8	14.2	33.2	29.4	36.4	62.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	64.5	8.3	70.8	14.2	33.2	29.4	36.4	62.3
Queue Length 50th (m)	2.5	~196.4	3.0	37.5	70.8	14.8	45.2	8.0	79.9
Queue Length 95th (m)	8.5	#273.8	14.8	m#78.9	#67.4	25.4	69.4	17.2	110.3
Internal Link Dist (m)		1357.6			550.2		364.1		2003.8
Turn Bay Length (m)	25.0		80.0	50.0		35.0		20.0	
Base Capacity (vph)	108	765	660	323	1050	202	606	284	497
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.98	0.16	0.82	0.78	0.46	0.50	0.15	0.72

Intersection Summary






















- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

# HCM Signalized Intersection Capacity Analysis

## 2: Mississauga Road & Bovaird Drive

<Existing> AM Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	689	98	245	734	22	86	115	164	40	304	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6		3.0	6.6		6.6	6.6	
Lane Util. Factor	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		1.00	0.91		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1093	1865	1484	1755	1837		1659	1558		1690	1777	
Flt Permitted	0.23	1.00	1.00	0.08	1.00		0.21	1.00		0.58	1.00	
Satd. Flow (perm)	265	1865	1484	142	1837		365	1558		1024	1777	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	749	107	266	798	24	93	125	178	43	330	30
RTOR Reduction (vph)	0	0	51	0	1	0	0	46	0	0	3	0
Lane Group Flow (vph)	16	749	56	266	821	0	93	257	0	43	357	0
Heavy Vehicles (%)	67%	3%	10%	4%	4%	9%	10%	13%	12%	8%	7%	4%
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	49.2	49.2	49.2	68.5	68.5		38.3	38.3		28.3	28.3	
Effective Green, g (s)	49.2	49.2	49.2	68.5	68.5		38.3	38.3		28.3	28.3	
Actuated g/C Ratio	0.41	0.41	0.41	0.57	0.57		0.32	0.32		0.24	0.24	
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6		3.0	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	764	608	300	1048		191	497		241	419	
v/s Ratio Prot		c0.40		c0.12	0.45		0.03	c0.17			c0.20	
v/s Ratio Perm	0.06		0.04	0.39			0.13			0.04		
v/c Ratio	0.15	0.98	0.09	0.89	0.78		0.49	0.52		0.18	0.85	
Uniform Delay, d1	22.2	34.9	21.7	36.6	20.0		31.2	33.3		36.6	43.8	
Progression Factor	1.00	1.00	1.00	1.73	0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	28.1	0.3	18.9	4.1		2.0	0.9		0.4	15.3	
Delay (s)	25.1	63.0	22.0	82.2	13.0		33.1	34.2		36.9	59.1	
Level of Service	C	E	C	F	B		C	C		D	E	
Approach Delay (s)		57.3			29.9			34.0			56.8	
Approach LOS		E			C			C			E	

### Intersection Summary

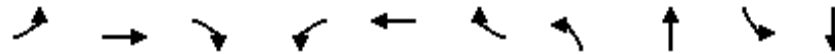
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues  
4: Ashby Field Road & Bovaird Drive

<Existing> AM Peak Hour

6/9/2015


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	921	33	88	1026	88	63	213	90	41
v/c Ratio	0.19	0.72	0.07	0.43	0.75	0.15	0.15	0.34	0.41	0.05
Control Delay	8.1	22.9	0.6	24.2	36.5	2.8	29.4	20.5	57.9	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	22.9	0.6	24.2	36.5	2.8	29.4	20.5	57.9	17.4
Queue Length 50th (m)	1.2	89.1	0.0	11.2	113.7	0.0	10.2	22.8	10.6	4.7
Queue Length 95th (m)	m1.8	m106.3	m0.1	20.6	143.5	6.4	21.6	44.4	18.6	11.3
Internal Link Dist (m)		300.4			253.0			79.5		104.7
Turn Bay Length (m)	150.0		90.0	100.0		105.0	80.0		50.0	
Base Capacity (vph)	317	1285	491	207	1362	595	412	624	491	813
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	0.72	0.07	0.43	0.75	0.15	0.15	0.34	0.18	0.05

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
4: Ashby Field Road & Bovaird Drive

<Existing> AM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	847	30	81	944	81	58	67	129	83	33	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		3.0	6.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3510	1192	1722	3444	1330	1560	1670		2951	1825	
Flt Permitted	0.13	1.00	1.00	0.15	1.00	1.00	0.73	1.00		0.95	1.00	
Satd. Flow (perm)	256	3510	1192	268	3444	1330	1199	1670		2951	1825	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	921	33	88	1026	88	63	73	140	90	36	5
RTOR Reduction (vph)	0	0	21	0	0	54	0	50	0	0	3	0
Lane Group Flow (vph)	38	921	12	88	1026	34	63	163	0	90	38	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	4%	37%	6%	6%	20%	17%	7%	2%	20%	18%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4					
Actuated Green, G (s)	48.4	43.9	43.9	53.2	46.3	46.3	41.3	41.3		9.0	53.3	
Effective Green, g (s)	48.4	43.9	43.9	53.2	46.3	46.3	41.3	41.3		9.0	53.3	
Actuated g/C Ratio	0.40	0.37	0.37	0.44	0.39	0.39	0.34	0.34		0.08	0.44	
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		3.0	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	1284	436	202	1328	513	412	574		221	810	
v/s Ratio Prot	0.01	0.26		c0.03	c0.30			c0.10		c0.03	0.02	
v/s Ratio Perm	0.09		0.01	0.17		0.03	0.05					
v/c Ratio	0.23	0.72	0.03	0.44	0.77	0.07	0.15	0.28		0.41	0.05	
Uniform Delay, d1	24.2	32.7	24.4	22.5	32.2	23.2	27.2	28.6		53.0	18.9	
Progression Factor	0.41	0.64	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.8	0.1	1.5	4.4	0.2	0.8	1.2		1.2	0.1	
Delay (s)	10.4	22.7	24.4	24.0	36.7	23.5	28.0	29.8		54.2	19.0	
Level of Service	B	C	C	C	D	C	C	C		D	B	
Approach Delay (s)		22.2			34.8			29.4			43.2	
Approach LOS		C			C			C			D	

Intersection Summary		
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.53	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 18.9
Intersection Capacity Utilization	63.3%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group



Queues  
1: Heritage Road & Bovaird Drive

<Existing> PM Peak Hour  
6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	11	659	18	153	902	13	775	48
v/c Ratio	0.17	0.91	0.03	0.87	1.06	0.02	1.11	0.07
Control Delay	30.2	51.1	0.1	62.5	78.4	1.9	100.1	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	51.1	0.1	62.5	78.4	1.9	100.1	18.2
Queue Length 50th (m)	1.6	137.5	0.0	18.0	~222.2	0.0	~195.4	5.4
Queue Length 95th (m)	6.5	#207.2	0.0	#45.9	#296.5	1.3	#268.7	12.8
Internal Link Dist (m)		326.4			1357.6		68.2	421.7
Turn Bay Length (m)	60.0		10.0	40.0		20.0		
Base Capacity (vph)	66	724	667	175	852	646	698	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.91	0.03	0.87	1.06	0.02	1.11	0.07






















Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

<Existing> PM Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	606	17	141	830	12	156	305	251	1	37	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	3.0	7.4	7.4		6.2			6.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97		0.99			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99			1.00	
Satd. Flow (prot)	1825	1830	1596	1807	1830	1352		1782			1764	
Flt Permitted	0.09	1.00	1.00	0.11	1.00	1.00		0.91			0.99	
Satd. Flow (perm)	169	1830	1596	209	1830	1352		1641			1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	659	18	153	902	13	170	332	273	1	40	7
RTOR Reduction (vph)	0	0	11	0	0	7	0	17	0	0	4	0
Lane Group Flow (vph)	11	659	7	153	902	6	0	758	0	0	44	0
Confl. Bikes (#/hr)			3			14			8			
Heavy Vehicles (%)	0%	5%	0%	1%	5%	17%	1%	0%	1%	0%	5%	17%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6		6	8		4			
Actuated Green, G (s)	45.4	45.4	45.4	53.4	53.4	53.4		47.6			47.6	
Effective Green, g (s)	45.4	45.4	45.4	53.4	53.4	53.4		47.6			47.6	
Actuated g/C Ratio	0.40	0.40	0.40	0.47	0.47	0.47		0.42			0.42	
Clearance Time (s)	7.4	7.4	7.4	3.0	7.4	7.4		6.2			6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	66	724	632	167	852	629		681			726	
v/s Ratio Prot		0.36		0.04	c0.49							
v/s Ratio Perm	0.06		0.00	0.39		0.00		c0.46			0.03	
v/c Ratio	0.17	0.91	0.01	0.92	1.06	0.01		1.11			0.06	
Uniform Delay, d1	22.4	32.7	21.0	27.5	30.6	16.4		33.5			20.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	1.2	15.6	0.0	45.6	47.6	0.0		69.9			0.2	
Delay (s)	23.6	48.2	21.0	73.1	78.2	16.4		103.4			20.2	
Level of Service	C	D	C	E	E	B		F			C	
Approach Delay (s)		47.1			76.7			103.4			20.2	
Approach LOS		D			E			F			C	

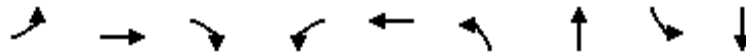
Intersection Summary

HCM 2000 Control Delay	75.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	114.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	117.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
2: Mississauga Road & Bovaird Drive

<Existing> PM Peak Hour

6/9/2015
























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	33	849	70	218	804	134	597	18	171
v/c Ratio	0.24	1.16	0.11	0.86	0.83	0.30	0.91	0.21	0.40
Control Delay	32.7	122.2	3.8	66.2	19.9	24.7	52.3	42.1	39.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.7	122.2	3.8	66.2	19.9	24.7	52.3	42.1	39.2
Queue Length 50th (m)	5.4	~250.8	0.0	20.6	176.4	19.8	121.1	3.3	31.8
Queue Length 95th (m)	14.7	#325.2	6.8	#78.6	#254.6	32.1	#170.4	10.3	52.6
Internal Link Dist (m)		1357.6			550.2		364.1		2003.8
Turn Bay Length (m)	25.0		80.0	50.0		35.0		20.0	
Base Capacity (vph)	138	731	663	253	970	480	725	90	450
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.16	0.11	0.86	0.83	0.28	0.82	0.20	0.38

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<Existing> PM Peak Hour  
6/9/2015

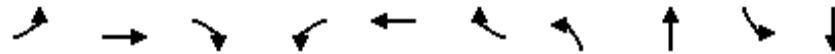
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	781	64	201	663	76	123	310	239	17	136	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6		3.0	6.6		6.6	6.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	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	0.98		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	1865	1558	1722	1835		1706	1740		1825	1776	
Flt Permitted	0.18	1.00	1.00	0.08	1.00		0.53	1.00		0.19	1.00	
Satd. Flow (perm)	354	1865	1558	145	1835		948	1740		359	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	849	70	218	721	83	134	337	260	18	148	23
RTOR Reduction (vph)	0	0	43	0	3	0	0	25	0	0	5	0
Lane Group Flow (vph)	33	849	27	218	801	0	134	572	0	18	166	0
Confl. Bikes (#/hr)			7			5						1
Heavy Vehicles (%)	0%	3%	2%	6%	3%	1%	7%	1%	6%	0%	5%	10%
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	47.1	47.1	47.1	63.2	63.2		43.6	43.6		28.9	28.9	
Effective Green, g (s)	47.1	47.1	47.1	63.2	63.2		43.6	43.6		28.9	28.9	
Actuated g/C Ratio	0.39	0.39	0.39	0.53	0.53		0.36	0.36		0.24	0.24	
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6		3.0	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	138	732	611	248	966		418	632		86	427	
v/s Ratio Prot		c0.46		c0.10	0.44		0.03	c0.33			0.09	
v/s Ratio Perm	0.09		0.02	0.37			0.09			0.05		
v/c Ratio	0.24	1.16	0.04	0.88	0.83		0.32	0.91		0.21	0.39	
Uniform Delay, d1	24.4	36.5	22.5	34.6	23.9		26.6	36.2		36.4	38.2	
Progression Factor	1.00	1.00	1.00	1.44	0.46		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	86.7	0.1	25.2	7.3		0.4	16.5		1.2	0.6	
Delay (s)	28.5	123.2	22.7	75.1	18.1		27.0	52.7		37.6	38.8	
Level of Service	C	F	C	E	B		C	D		D	D	
Approach Delay (s)		112.5			30.3			48.0			38.6	
Approach LOS		F			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	62.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.05	E
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	113.0%	19.2
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		H

Queues  
4: Ashby Field Road & Bovaird Drive

<Existing> PM Peak Hour

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	1013	35	159	887	39	28	131	338	158
v/c Ratio	0.07	0.78	0.05	0.84	0.55	0.07	0.08	0.26	0.74	0.18
Control Delay	16.0	26.5	0.8	55.2	25.9	0.6	35.0	10.9	60.3	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	26.5	0.8	55.2	25.9	0.6	35.0	10.9	60.3	13.6
Queue Length 50th (m)	1.5	121.8	0.0	21.0	78.8	0.0	5.0	3.9	39.5	14.1
Queue Length 95th (m)	m1.6	m116.5	m0.0	#52.6	98.1	0.9	12.7	19.3	54.9	27.1
Internal Link Dist (m)		300.4			253.0			79.5		104.7
Turn Bay Length (m)	150.0		90.0	100.0		105.0	80.0		50.0	
Base Capacity (vph)	188	1293	650	190	1604	543	336	506	501	876
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	0.78	0.05	0.84	0.55	0.07	0.08	0.26	0.67	0.18

Intersection Summary
























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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis  
4: Ashby Field Road & Bovaird Drive

<Existing> PM Peak Hour  
6/9/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	12	932	32	146	816	36	26	20	100	311	73	73	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7	
Total Lost time (s)	6.2	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00		
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	0.93		
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)	1824	3544	1599	1807	3579	1115	1825	1601		3340	1906		
Flt Permitted	0.27	1.00	1.00	0.11	1.00	1.00	0.66	1.00		0.95	1.00		
Satd. Flow (perm)	517	3544	1599	206	3579	1115	1262	1601		3340	1906		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	13	1013	35	159	887	39	28	22	109	338	79	79	
RTOR Reduction (vph)	0	0	22	0	0	22	0	80	0	0	30	0	
Lane Group Flow (vph)	13	1013	13	159	887	17	28	51	0	338	128	0	
Confl. Peds. (#/hr)	1					1							
Confl. Bikes (#/hr)			1			10							
Heavy Vehicles (%)	0%	3%	0%	1%	2%	42%	0%	25%	1%	6%	8%	1%	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA		
Protected Phases		2		1	6			4		3	8		
Permitted Phases	2		2	6		6	4						
Actuated Green, G (s)	43.8	43.8	43.8	53.8	53.8	53.8	32.0	32.0		16.3	53.3		
Effective Green, g (s)	43.8	43.8	43.8	53.8	53.8	53.8	32.0	32.0		16.3	53.3		
Actuated g/C Ratio	0.36	0.36	0.36	0.45	0.45	0.45	0.27	0.27		0.14	0.44		
Clearance Time (s)	6.2	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	188	1293	583	185	1604	499	336	426		453	846		
v/s Ratio Prot		0.29		c0.05	0.25			0.03		c0.10	c0.07		
v/s Ratio Perm	0.03		0.01	c0.33		0.02	0.02						
v/c Ratio	0.07	0.78	0.02	0.86	0.55	0.04	0.08	0.12		0.75	0.15		
Uniform Delay, d1	24.8	33.9	24.4	25.0	24.3	18.6	33.0	33.3		49.9	19.9		
Progression Factor	0.62	0.76	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.1	0.5	0.0	30.5	1.4	0.1	0.5	0.6		6.6	0.4		
Delay (s)	15.5	26.2	24.4	55.5	25.7	18.7	33.5	33.9		56.4	20.3		
Level of Service	B	C	C	E	C	B	C	C		E	C		
Approach Delay (s)		26.0			29.8			33.8			44.9		
Approach LOS		C			C			C			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			31.2		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.64										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					20.9			
Intersection Capacity Utilization			69.0%		ICU Level of Service					C			
Analysis Period (min)			15										
c Critical Lane Group													

# Appendix E

EMME PLOTS



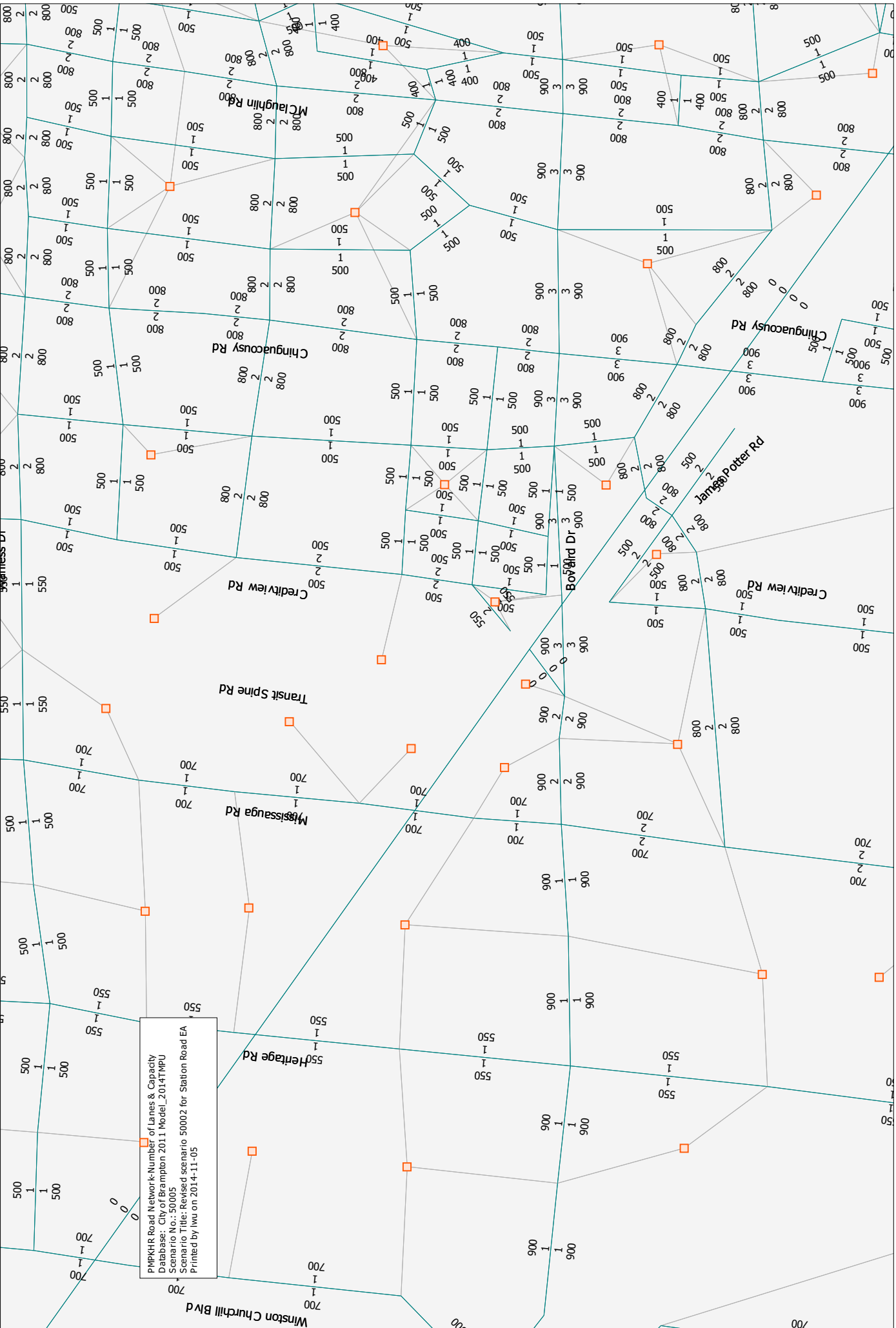


# APPENDIX E-1

**2011**

---



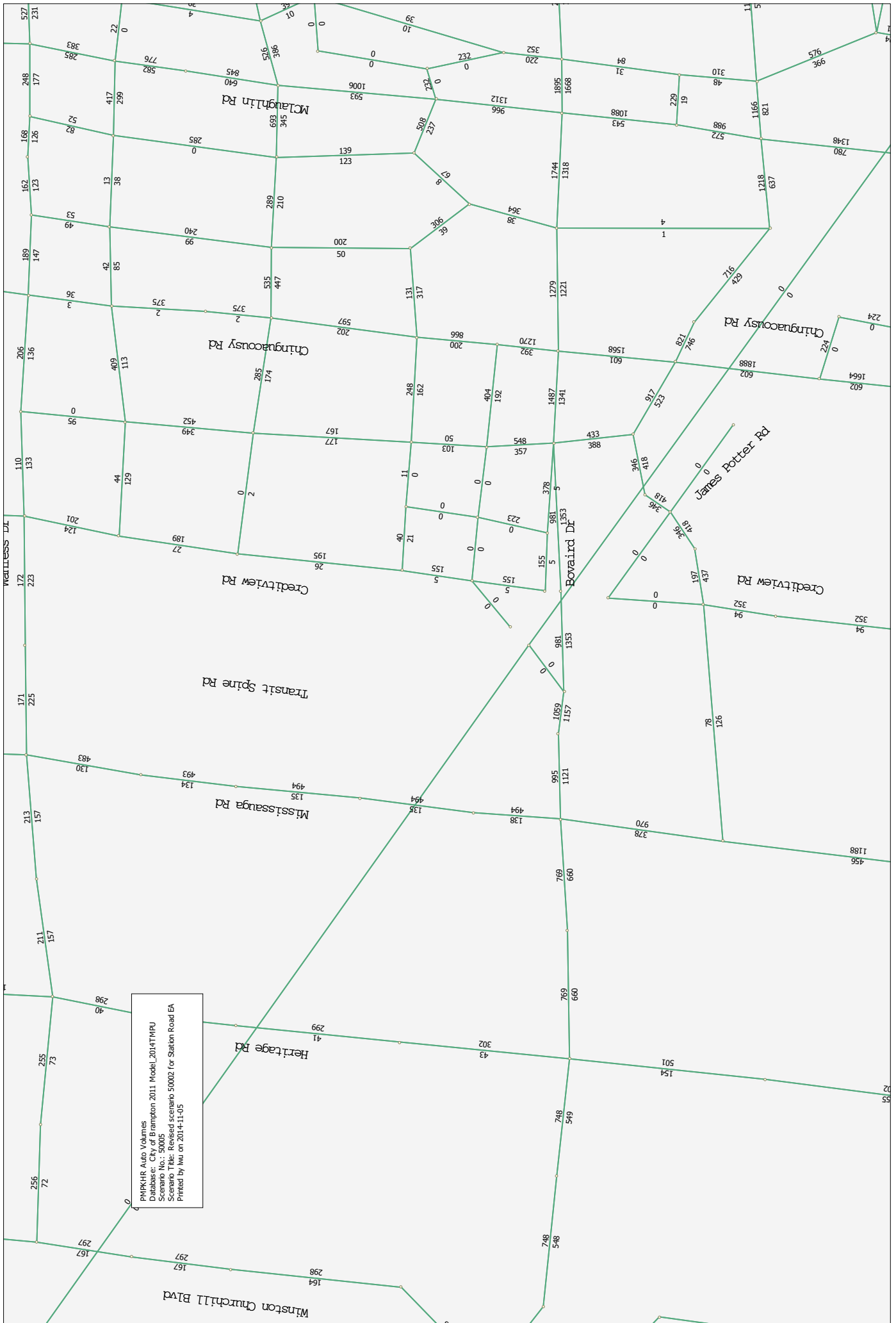


PMPKHR Road Network-Number of Lanes & Capacity  
 Database: City of Brampton 2011 Model\_2014TMPU  
 Scenario No.: 50005  
 Scenario Title: Revised scenario 50002 for Station Road EA  
 Printed by lwu on 2014-11-05



Scenario No.: 50005  
Scenario Title: Revised scenario 50002 for Station Road EA

V/C >= 0.85



PMPKHR Auto Volumes  
 Database: City of Brampton 2011 Model\_2014TMPU  
 Scenario: 5002  
 Scenario Title: Road scenario 50002 for Station Road EA  
 Printed by: IAU on 2014-11-05



## APPENDIX E-2

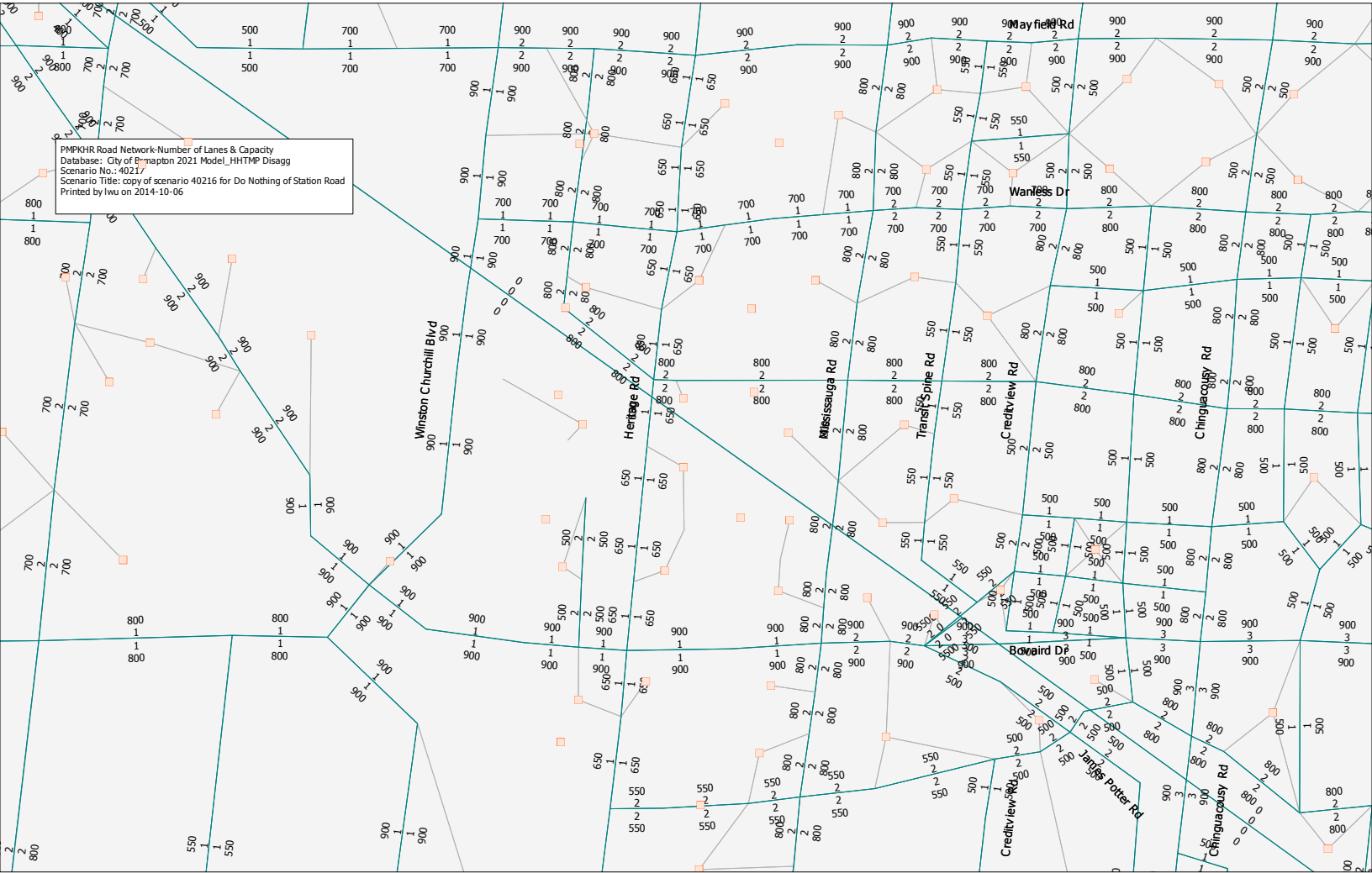
### **2021 DO-NOTHING**

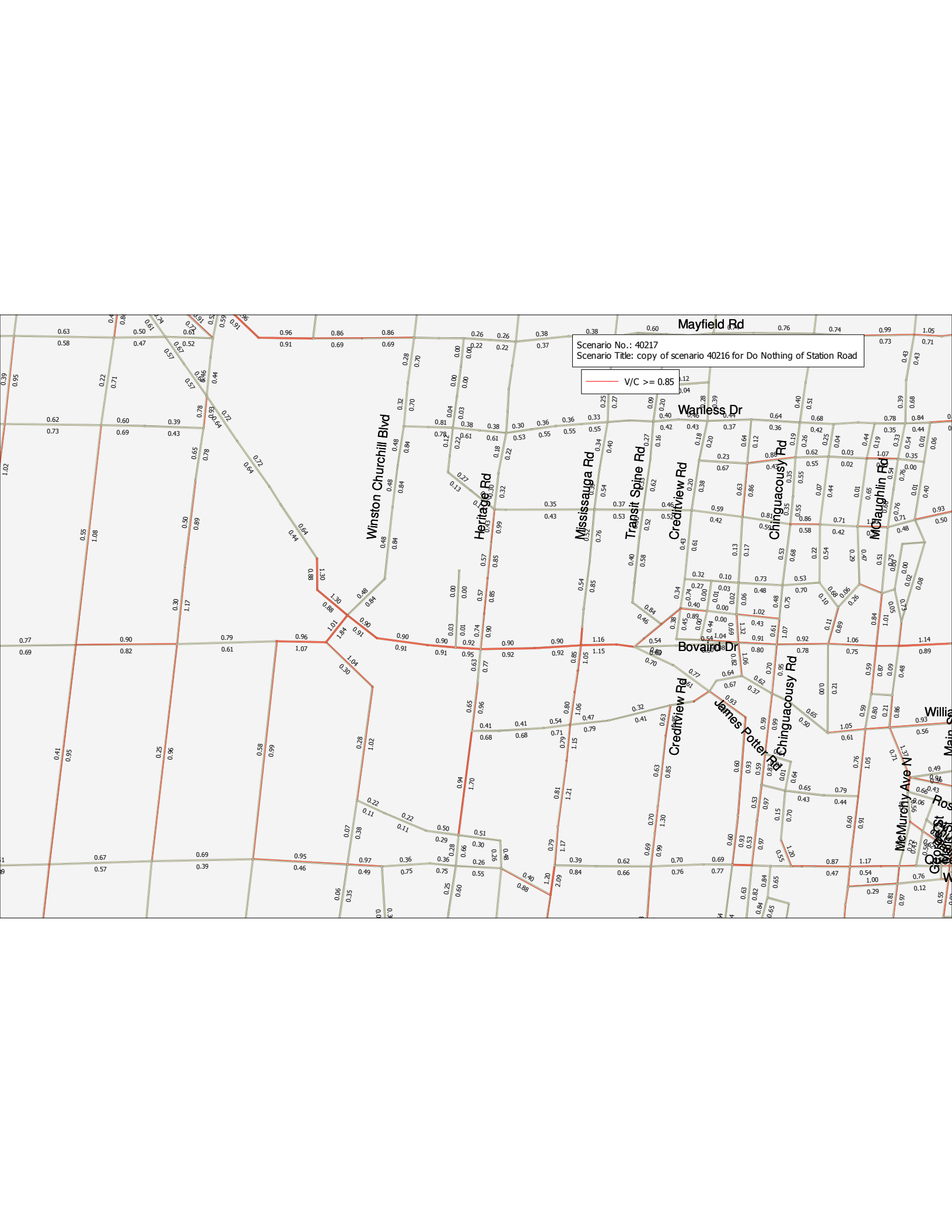
---



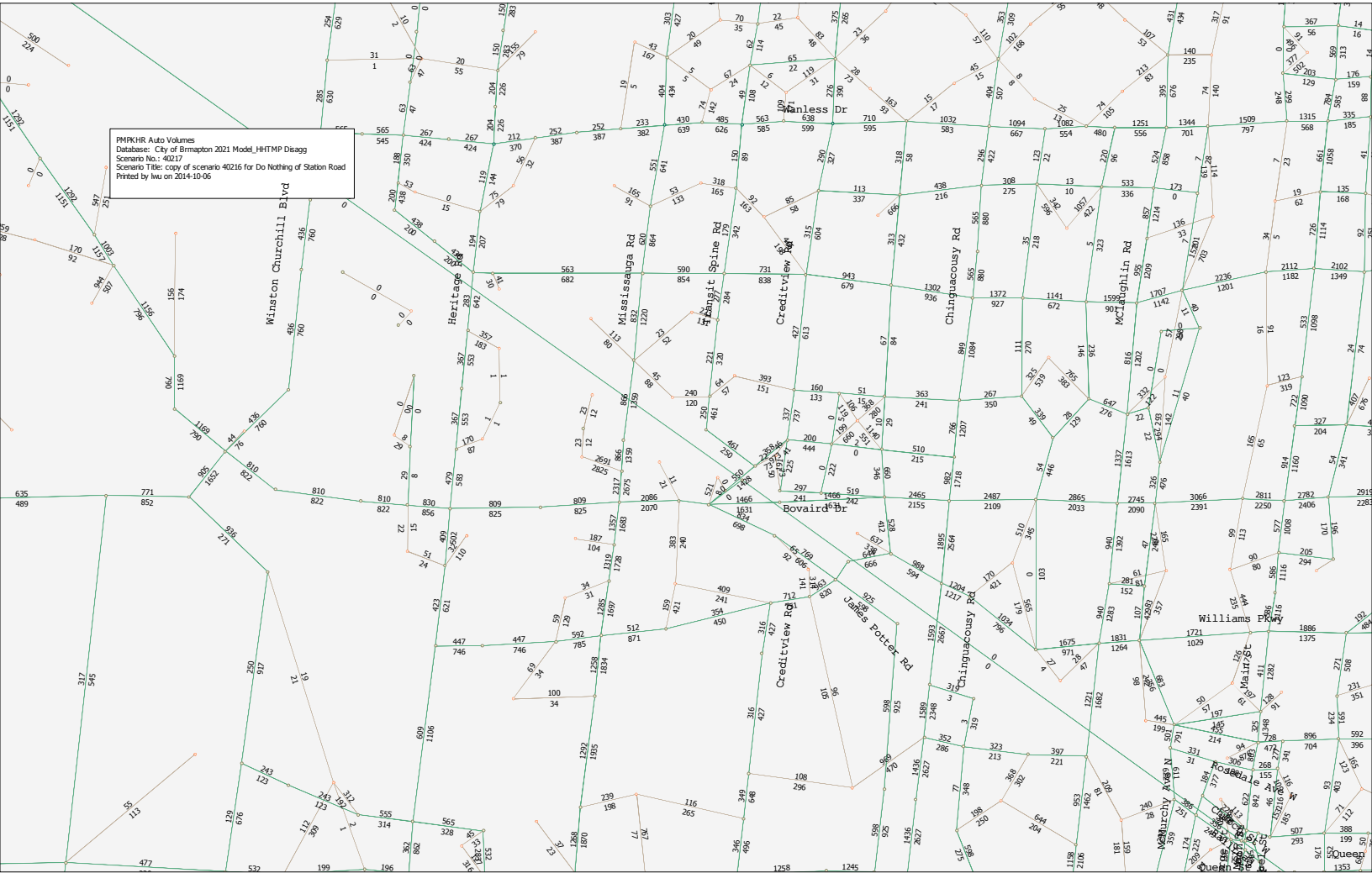


PMPKHR Road Network-Number of Lanes & Capacity  
Database: City of Brampton 2021 Model\_HHTMP Disagg  
Scenario No.: 4021/  
Scenario Title: copy of scenario 40216 for Do Nothing of Station Road  
Printed by lwu on 2014-10-06





PMPKHR Auto Volumes  
Database: City of Erimpton 2021 Model\_HHTMP Disagg  
Scenario No.: 40217  
Scenario Title: copy of scenario 40216 for Do Nothing of Station Road  
Printed by lku on 2014-10-06





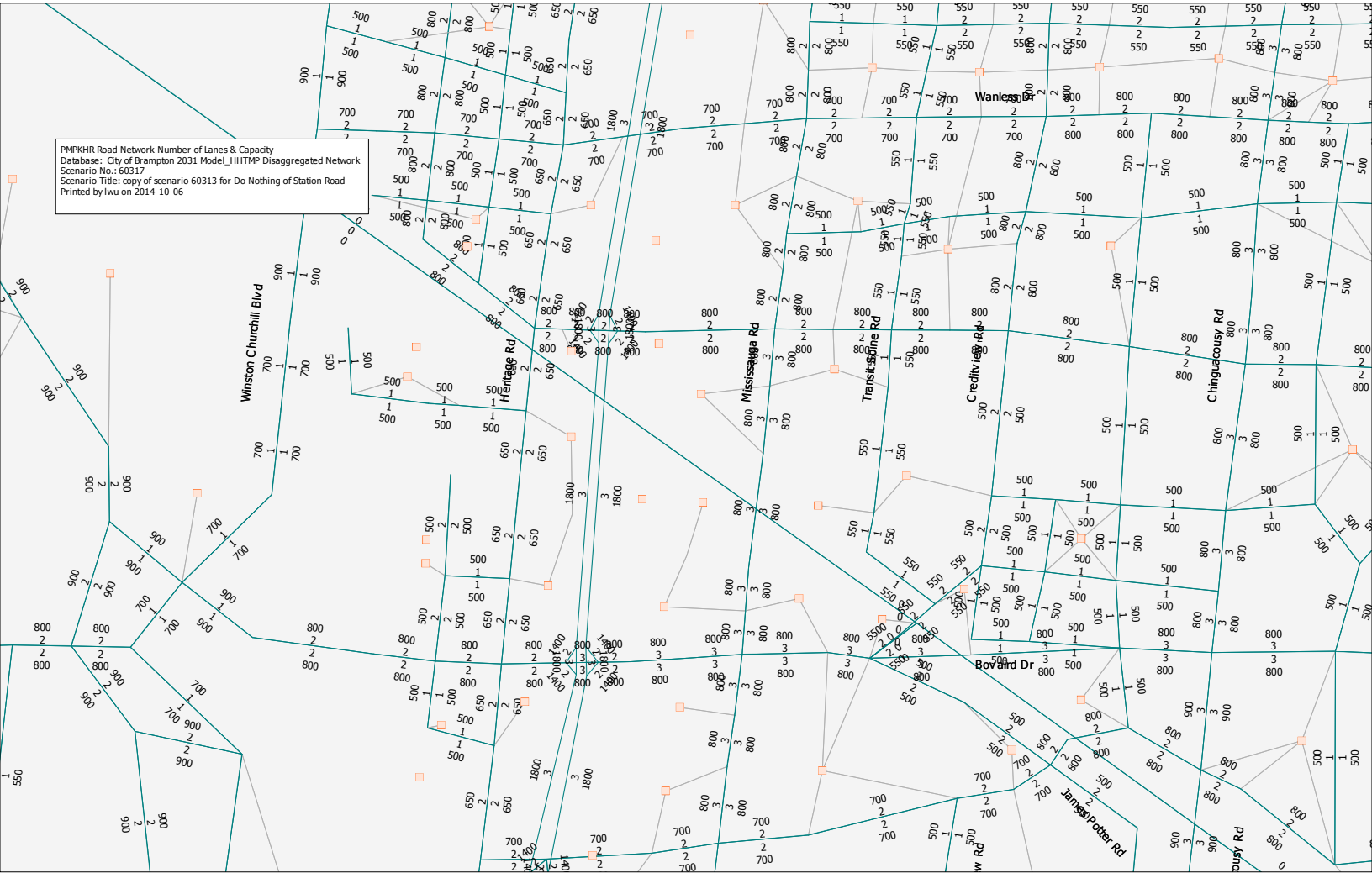
# APPENDIX E-3

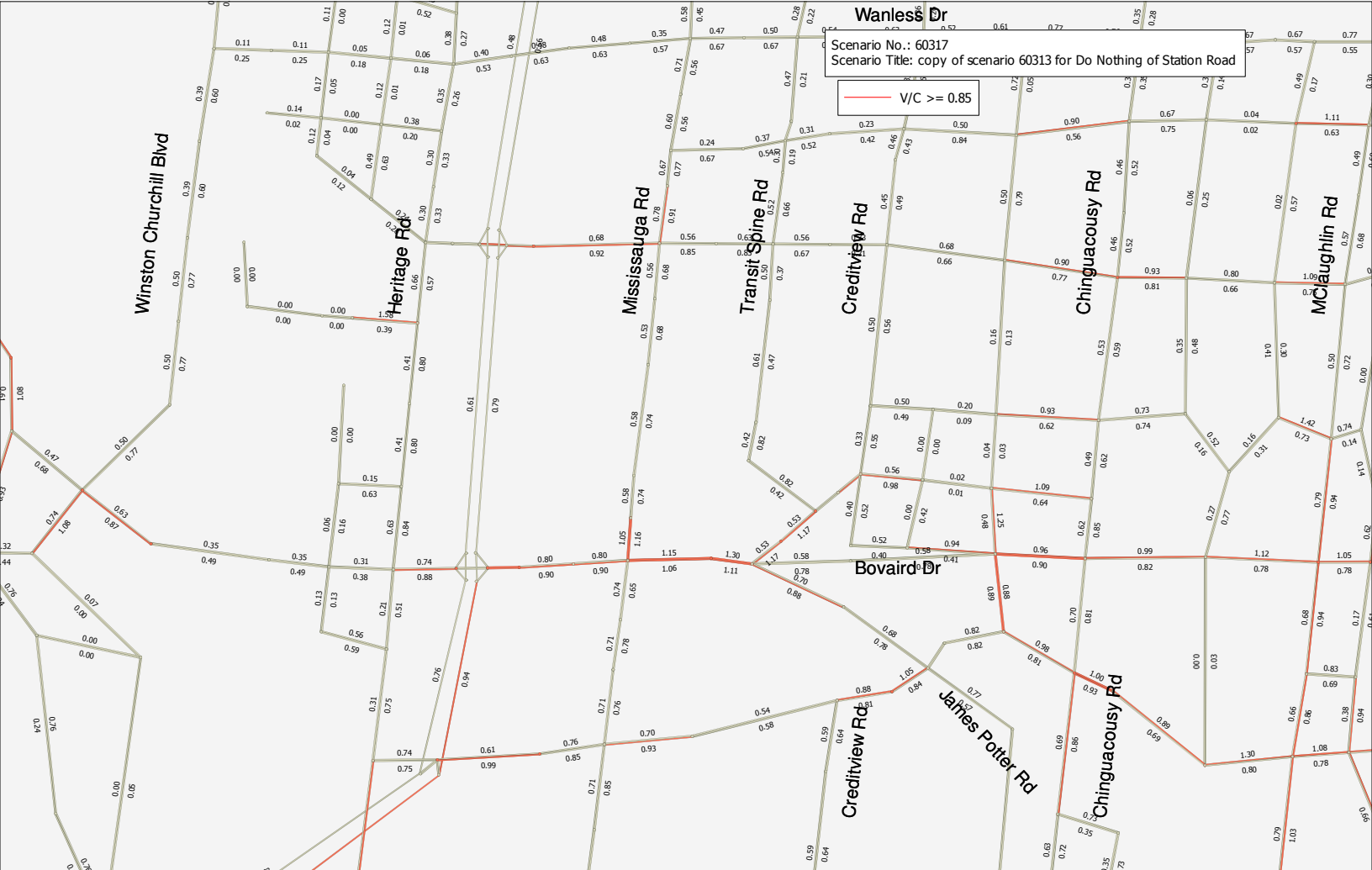
## **2031 DO-NOTHING**

---



PMPKGR Road Network-Number of Lanes & Capacity  
Database: City of Brampton 2031 Model\_HHTMP Disaggregated Network  
Scenario No.: 60317  
Scenario Title: copy of scenario 60313 for Do Nothing of Station Road  
Printed by lwu on 2014-10-06





Scenario No.: 60317  
Scenario Title: copy of scenario 60313 for Do Nothing of Station Road

V/C >= 0.85

Winston Churchill Blvd

Heritage Rd

Mississauga Rd

Transit Spine Rd

Creditview Rd

Chinguacousy Rd

McLaughlin Rd

Bovaird Dr

Creditview Rd

James Potter Rd

Chinguacousy Rd



Winston Churchill Blvd

PMPKHR Auto Volumes  
Scenario No.: 60317  
Scenario Title: copy of scenario 60313 for Do Nothing of Station Road  
Printed by Iwu on 2014-10-06

Heritage Rd

Mississauga Rd

Transit Spine Rd

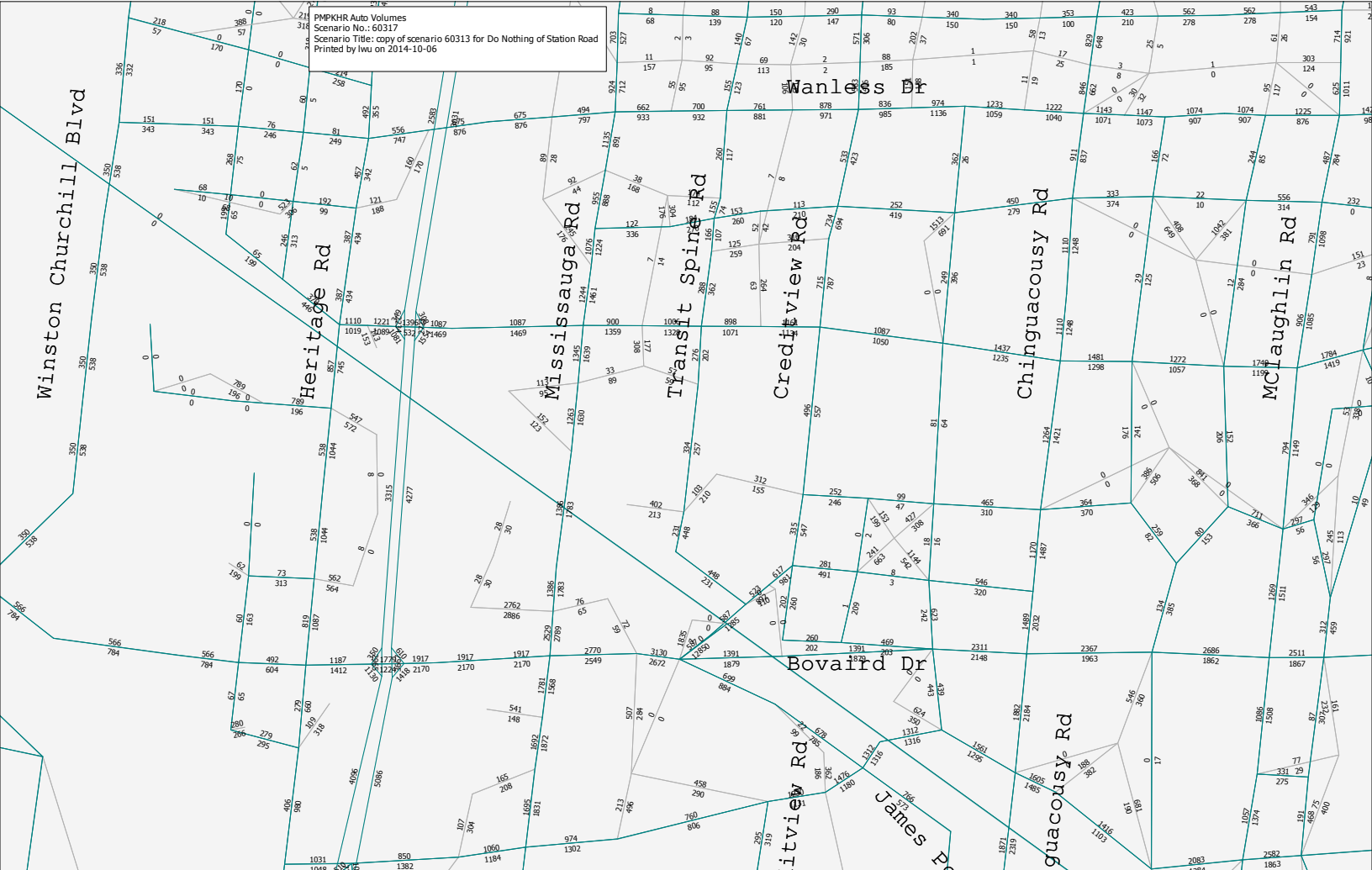
Creditview Rd

Chinguacousy Rd

McLaughlin Rd

Bovard Dr

Wanless Dr  
Creditview Rd  
James P  
Guacousy Rd



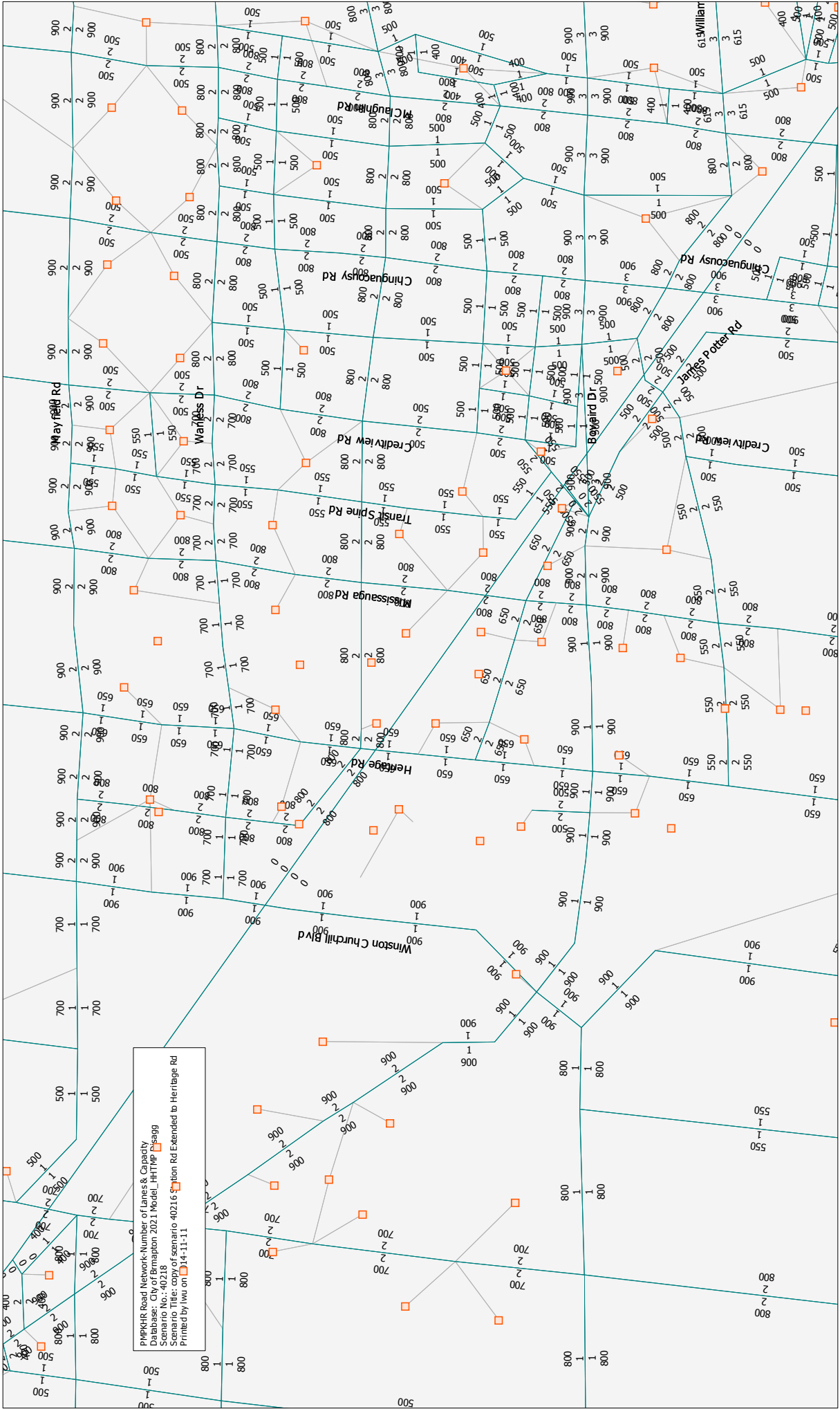


# APPENDIX E-4

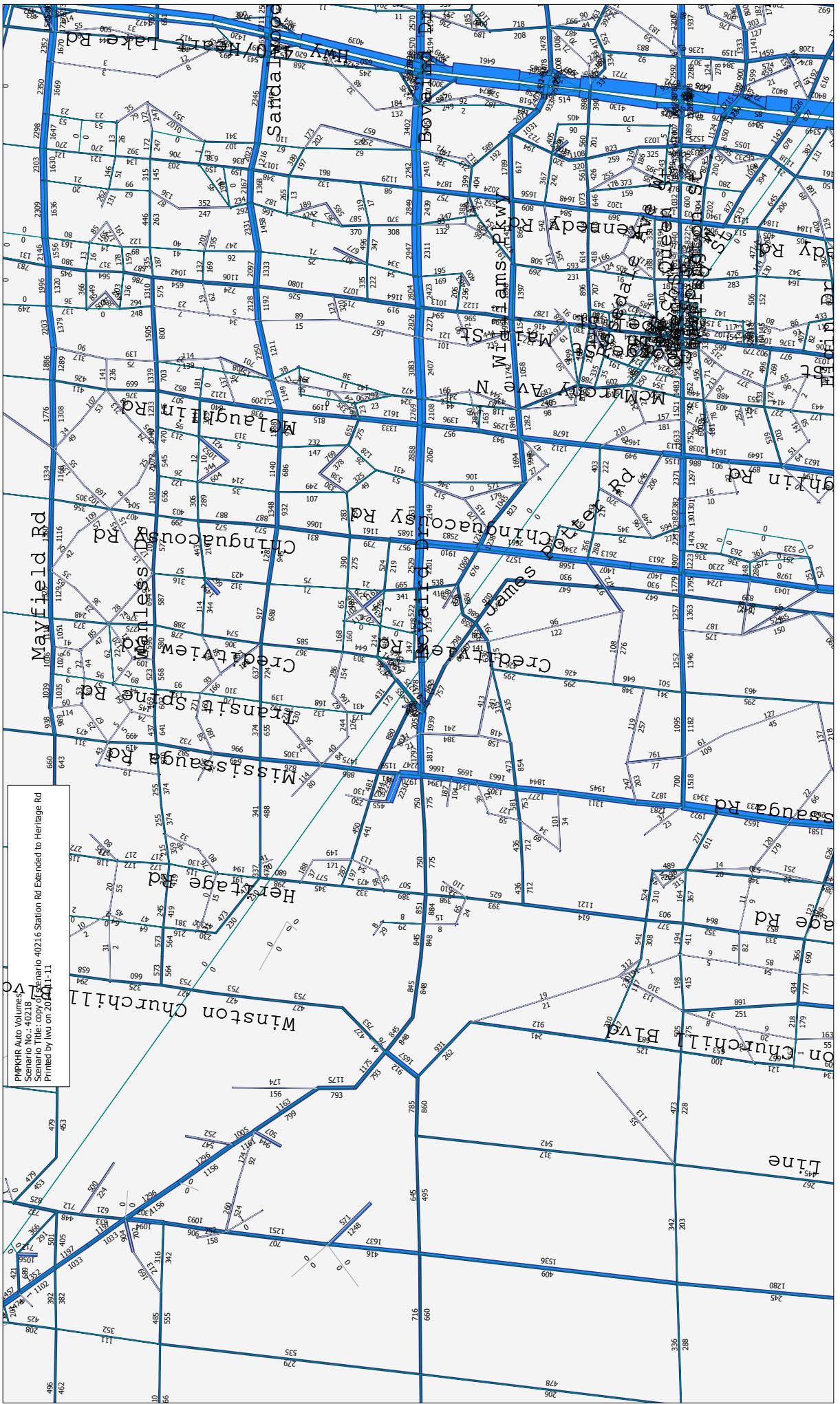
**2021**

---





DNPKR Road Network Number of Lanes & Capacity  
 Database: City of Brampton 2021 Mode\_HHTM Pdsagg  
 Scenario No.: 40218  
 Scenario Title: copy of scenario 40216 - Union Rd Extended to Heritage Rd  
 Printed by wu on 14-11-11



PMPKIR Auto Volumes  
Scenario No.: 40218  
Scenario Title: copy of scenario 40216 Station Rd Extended to Heritage Rd  
Printed by lru on 2014-11-11

## APPENDIX E-5

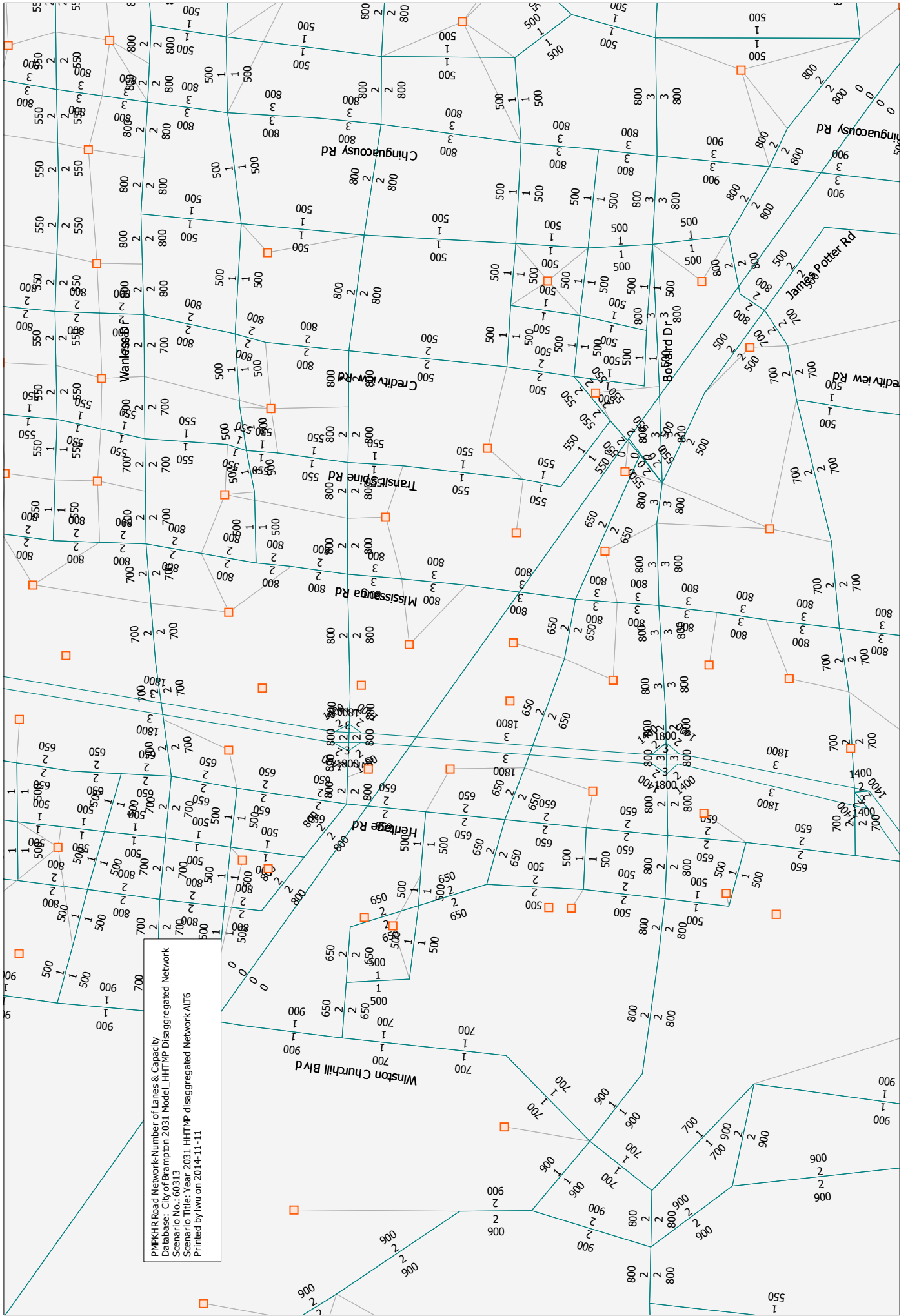
**2031**

---





PMPKHR Road Network-Number of Lanes & Capacity  
Database: City of Brampton 2031 Model\_HHTMP Disaggregated Network  
Scenario No.: 60313  
Scenario Title: Year 2031 HHTMP Disaggregated Network A1T6  
Printed by Iwu on 2014-11-11



PMPKHR Auto Volumes  
Scenario No.: 60313  
Scenario Title: Year 2031 HHTMP disaggregated Network A16  
Printed by lwu on 2014-11-11



# Appendix F

**2031 PEAK HOUR TURNING MOVEMENT FORECAST**



## APPENDIX F-1

### **TRAFFIC FORECAST OF LINK VOLUMES**



Traffic Forecast of Link Volumes

Roadway	Location	Direction	EMME Model Volumes - PM			Traffic Growth - PM			Traffic Growth - AM			Traffic Forecast - AM		Traffic Forecast - PM		Traffic Forecast - Sat			
			2011	2021	2031	2011 to 2021	2021 to 2031	2011 to 2021	2021 to 2031	Existing Counts	2021	2031	Existing Counts	2021	2031	2021	2031		
Roadway	N of Station Road	NB	299	577	804	278	227	204	213	278	213	538	414	627	327	605	832	477	697
		SB	41	345	558	304	213	278	289	-16	110	816	1043	44	348	561	477	697	
		NB	302	473	749	171	276	289	-16	538	709	985	44	333	317	416	546		
Heritage Road	S of Station Road	SB	43	332	316	289	-16	171	276	538	709	985	44	333	317	416	546		
		NB	302	507	823	205	316	346	147	110	456	603	327	532	848	461	693		
		SB	43	389	536	346	147	205	316	538	743	1059	44	390	537	461	693		
Mississauga Road	N of Bovaïrd Drive	NB	501	510	676	9	166	244	-16	101	345	329	712	721	887	580	655		
		SB	154	398	382	244	-16	9	166	979	988	1154	195	439	423	580	655		
		NB	494	1475	1726	981	251	751	415	152	359	351	416	1440	1107	1018	789		
James Potter Road	S of Station Road	SB	138	911	1384	773	473	665	580	372	1677	1255	194	626	507	1076	829		
		NB	494	2247	2748	1753	501	1832	528	152	469	468	416	1789	1615	1359	1181		
		SB	138	1970	2498	1832	528	1753	501	372	1729	1541	194	928	747	1359	1181		
Ashby Field Road	S of Bovaïrd Drive	NB	970	1666	1634	696	-32	1016	456	365	836	802	672	2322	2080	1807	1704		
		SB	378	1394	1850	1016	456	696	-32	647	2644	2951	401	1292	1328	1807	1704		
		NB	0	1275	1253	1275	-22	455	145	0	455	600	0	1275	1253	865	927		
Station Road	N of Bovaïrd Drive	SB	0	455	600	455	145	1275	-22	0	1275	1253	0	455	600	865	927		
		NB	0	1350	1678	1350	328	1058	-126	0	1058	932	0	1350	1678	1204	1305		
		SB	0	1058	932	1058	-126	1350	328	0	1350	1678	0	1058	932	1204	1305		
Bovaïrd Drive	S of Bovaïrd Drive	NB	0	757	945	757	188	862	-103	0	862	759	0	757	945	810	852		
		SB	0	0	0	0	0	0	0	182	497	497	68	107	107	298	298		
		NB	0	0	0	0	0	0	0	121	157	157	457	489	489	298	298		
Heritage Road	W of Heritage Road	EB	0	0	0	0	0	0	0	254	286	146	146	146	220	220			
		NB	0	0	0	0	0	0	0	144	144	144	251	294	220	220			
		SB	0	0	0	0	0	0	0	0	0	50	0	0	50	0			
Mississauga Road	W of Mississauga Road	WB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138		
		EB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138		
		NB	287	739	739	287	452	197	504	197	197	701	0	287	739	242	720		
Station Road	E of Heritage Road	EB	0	197	701	197	504	287	452	0	287	739	0	197	701	242	720		
		NB	0	481	773	481	292	744	6	0	744	750	0	481	773	613	762		
		WB	0	744	750	744	6	481	292	0	481	773	0	744	750	613	762		
Bovaïrd Drive	E of Mississauga Road	NB	0	880	818	880	-62	802	-76	0	802	726	0	880	818	841	772		
		EB	0	802	726	802	-76	880	-62	0	802	726	0	802	726	841	772		
		WB	0	880	818	880	-62	802	-76	0	802	726	0	880	818	841	772		
James Potter Road	W of James Potter Road	EB	0	0	0	0	0	0	0	0	0	0	0	0	0	580			
		NB	0	0	0	0	0	0	0	0	0	0	0	0	0	580			
		WB	0	0	0	0	0	0	0	0	0	0	0	0	0	580			
Heritage Road	W of Heritage Road	EB	748	851	505	103	-346	335	-217	465	800	583	992	1095	749	1032	750		
		NB	549	884	667	335	-217	103	-346	935	1038	692	633	968	751	1032	750		
		WB	769	750	1003	-19	253	115	397	820	935	1332	983	964	1217	969	1294		
Mississauga Road	W of Mississauga Road	EB	660	775	1172	115	397	-19	253	840	821	1074	858	973	1370	969	1294		
		NB	769	750	1818	-19	1068	115	1276	848	963	2239	807	788	1856	889	2061		
		WB	660	775	2051	115	1276	-19	1068	802	783	1851	875	990	2266	889	2061		
James Potter Road	E of James Potter Road	EB	995	1797	2508	802	711	696	458	1001	1697	2155	940	1742	2453	1738	2322		
		NB	1121	1817	2275	696	458	802	711	893	1695	2406	1037	1733	2191	1738	2322		
		WB	1059	2051	2835	992	784	982	413	1007	1789	2202	915	1907	2691	1833	2431		
Bovaïrd Drive	W of James Potter Road	EB	1157	1939	2352	782	413	982	784	912	1904	2688	976	1758	2171	1833	2431		
		NB	981	1578	1594	597	16	380	294	1007	1387	1681	915	1512	1528	1434	1589		
		WB	1353	1733	2027	380	294	597	16	912	1509	1525	976	1356	1650	1434	1589		

Assumptions: traffic on Station Road, east of Creditview Road is 75% of the traffic west of Creditview Road.

Traffic Volumes from Bovaïrd Drive & Creditview Road Commercial Properties Draft Plan: Transportation Considerations, BA Group, November 2011

Traffic Volumes from Mississauga Road Class EA Study (North of Bovaïrd Drive West to Mayfield Road) Needs Assessment and Traffic Performance, AECOM, April 2013

EMME 2031 PM model forecasts no WB traffic on Station Road W of Heritage Rd. A nominal 50vph was assumed for the off-peak direction.

Procedure from Osminington Inc., Mixed Use Regional Centre, Mississauga Road and Bovaïrd Drive TIS, February 2010 prepared by Read, Voothees & Associates: the Saturday

volumes have been estimated based on the PM peak hour volumes. Review of Saturday volumes at other arterial road intersections has shown that the two way peak hour total

volume is about equal to the PM peak hour total traffic, but the volume is divided equally by direction.





# APPENDIX F-2

**2021 AM**

---



**Bovaird Road at Heritage Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	5	525	8	<b>538</b>	743	1.381
East	11	0	371	438	<b>820</b>	935	1.140
South	67	15	0	19	<b>101</b>	345	3.416
West	32	820	83	0	<b>935</b>	1038	1.110
Total	<b>110</b>	<b>840</b>	<b>979</b>	<b>465</b>	<b>2394</b>		
Target	456	821	988	800		3063	
	4.145	0.977	1.009	1.720			

0	7	725	11	<b>743</b>	743	1.000
13	0	423	499	<b>935</b>	935	1.000
229	51	0	65	<b>345</b>	345	1.000
36	910	92	0	<b>1038</b>	1038	1.000
<b>277</b>	<b>968</b>	<b>1240</b>	<b>575</b>	<b>3061</b>		
456	821	988	800			
1.647	0.848	0.797	1.390			
39%	18%	26%	28%			

0	6	578	15	<b>599</b>	743	1.241	19%
21	0	337	694	<b>1052</b>	935	0.889	13%
377	43	0	90	<b>511</b>	345	0.676	48%
58	772	73	0	<b>904</b>	1038	1.149	13%
<b>456</b>	<b>821</b>	<b>988</b>	<b>800</b>	<b>3065</b>			
456	821	988	800				
1.000	1.000	1.000	1.000				

0	7	717	19	<b>743</b>	743	1.000
18	0	300	617	<b>935</b>	935	1.000
255	29	0	61	<b>345</b>	345	1.000
67	886	84	0	<b>1038</b>	1038	1.000
<b>340</b>	<b>923</b>	<b>1101</b>	<b>697</b>	<b>3061</b>		
456	821	988	800			
1.340	0.889	0.898	1.147			
25%	12%	11%	13%			

0	6	643	22	<b>672</b>	743	1.106	10%
25	0	269	708	<b>1002</b>	935	0.933	7%
341	26	0	70	<b>437</b>	345	0.789	27%
90	788	76	0	<b>954</b>	1038	1.088	8%
<b>456</b>	<b>821</b>	<b>988</b>	<b>800</b>	<b>3065</b>			
456	821	988	800				
1.000	1.000	1.000	1.000				

0	7	712	24	<b>743</b>	743	1.000
23	0	251	661	<b>935</b>	935	1.000
269	21	0	55	<b>345</b>	345	1.000
98	858	82	0	<b>1038</b>	1038	1.000
<b>390</b>	<b>885</b>	<b>1045</b>	<b>740</b>	<b>3061</b>		
456	821	988	800			
1.169	0.927	0.945	1.080			
14%	8%	6%	7%			

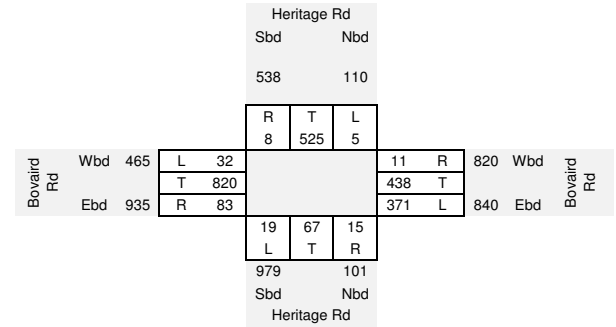
0	7	673	26	<b>706</b>	743	1.053	5%
27	0	237	714	<b>978</b>	935	0.956	5%
315	19	0	60	<b>393</b>	345	0.877	14%
115	795	78	0	<b>988</b>	1038	1.051	5%
<b>456</b>	<b>821</b>	<b>988</b>	<b>800</b>	<b>3065</b>			
456	821	988	800				
1.000	1.000	1.000	1.000				

0	7	708	28	<b>743</b>	743	1.000
26	0	227	683	<b>935</b>	935	1.000
276	17	0	52	<b>345</b>	345	1.000
120	836	82	0	<b>1038</b>	1038	1.000
<b>422</b>	<b>860</b>	<b>1017</b>	<b>762</b>	<b>3061</b>		
456	821	988	800			
1.081	0.955	0.971	1.049			
7%	5%	3%	5%			

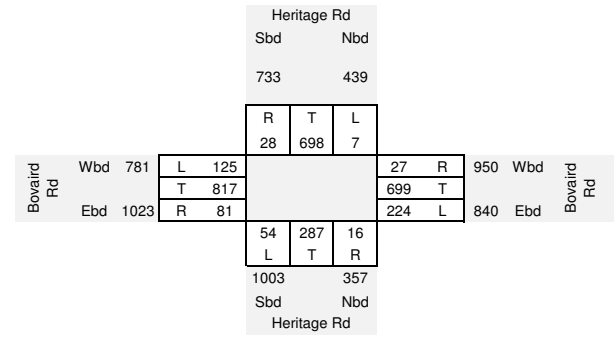
0	7	688	29	<b>724</b>	743	1.027	3%
28	0	220	716	<b>964</b>	935	0.970	3%
298	16	0	55	<b>369</b>	345	0.935	7%
130	798	79	0	<b>1008</b>	1038	1.030	3%
<b>456</b>	<b>821</b>	<b>988</b>	<b>800</b>	<b>3065</b>			
456	821	988	800				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	7	698	28	<b>733</b>	743	1.013	1%
East	27	0	224	699	<b>950</b>	935	0.985	2%
South	287	16	0	54	<b>357</b>	345	0.966	3%
West	125	817	81	0	<b>1023</b>	1038	1.015	1%
Total	<b>439</b>	<b>840</b>	<b>1003</b>	<b>781</b>	<b>3063</b>			
Target	456	821	988	800				
	1.039	0.977	0.985	1.024				
	4%	2%	1%	2%				

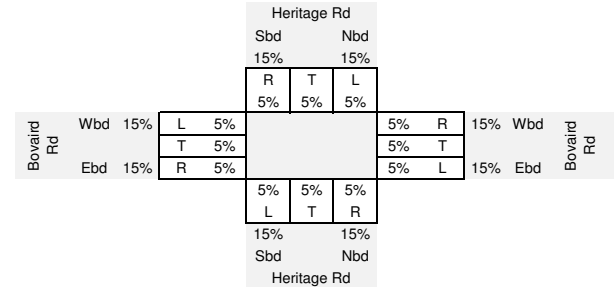
**Existing AM**



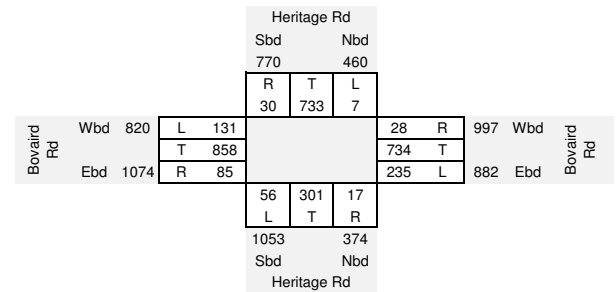
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**



**Bovaird Road at Mississauga Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	40	304	28	<b>372</b>	1729	4.648
East	22	0	245	734	<b>1001</b>	1697	1.695
South	115	164	0	86	<b>365</b>	836	2.290
West	15	689	98	0	<b>802</b>	783	0.976
Total	<b>152</b>	<b>893</b>	<b>647</b>	<b>848</b>	<b>2540</b>		
Target	469	1695	2644	963		5408	
	3.086	1.898	4.087	1.136			

0	186	1413	130	<b>1729</b>	1729	1.000
37	0	415	1244	<b>1697</b>	1697	1.000
263	376	0	197	<b>836</b>	836	1.000
15	673	96	0	<b>783</b>	783	1.000
<b>315</b>	<b>1234</b>	<b>1924</b>	<b>1571</b>	<b>5045</b>		
469	1695	2644	963			
1.487	1.373	1.374	0.613			
33%	27%	27%	63%			

0	255	1942	80	<b>2277</b>	1729	0.759	32%
55	0	571	763	<b>1389</b>	1697	1.222	18%
392	516	0	121	<b>1028</b>	836	0.813	23%
22	924	131	0	<b>1077</b>	783	0.727	38%
<b>469</b>	<b>1695</b>	<b>2644</b>	<b>963</b>	<b>5771</b>			
469	1695	2644	963				
1.000	1.000	1.000	1.000				

0	194	1475	61	<b>1729</b>	1729	1.000
68	0	697	932	<b>1697</b>	1697	1.000
318	419	0	98	<b>836</b>	836	1.000
16	672	96	0	<b>783</b>	783	1.000
<b>402</b>	<b>1285</b>	<b>2268</b>	<b>1090</b>	<b>5045</b>		
469	1695	2644	963			
1.166	1.319	1.166	0.883			
14%	24%	14%	13%			

0	256	1719	53	<b>2029</b>	1729	0.852	17%
79	0	813	823	<b>1715</b>	1697	0.989	1%
371	553	0	87	<b>1011</b>	836	0.827	21%
18	886	111	0	<b>1016</b>	783	0.771	30%
<b>469</b>	<b>1695</b>	<b>2644</b>	<b>963</b>	<b>5771</b>			
469	1695	2644	963				
1.000	1.000	1.000	1.000				

0	218	1465	46	<b>1729</b>	1729	1.000
78	0	805	814	<b>1697</b>	1697	1.000
307	457	0	72	<b>836</b>	836	1.000
14	683	86	0	<b>783</b>	783	1.000
<b>400</b>	<b>1358</b>	<b>2356</b>	<b>931</b>	<b>5045</b>		
469	1695	2644	963			
1.174	1.248	1.122	1.034			
15%	20%	11%	3%			

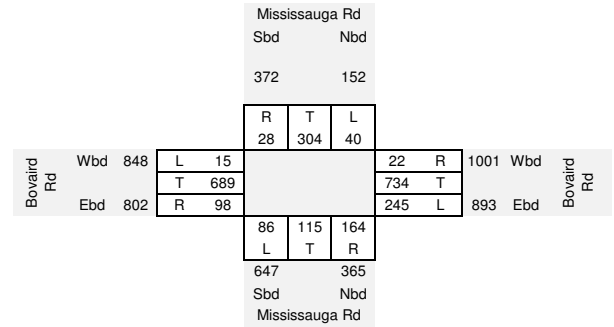
0	272	1645	47	<b>1964</b>	1729	0.880	14%
92	0	903	842	<b>1837</b>	1697	0.924	8%
360	571	0	74	<b>1005</b>	836	0.832	20%
17	852	96	0	<b>965</b>	783	0.811	23%
<b>469</b>	<b>1695</b>	<b>2644</b>	<b>963</b>	<b>5771</b>			
469	1695	2644	963				
1.000	1.000	1.000	1.000				

0	240	1448	41	<b>1729</b>	1729	1.000
85	0	834	778	<b>1697</b>	1697	1.000
300	475	0	62	<b>836</b>	836	1.000
14	691	78	0	<b>783</b>	783	1.000
<b>398</b>	<b>1405</b>	<b>2361</b>	<b>881</b>	<b>5045</b>		
469	1695	2644	963			
1.178	1.206	1.120	1.093			
15%	17%	11%	9%			

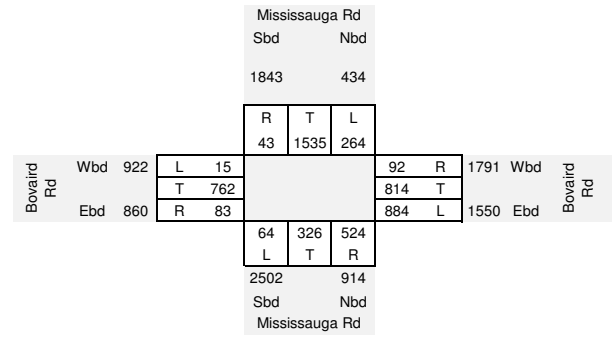
0	289	1622	45	<b>1956</b>	1729	0.884	13%
100	0	935	850	<b>1885</b>	1697	0.900	11%
353	572	0	67	<b>993</b>	836	0.842	19%
16	834	88	0	<b>937</b>	783	0.835	20%
<b>469</b>	<b>1695</b>	<b>2644</b>	<b>963</b>	<b>5771</b>			
469	1695	2644	963				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	264	1535	43	<b>1843</b>	1729	0.938	7%
East	92	0	884	814	<b>1791</b>	1697	0.948	6%
South	326	524	0	64	<b>914</b>	836	0.914	9%
West	15	762	83	0	<b>860</b>	783	0.910	10%
Total	<b>434</b>	<b>1550</b>	<b>2502</b>	<b>922</b>	<b>5408</b>			
Target	469	1695	2644	963				
	1.082	1.093	1.057	1.045				
	8%	9%	5%	4%				

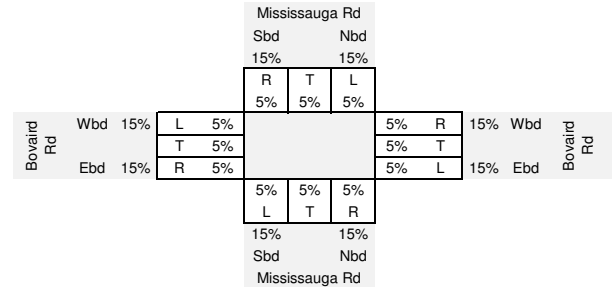
**Existing AM**



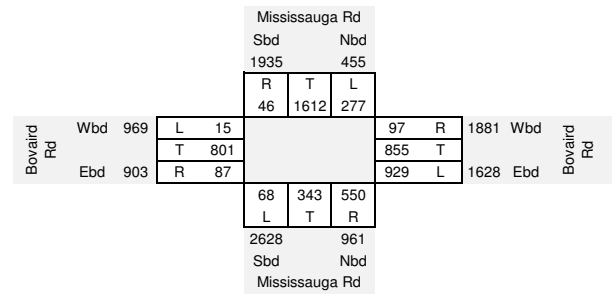
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**



**Bovaird Road at James Potter Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	1	1	3	1350	#####
East	1	0	1	1007	1009	1387	1.375
South	1	1	0	1	3	757	#####
West	1	893	1	0	895	1904	2.127
<b>Total</b>	<b>3</b>	<b>895</b>	<b>3</b>	<b>1009</b>	<b>1910</b>		
Target	1058	1509	862	1789		5308	
	####	1.686	#####	1.773			

0	450	450	450	1350	1350	1.000
1	0	1	1384	1387	1387	1.000
252	252	0	252	757	757	1.000
2	1900	2	0	1904	1904	1.000
<b>256</b>	<b>2602</b>	<b>454</b>	<b>2087</b>	<b>5398</b>		
1058	1509	862	1789			
4.135	0.580	1.901	0.857			
76%	72%	47%	17%			

0	261	855	386	1502	1350	0.899	11%
6	0	3	1187	1195	1387	1.161	14%
1044	146	0	216	1406	757	0.538	86%
9	1102	4	0	1115	1904	1.708	41%
<b>1058</b>	<b>1509</b>	<b>862</b>	<b>1789</b>	<b>5218</b>			
1058	1509	862	1789				
1.000	1.000	1.000	1.000				

0	235	769	347	1350	1350	1.000	
7	0	3	1377	1387	1387	1.000	
562	79	0	116	757	757	1.000	
15	1882	7	0	1904	1904	1.000	
<b>583</b>	<b>2195</b>	<b>779</b>	<b>1841</b>	<b>5398</b>			
1058	1509	862	1789				
1.814	0.687	1.107	0.972				
45%	45%	10%	3%				

0	161	851	337	1349	1350	1.001	0%
12	0	3	1339	1354	1387	1.024	2%
1019	54	0	113	1186	757	0.638	57%
27	1294	8	0	1329	1904	1.433	30%
<b>1058</b>	<b>1509</b>	<b>862</b>	<b>1789</b>	<b>5218</b>			
1058	1509	862	1789				
1.000	1.000	1.000	1.000				

0	161	851	337	1350	1350	1.000	
12	0	3	1371	1387	1387	1.000	
650	35	0	72	757	757	1.000	
39	1854	11	0	1904	1904	1.000	
<b>702</b>	<b>2050</b>	<b>866</b>	<b>1781</b>	<b>5398</b>			
1058	1509	862	1789				
1.508	0.736	0.996	1.005				
34%	36%	0%	0%				

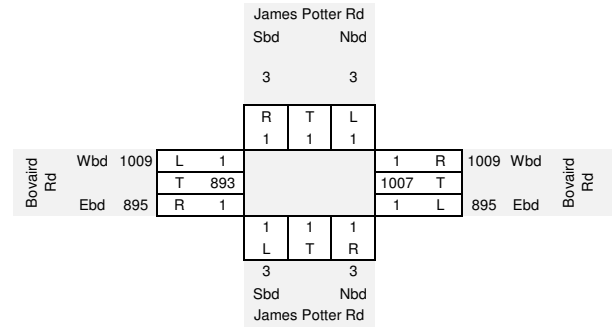
0	119	848	339	1305	1350	1.034	3%
18	0	3	1378	1400	1387	0.991	1%
981	25	0	73	1079	757	0.702	42%
59	1365	11	0	1435	1904	1.327	25%
<b>1058</b>	<b>1509</b>	<b>862</b>	<b>1789</b>	<b>5218</b>			
1058	1509	862	1789				
1.000	1.000	1.000	1.000				

0	123	877	350	1350	1350	1.000	
18	0	3	1365	1387	1387	1.000	
688	18	0	51	757	757	1.000	
78	1811	14	0	1904	1904	1.000	
<b>785</b>	<b>1952</b>	<b>895</b>	<b>1767</b>	<b>5398</b>			
1058	1509	862	1789				
1.348	0.773	0.964	1.013				
26%	29%	4%	1%				

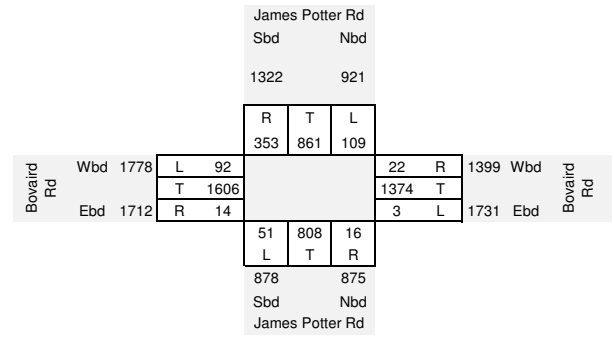
0	95	845	355	1295	1350	1.043	4%
25	0	3	1383	1411	1387	0.983	2%
928	14	0	52	993	757	0.762	31%
105	1400	14	0	1520	1904	1.253	20%
<b>1058</b>	<b>1509</b>	<b>862</b>	<b>1789</b>	<b>5218</b>			
1058	1509	862	1789				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	109	861	353	1322	1350	1.021	2%
East	22	0	3	1374	1399	1387	0.992	1%
South	808	16	0	51	875	757	0.865	16%
West	92	1606	14	0	1712	1904	1.112	10%
<b>Total</b>	<b>921</b>	<b>1731</b>	<b>878</b>	<b>1778</b>	<b>5308</b>			
Target	1058	1509	862	1789				
	1.148	0.872	0.981	1.006				
	13%	15%	2%	1%				

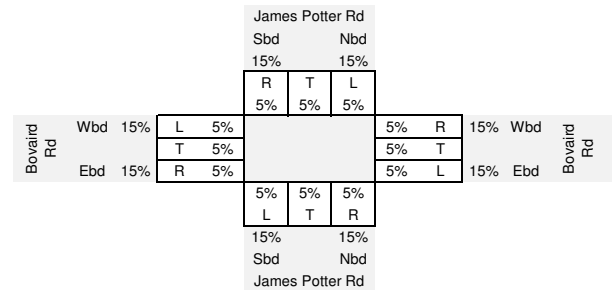
**Existing AM**



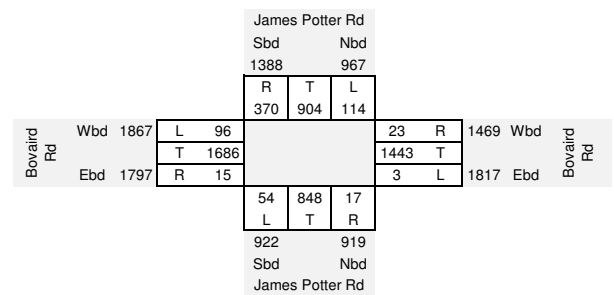
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**



**Bovaird Road at Ashby Field Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	83	33	5	<b>121</b>	157	1.298
East	80	0	81	944	<b>1105</b>	1387	1.255
South	67	129	0	58	<b>254</b>	286	1.126
West	35	847	30	0	<b>912</b>	1509	1.655
Total	<b>182</b>	<b>1059</b>	<b>144</b>	<b>1007</b>	<b>2392</b>		
Target	497	1509	144	1387		3438	
	2.731	1.425	1.000	1.377			

0	108	43	6	<b>157</b>	157	1.000
100	0	102	1185	<b>1387</b>	1387	1.000
75	145	0	65	<b>286</b>	286	1.000
58	1401	50	0	<b>1509</b>	1509	1.000
<b>234</b>	<b>1654</b>	<b>194</b>	<b>1257</b>	<b>3339</b>		
497	1509	144	1387			
2.126	0.912	0.742	1.104			
53%	10%	35%	9%			

0	98	32	7	<b>137</b>	157	1.145	13%
213	0	75	1308	<b>1597</b>	1387	0.869	15%
160	132	0	72	<b>365</b>	286	0.784	28%
123	1278	37	0	<b>1438</b>	1509	1.049	5%
<b>497</b>	<b>1509</b>	<b>144</b>	<b>1387</b>	<b>3537</b>			
497	1509	144	1387				
1.000	1.000	1.000	1.000				

0	112	36	8	<b>157</b>	157	1.000	
185	0	66	1136	<b>1387</b>	1387	1.000	
126	104	0	56	<b>286</b>	286	1.000	
129	1341	39	0	<b>1509</b>	1509	1.000	
<b>440</b>	<b>1557</b>	<b>141</b>	<b>1201</b>	<b>3339</b>			
497	1509	144	1387				
1.129	0.969	1.025	1.155				
11%	3%	2%	13%				

0	109	37	9	<b>156</b>	157	1.008	1%
209	0	67	1312	<b>1589</b>	1387	0.873	15%
142	101	0	65	<b>308</b>	286	0.929	8%
146	1299	40	0	<b>1485</b>	1509	1.016	2%
<b>497</b>	<b>1509</b>	<b>144</b>	<b>1387</b>	<b>3537</b>			
497	1509	144	1387				
1.000	1.000	1.000	1.000				

0	110	38	10	<b>157</b>	157	1.000	
183	0	59	1146	<b>1387</b>	1387	1.000	
132	93	0	61	<b>286</b>	286	1.000	
148	1321	40	0	<b>1509</b>	1509	1.000	
<b>463</b>	<b>1524</b>	<b>136</b>	<b>1216</b>	<b>3339</b>			
497	1509	144	1387				
1.074	0.990	1.055	1.141				
7%	1%	5%	12%				

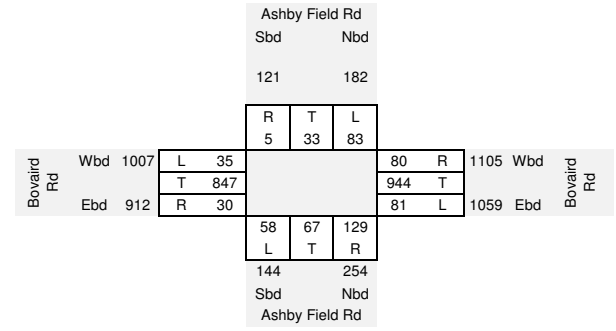
0	109	40	11	<b>159</b>	157	0.985	1%
196	0	62	1307	<b>1565</b>	1387	0.886	13%
142	93	0	69	<b>303</b>	286	0.943	6%
159	1308	42	0	<b>1509</b>	1509	1.000	0%
<b>497</b>	<b>1509</b>	<b>144</b>	<b>1387</b>	<b>3537</b>			
497	1509	144	1387				
1.000	1.000	1.000	1.000				

0	107	39	11	<b>157</b>	157	1.000	
174	0	55	1158	<b>1387</b>	1387	1.000	
134	87	0	65	<b>286</b>	286	1.000	
159	1307	42	0	<b>1509</b>	1509	1.000	
<b>467</b>	<b>1502</b>	<b>136</b>	<b>1234</b>	<b>3339</b>			
497	1509	144	1387				
1.065	1.005	1.056	1.124				
6%	0%	5%	11%				

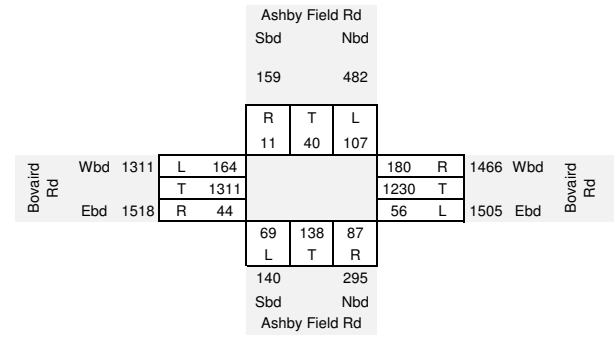
0	108	41	12	<b>161</b>	157	0.975	3%
185	0	58	1302	<b>1545</b>	1387	0.898	11%
142	88	0	73	<b>303</b>	286	0.943	6%
169	1314	45	0	<b>1528</b>	1509	0.988	1%
<b>497</b>	<b>1509</b>	<b>144</b>	<b>1387</b>	<b>3537</b>			
497	1509	144	1387				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	107	40	11	<b>159</b>	157	0.987	1%
East	180	0	56	1230	<b>1466</b>	1387	0.946	6%
South	138	87	0	69	<b>295</b>	286	0.971	3%
West	164	1311	44	0	<b>1518</b>	1509	0.994	1%
Total	<b>482</b>	<b>1505</b>	<b>140</b>	<b>1311</b>	<b>3438</b>			
Target	497	1509	144	1387				
	1.032	1.002	1.027	1.058				
	3%	0%	3%	6%				

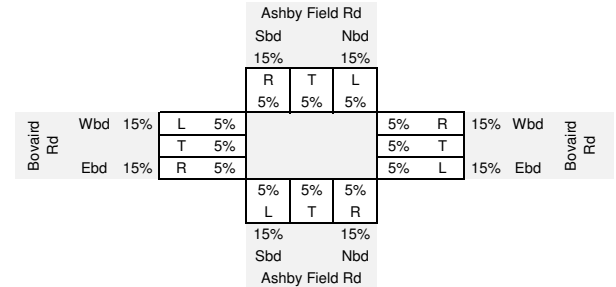
**Existing AM**



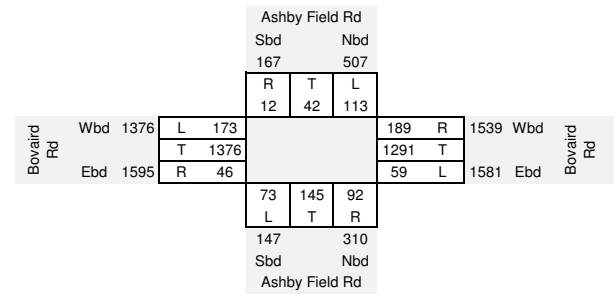
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**



**Station Road at Heritage Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	525	1	<b>527</b>	816	1.548
East	1	0	1	1	<b>3</b>	197	65.667
South	110	1	0	1	<b>112</b>	399	3.563
West	1	1	1	0	<b>3</b>	3	1.000
Total	<b>112</b>	<b>3</b>	<b>527</b>	<b>3</b>	<b>645</b>		
Target	414	287	709	3		1414	
	3.696	95.667	1.345	1.000			

0	2	813	2	<b>816</b>	816	1.000
66	0	66	66	<b>197</b>	197	1.000
392	4	0	4	<b>399</b>	399	1.000
1	1	1	0	<b>3</b>	3	1.000
<b>459</b>	<b>6</b>	<b>880</b>	<b>71</b>	<b>1415</b>		
414	287	709	3			
0.903	46.965	0.806	0.042			
11%	98%	24%	####			

0	73	655	0	<b>728</b>	816	1.121	11%
59	0	53	3	<b>115</b>	197	1.713	42%
354	167	0	0	<b>521</b>	399	0.765	31%
1	47	1	0	<b>49</b>	3	0.062	####
<b>414</b>	<b>287</b>	<b>709</b>	<b>3</b>	<b>1413</b>			
414	287	709	3				
1.000	1.000	1.000	1.000				

0	82	734	0	<b>816</b>	816	1.000
102	0	91	5	<b>197</b>	197	1.000
271	128	0	0	<b>399</b>	399	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>372</b>	<b>212</b>	<b>825</b>	<b>5</b>	<b>1415</b>		
414	287	709	3			
1.112	1.351	0.859	0.605			
10%	26%	16%	65%			

0	110	631	0	<b>741</b>	816	1.101	9%
113	0	78	3	<b>194</b>	197	1.017	2%
301	173	0	0	<b>474</b>	399	0.842	19%
0	4	0	0	<b>4</b>	3	0.747	34%
<b>414</b>	<b>287</b>	<b>709</b>	<b>3</b>	<b>1413</b>			
414	287	709	3				
1.000	1.000	1.000	1.000				

0	121	695	0	<b>816</b>	816	1.000
115	0	79	3	<b>197</b>	197	1.000
253	146	0	0	<b>399</b>	399	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>368</b>	<b>270</b>	<b>774</b>	<b>3</b>	<b>1415</b>		
414	287	709	3			
1.124	1.064	0.916	0.986			
11%	6%	9%	1%			

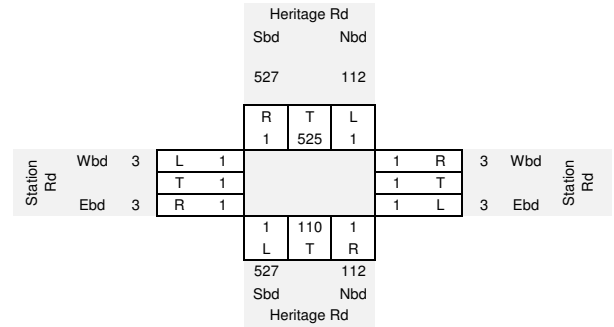
0	129	636	0	<b>765</b>	816	1.066	6%
129	0	73	3	<b>205</b>	197	0.963	4%
285	155	0	0	<b>440</b>	399	0.907	10%
0	3	0	0	<b>3</b>	3	0.940	6%
<b>414</b>	<b>287</b>	<b>709</b>	<b>3</b>	<b>1413</b>			
414	287	709	3				
1.000	1.000	1.000	1.000				

0	138	678	0	<b>816</b>	816	1.000
124	0	70	3	<b>197</b>	197	1.000
258	141	0	0	<b>399</b>	399	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>383</b>	<b>281</b>	<b>748</b>	<b>3</b>	<b>1415</b>		
414	287	709	3			
1.082	1.021	0.947	1.038			
8%	2%	6%	4%			

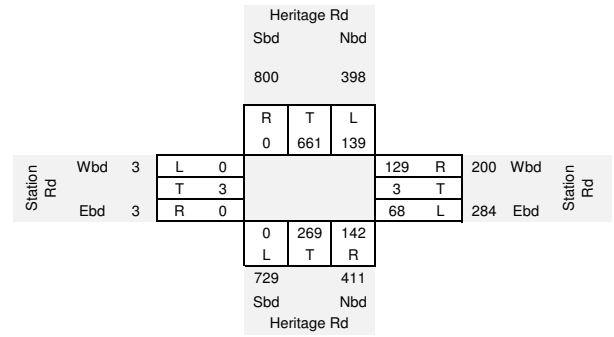
0	140	643	0	<b>783</b>	816	1.042	4%
134	0	66	3	<b>204</b>	197	0.968	3%
279	144	0	0	<b>423</b>	399	0.943	6%
0	3	0	0	<b>3</b>	3	0.979	2%
<b>414</b>	<b>287</b>	<b>709</b>	<b>3</b>	<b>1413</b>			
414	287	709	3				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	139	661	0	<b>800</b>	816	1.020	2%
East	129	0	68	3	<b>200</b>	197	0.984	2%
South	269	142	0	0	<b>411</b>	399	0.971	3%
West	0	3	0	0	<b>3</b>	3	0.989	1%
Total	<b>398</b>	<b>284</b>	<b>729</b>	<b>3</b>	<b>1414</b>			
Target	414	287	709	3				
	1.039	1.011	0.973	1.019				
	4%	1%	3%	2%				

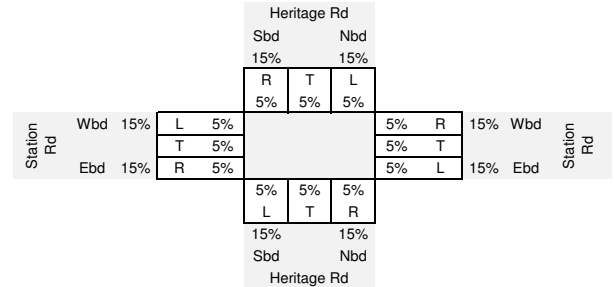
**Existing AM**



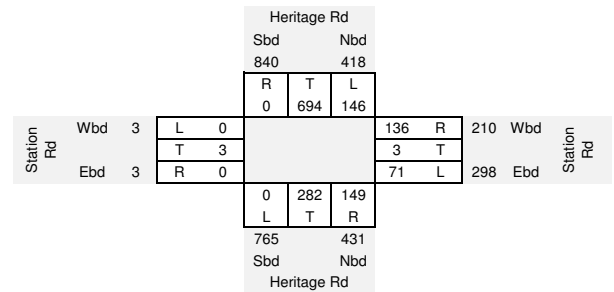
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**



**Station Road at Mississauga Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	372	1	<b>374</b>	1579	4.222
East	1	0	1	1	<b>3</b>	802	#####
South	152	1	0	1	<b>154</b>	373	2.422
West	1	1	1	0	<b>3</b>	481	#####
Total	<b>154</b>	<b>3</b>	<b>374</b>	<b>3</b>	<b>534</b>		
Target	359	880	1677	744		3448	
	2.331	#####	4.484	####			

0	4	1571	4	<b>1579</b>	1579	1.000
267	0	267	267	<b>802</b>	802	1.000
368	2	0	2	<b>373</b>	373	1.000
160	160	160	0	<b>481</b>	481	1.000
<b>796</b>	<b>167</b>	<b>1998</b>	<b>274</b>	<b>3235</b>		
359	880	1677	744			
0.451	5.270	0.839	2.716			
#####	81%	19%	63%			

0	22	1318	11	<b>1352</b>	1579	1.168	14%
121	0	224	726	<b>1071</b>	802	0.749	34%
166	13	0	7	<b>185</b>	373	2.012	50%
72	845	135	0	<b>1052</b>	481	0.457	#####
<b>359</b>	<b>880</b>	<b>1677</b>	<b>744</b>	<b>3660</b>			
359	880	1677	744				
1.000	1.000	1.000	1.000				

0	26	1540	13	<b>1579</b>	1579	1.000
90	0	168	544	<b>802</b>	802	1.000
334	26	0	13	<b>373</b>	373	1.000
33	386	62	0	<b>481</b>	481	1.000
<b>457</b>	<b>438</b>	<b>1769</b>	<b>570</b>	<b>3235</b>		
359	880	1677	744			
0.785	2.009	0.948	1.305			
27%	50%	5%	23%			

0	52	1459	17	<b>1529</b>	1579	1.033	3%
71	0	159	709	<b>939</b>	802	0.854	17%
262	52	0	17	<b>331</b>	373	1.127	11%
26	776	58	0	<b>860</b>	481	0.559	79%
<b>359</b>	<b>880</b>	<b>1677</b>	<b>744</b>	<b>3660</b>			
359	880	1677	744				
1.000	1.000	1.000	1.000				

0	54	1507	18	<b>1579</b>	1579	1.000
61	0	136	606	<b>802</b>	802	1.000
295	58	0	19	<b>373</b>	373	1.000
15	434	33	0	<b>481</b>	481	1.000
<b>370</b>	<b>546</b>	<b>1676</b>	<b>643</b>	<b>3235</b>		
359	880	1677	744			
0.969	1.612	1.001	1.157			
3%	38%	0%	14%			

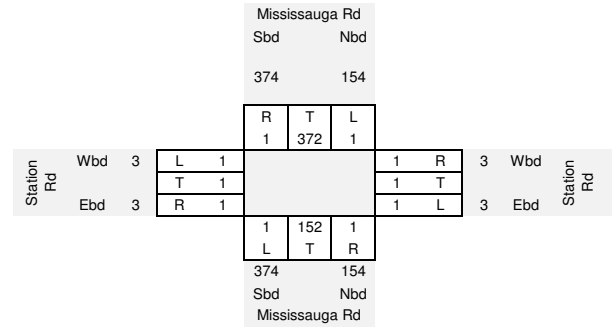
0	87	1508	21	<b>1616</b>	1579	0.977	2%
59	0	136	701	<b>895</b>	802	0.896	12%
286	94	0	23	<b>403</b>	373	0.927	8%
14	699	33	0	<b>746</b>	481	0.645	55%
<b>359</b>	<b>880</b>	<b>1677</b>	<b>744</b>	<b>3660</b>			
359	880	1677	744				
1.000	1.000	1.000	1.000				

0	85	1474	20	<b>1579</b>	1579	1.000
53	0	122	628	<b>802</b>	802	1.000
265	87	0	21	<b>373</b>	373	1.000
9	451	21	0	<b>481</b>	481	1.000
<b>327</b>	<b>623</b>	<b>1617</b>	<b>669</b>	<b>3235</b>		
359	880	1677	744			
1.098	1.413	1.037	1.112			
9%	29%	4%	10%			

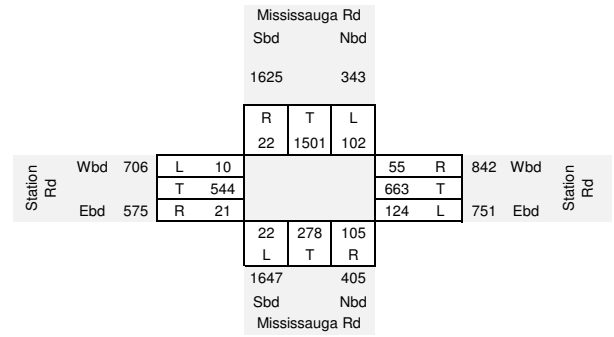
0	120	1529	23	<b>1671</b>	1579	0.945	6%
58	0	126	698	<b>882</b>	802	0.909	10%
291	123	0	23	<b>437</b>	373	0.853	17%
10	637	22	0	<b>669</b>	481	0.719	39%
<b>359</b>	<b>880</b>	<b>1677</b>	<b>744</b>	<b>3660</b>			
359	880	1677	744				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	102	1501	22	<b>1625</b>	1579	0.972	3%
East	55	0	124	663	<b>842</b>	802	0.952	5%
South	278	105	0	22	<b>405</b>	373	0.921	9%
West	10	544	21	0	<b>575</b>	481	0.836	20%
Total	<b>343</b>	<b>751</b>	<b>1647</b>	<b>706</b>	<b>3448</b>			
Target	359	880	1677	744				
	1.047	1.171	1.018	1.053				
	4%	15%	2%	5%				

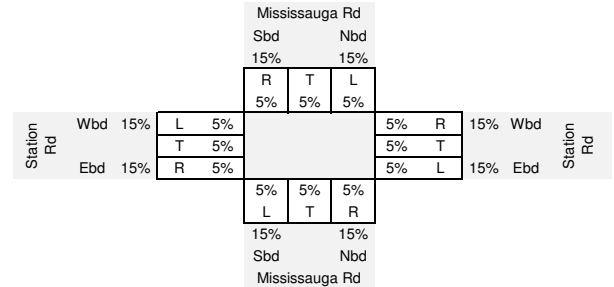
**Existing AM**



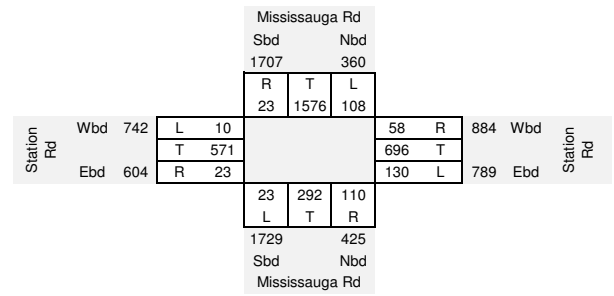
**Forecasted 2021 AM (Auto)**



**Heavy Truck%**



**Forecasted 2021 AM**





Station Road at James Potter Road - AM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	1	1	3	1275	#####
East	1	0	1	1	3	602	#####
South	1	1	0	1	3	1058	#####
West	1	1	1	0	3	802	#####
Total	3	3	3	3	12		
Target	455	660	1350	802		3502	
	####	#####	#####	####			

0	425	425	425	1275	1275	1.000
201	0	201	201	602	602	1.000
353	353	0	353	1058	1058	1.000
267	267	267	0	802	802	1.000
<b>821</b>	<b>1045</b>	<b>893</b>	<b>978</b>	<b>3737</b>		
455	660	1350	802			
0.554	0.632	1.512	0.820			
80%	58%	34%	22%			

0	268	642	348	1259	1275	1.012	1%
111	0	303	164	579	602	1.040	4%
196	223	0	289	707	1058	1.496	33%
148	169	404	0	721	802	1.112	10%
<b>455</b>	<b>660</b>	<b>1350</b>	<b>802</b>	<b>3267</b>			
455	660	1350	802				
1.000	1.000	1.000	1.000				

0	272	650	353	1275	1275	1.000
116	0	315	171	602	602	1.000
292	333	0	432	1058	1058	1.000
165	188	449	0	802	802	1.000
<b>573</b>	<b>793</b>	<b>1415</b>	<b>956</b>	<b>3737</b>		
455	660	1350	802			
0.794	0.833	0.954	0.839			
26%	20%	5%	19%			

0	226	620	296	1143	1275	1.116	10%
92	0	301	143	536	602	1.123	11%
232	277	0	363	872	1058	1.213	18%
131	156	429	0	716	802	1.120	11%
<b>455</b>	<b>660</b>	<b>1350</b>	<b>802</b>	<b>3267</b>			
455	660	1350	802				
1.000	1.000	1.000	1.000				

0	252	692	330	1275	1275	1.000
103	0	338	161	602	602	1.000
282	336	0	440	1058	1058	1.000
147	175	480	0	802	802	1.000
<b>531</b>	<b>764</b>	<b>1510</b>	<b>931</b>	<b>3737</b>		
455	660	1350	802			
0.856	0.864	0.894	0.861			
17%	16%	12%	16%			

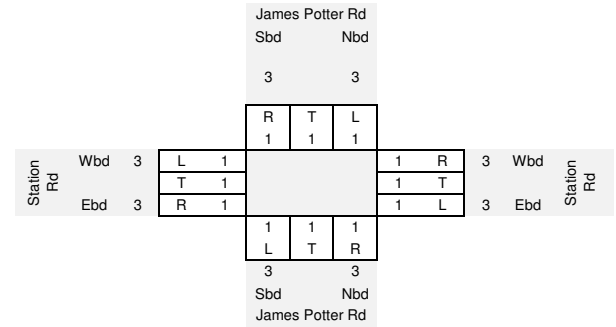
0	218	619	284	1121	1275	1.137	12%
88	0	302	139	529	602	1.138	12%
241	291	0	379	911	1058	1.162	14%
126	151	429	0	706	802	1.136	12%
<b>455</b>	<b>660</b>	<b>1350</b>	<b>802</b>	<b>3267</b>			
455	660	1350	802				
1.000	1.000	1.000	1.000				

0	248	704	323	1275	1275	1.000
100	0	344	158	602	602	1.000
280	338	0	440	1058	1058	1.000
143	172	488	0	802	802	1.000
<b>523</b>	<b>757</b>	<b>1535</b>	<b>921</b>	<b>3737</b>		
455	660	1350	802			
0.870	0.871	0.880	0.870			
15%	15%	14%	15%			

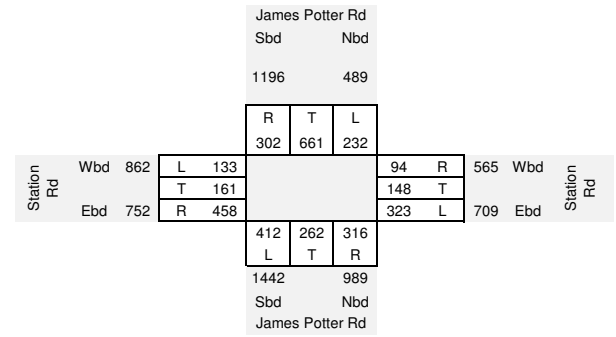
0	216	619	281	1116	1275	1.142	12%
87	0	302	137	527	602	1.142	12%
244	294	0	383	921	1058	1.149	13%
124	150	429	0	703	802	1.142	12%
<b>455</b>	<b>660</b>	<b>1350</b>	<b>802</b>	<b>3267</b>			
455	660	1350	802				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	232	661	302	1196	1275	1.066	6%
East	94	0	323	148	565	602	1.066	6%
South	262	316	0	412	989	1058	1.069	6%
West	133	161	458	0	752	802	1.066	6%
Total	<b>489</b>	<b>709</b>	<b>1442</b>	<b>862</b>	<b>3502</b>			
Target	455	660	1350	802				
	0.930	0.931	0.936	0.931				
	8%	7%	7%	7%				

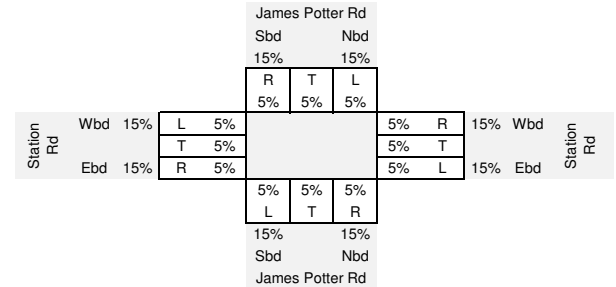
Existing AM



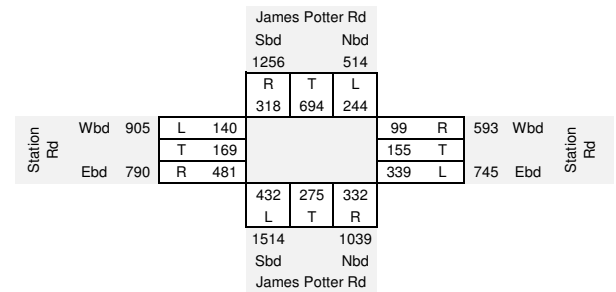
Forecasted 2021 AM (Auto)



Heavy Truck%



Forecasted 2021 AM





# APPENDIX F-3

**2031 AM**

---



**Bovaird Road at Heritage Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	7	733	30	<b>770</b>	1059	1.375
East	28	0	235	734	<b>997</b>	1332	1.336
South	301	17	0	56	<b>374</b>	329	0.880
West	131	858	85	0	<b>1074</b>	692	0.644
Total	<b>460</b>	<b>882</b>	<b>1053</b>	<b>820</b>	<b>3215</b>		
Target	603	692	1154	583		3222	
	1.311	0.785	1.096	0.711			

0	10	1008	41	<b>1059</b>	1059	1.000
37	0	314	981	<b>1332</b>	1332	1.000
265	15	0	49	<b>329</b>	329	1.000
84	553	55	0	<b>692</b>	692	1.000
<b>387</b>	<b>577</b>	<b>1377</b>	<b>1071</b>	<b>3412</b>		
603	692	1154	583			
1.560	1.198	0.838	0.544			
36%	17%	19%	84%			

0	12	845	22	<b>879</b>	1059	1.205	17%
58	0	263	534	<b>855</b>	1332	1.557	36%
413	18	0	27	<b>458</b>	329	0.719	39%
132	663	46	0	<b>840</b>	692	0.824	21%
<b>603</b>	<b>692</b>	<b>1154</b>	<b>583</b>	<b>3032</b>			
603	692	1154	583				
1.000	1.000	1.000	1.000				

0	14	1018	27	<b>1059</b>	1059	1.000
91	0	410	831	<b>1332</b>	1332	1.000
297	13	0	19	<b>329</b>	329	1.000
108	546	38	0	<b>692</b>	692	1.000
<b>496</b>	<b>573</b>	<b>1466</b>	<b>878</b>	<b>3412</b>		
603	692	1154	583			
1.215	1.209	0.787	0.664			
18%	17%	27%	51%			

0	17	802	18	<b>836</b>	1059	1.266	21%
110	0	323	552	<b>985</b>	1332	1.352	26%
361	16	0	13	<b>389</b>	329	0.845	18%
132	660	30	0	<b>821</b>	692	0.843	19%
<b>603</b>	<b>692</b>	<b>1154</b>	<b>583</b>	<b>3032</b>			
603	692	1154	583				
1.000	1.000	1.000	1.000				

0	21	1015	23	<b>1059</b>	1059	1.000
149	0	436	746	<b>1332</b>	1332	1.000
305	13	0	11	<b>329</b>	329	1.000
111	556	25	0	<b>692</b>	692	1.000
<b>565</b>	<b>590</b>	<b>1476</b>	<b>780</b>	<b>3412</b>		
603	692	1154	583			
1.067	1.172	0.782	0.747			
6%	15%	28%	34%			

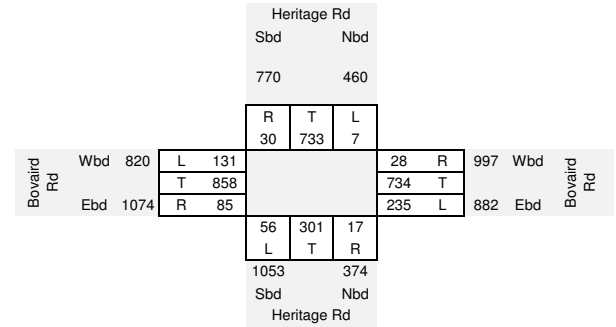
0	25	793	17	<b>835</b>	1059	1.268	21%
159	0	341	558	<b>1058</b>	1332	1.259	21%
325	15	0	8	<b>349</b>	329	0.943	6%
118	652	20	0	<b>790</b>	692	0.876	14%
<b>603</b>	<b>692</b>	<b>1154</b>	<b>583</b>	<b>3032</b>			
603	692	1154	583				
1.000	1.000	1.000	1.000				

0	32	1006	22	<b>1059</b>	1059	1.000
200	0	429	702	<b>1332</b>	1332	1.000
307	15	0	8	<b>329</b>	329	1.000
104	571	17	0	<b>692</b>	692	1.000
<b>611</b>	<b>617</b>	<b>1452</b>	<b>731</b>	<b>3412</b>		
603	692	1154	583			
0.987	1.121	0.795	0.797			
1%	11%	26%	25%			

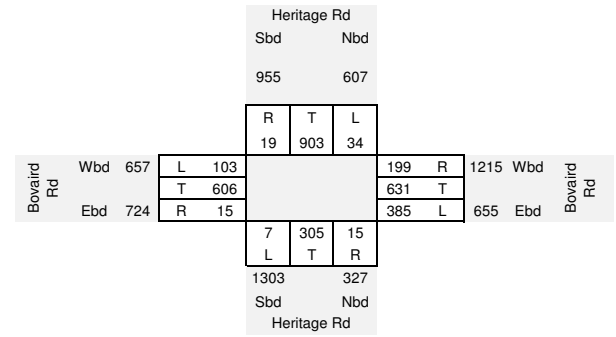
0	35	799	17	<b>852</b>	1059	1.243	20%
198	0	341	560	<b>1099</b>	1332	1.212	18%
303	16	0	6	<b>325</b>	329	1.012	1%
102	640	14	0	<b>756</b>	692	0.915	9%
<b>603</b>	<b>692</b>	<b>1154</b>	<b>583</b>	<b>3032</b>			
603	692	1154	583				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	34	903	19	<b>955</b>	1059	1.108	10%
East	199	0	385	631	<b>1215</b>	1332	1.096	9%
South	305	15	0	7	<b>327</b>	329	1.006	1%
West	103	606	15	0	<b>724</b>	692	0.956	5%
Total	<b>607</b>	<b>655</b>	<b>1303</b>	<b>657</b>	<b>3222</b>			
Target	603	692	1154	583				
	0.993	1.057	0.886	0.887				
	1%	5%	13%	13%				

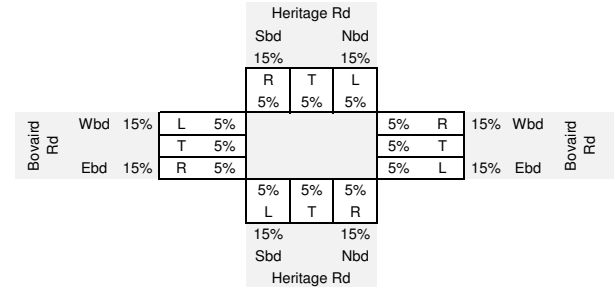
**2021 AM**



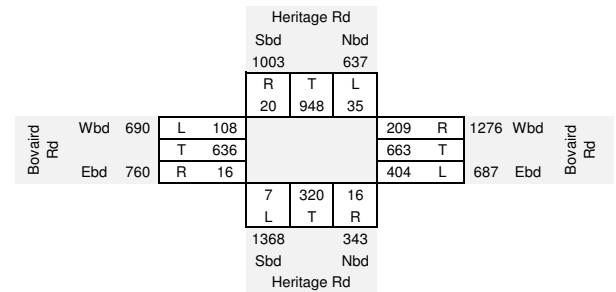
**Forecasted 2031 AM (Auto)**



**Heavy Truck%**



**Forecasted 2031 AM**



**Bovaird Road at Mississauga Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	277	1612	46	<b>1935</b>	1541	0.796
East	97	0	929	855	<b>1881</b>	2155	1.146
South	343	550	0	68	<b>961</b>	802	0.835
West	15	801	87	0	<b>903</b>	1851	2.050
Total	<b>455</b>	<b>1628</b>	<b>2628</b>	<b>969</b>	<b>5680</b>		
Target	468	2406	2951	2239		7207	
	1.029	1.478	1.123	2.311			

0	221	1284	37	<b>1541</b>	1541	1.000
111	0	1064	980	<b>2155</b>	2155	1.000
286	459	0	57	<b>802</b>	802	1.000
31	1642	178	0	<b>1851</b>	1851	1.000
<b>428</b>	<b>2322</b>	<b>2526</b>	<b>1073</b>	<b>6349</b>		
468	2406	2951	2239			
1.093	1.036	1.168	2.087			
9%	4%	14%	52%			

0	229	1500	76	<b>1805</b>	1541	0.854	17%
121	0	1243	2044	<b>3409</b>	2155	0.632	58%
313	476	0	118	<b>907</b>	802	0.884	13%
34	1702	208	0	<b>1944</b>	1851	0.952	5%
<b>468</b>	<b>2406</b>	<b>2951</b>	<b>2239</b>	<b>8064</b>			
468	2406	2951	2239				
1.000	1.000	1.000	1.000				

0	195	1280	65	<b>1541</b>	1541	1.000
77	0	786	1292	<b>2155</b>	2155	1.000
277	421	0	105	<b>802</b>	802	1.000
32	1621	198	0	<b>1851</b>	1851	1.000
<b>385</b>	<b>2236</b>	<b>2265</b>	<b>1462</b>	<b>6349</b>		
468	2406	2951	2239			
1.214	1.076	1.303	1.531			
18%	7%	23%	35%			

0	210	1668	100	<b>1978</b>	1541	0.779	28%
93	0	1024	1979	<b>3096</b>	2155	0.696	44%
336	453	0	160	<b>949</b>	802	0.845	18%
39	1743	258	0	<b>2041</b>	1851	0.907	10%
<b>468</b>	<b>2406</b>	<b>2951</b>	<b>2239</b>	<b>8064</b>			
468	2406	2951	2239				
1.000	1.000	1.000	1.000				

0	164	1300	78	<b>1541</b>	1541	1.000
65	0	713	1377	<b>2155</b>	2155	1.000
284	383	0	136	<b>802</b>	802	1.000
35	1581	234	0	<b>1851</b>	1851	1.000
<b>384</b>	<b>2127</b>	<b>2247</b>	<b>1591</b>	<b>6349</b>		
468	2406	2951	2239			
1.218	1.131	1.313	1.408			
18%	12%	24%	29%			

0	185	1707	110	<b>2001</b>	1541	0.770	30%
79	0	936	1939	<b>2954</b>	2155	0.730	37%
346	433	0	191	<b>969</b>	802	0.827	21%
43	1788	308	0	<b>2139</b>	1851	0.865	16%
<b>468</b>	<b>2406</b>	<b>2951</b>	<b>2239</b>	<b>8064</b>			
468	2406	2951	2239				
1.000	1.000	1.000	1.000				

0	142	1314	84	<b>1541</b>	1541	1.000
58	0	683	1414	<b>2155</b>	2155	1.000
286	358	0	158	<b>802</b>	802	1.000
37	1547	266	0	<b>1851</b>	1851	1.000
<b>381</b>	<b>2048</b>	<b>2264</b>	<b>1657</b>	<b>6349</b>		
468	2406	2951	2239			
1.228	1.175	1.304	1.352			
19%	15%	23%	26%			

0	167	1713	114	<b>1995</b>	1541	0.773	29%
71	0	890	1912	<b>2873</b>	2155	0.750	33%
352	421	0	213	<b>985</b>	802	0.814	23%
46	1818	347	0	<b>2211</b>	1851	0.837	19%
<b>468</b>	<b>2406</b>	<b>2951</b>	<b>2239</b>	<b>8064</b>			
468	2406	2951	2239				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target	
North	0	155	1514	99	<b>1768</b>	1541	0.872 15%
East	64	0	787	1663	<b>2514</b>	2155	0.857 17%
South	319	389	0	186	<b>894</b>	802	0.897 11%
West	41	1683	307	0	<b>2031</b>	1851	0.911 10%
Total	<b>425</b>	<b>2227</b>	<b>2607</b>	<b>1948</b>	<b>7207</b>		
Target	468	2406	2951	2239			
	1.102	1.080	1.132	1.150			
	9%	7%	12%	13%			

**2021 AM**

		Mississauga Rd											
		Sbd			Nbd								
		1935			455								
		R			T			L					
		46			1612			277					
Bovaird Rd	Wbd	969	L	15					97	R	1881	Wbd	
			T	801					855	T			
	Ebd	903	R	87					929	L	1628	Ebd	
		68			343			550					
		L			T			R					
		2628			961								
		Sbd			Nbd								
		Mississauga Rd											

**Forecasted 2031 AM (Auto)**

		Mississauga Rd											
		Sbd			Nbd								
		1768			425								
		R			T			L					
		99			1514			155					
Bovaird Rd	Wbd	1948	L	41					64	R	2514	Wbd	
			T	1683					1663	T			
	Ebd	2031	R	307					787	L	2227	Ebd	
		186			319			389					
		L			T			R					
		2607			894								
		Sbd			Nbd								
		Mississauga Rd											

**Heavy Truck%**

		Mississauga Rd											
		Sbd			Nbd								
		15%			15%								
		R			T			L					
		5%			5%			5%					
Bovaird Rd	Wbd	15%	L	5%					5%	R	15%	Wbd	
			T	5%					5%	T			
	Ebd	15%	R	5%					5%	L	15%	Ebd	
		5%			5%			5%					
		L			T			R					
		15%			15%								
		Sbd			Nbd								
		Mississauga Rd											

**Forecasted 2031 AM**

		Mississauga Rd											
		Sbd			Nbd								
		1856			445								
		R			T			L					
		104			1589			163					
Bovaird Rd	Wbd	2045	L	43					67	R	2639	Wbd	
			T	1767					1746	T			
	Ebd	2132	R	322					826	L	2339	Ebd	
		195			335			409					
		L			T			R					
		2737			939								
		Sbd			Nbd								
		Mississauga Rd											

**Bovaird Road at James Potter Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	114	904	370	<b>1388</b>	1678	1.209
East	23	0	3	1443	<b>1469</b>	1681	1.144
South	848	17	0	54	<b>919</b>	945	1.028
West	96	1686	15	0	<b>1797</b>	2688	1.496
Total	<b>967</b>	<b>1817</b>	<b>922</b>	<b>1867</b>	<b>5573</b>		
Target	932	1525	759	2202		6205	
	0.964	0.839	0.823	1.179			

0	138	1093	447	<b>1678</b>	1678	1.000
26	0	3	1651	<b>1681</b>	1681	1.000
872	17	0	56	<b>945</b>	945	1.000
144	2522	22	0	<b>2688</b>	2688	1.000
<b>1042</b>	<b>2677</b>	<b>1119</b>	<b>2154</b>	<b>6992</b>		
932	1525	759	2202			
0.895	0.570	0.678	1.022			
12%	76%	47%	2%			

0	79	741	457	<b>1277</b>	1678	1.314	24%
24	0	2	1688	<b>1714</b>	1681	0.981	2%
780	10	0	57	<b>847</b>	945	1.116	10%
128	1437	15	0	<b>1580</b>	2688	1.701	41%
<b>932</b>	<b>1525</b>	<b>759</b>	<b>2202</b>	<b>5418</b>			
932	1525	759	2202				
1.000	1.000	1.000	1.000				

0	103	974	601	<b>1678</b>	1678	1.000	
23	0	2	1656	<b>1681</b>	1681	1.000	
871	11	0	63	<b>945</b>	945	1.000	
219	2444	26	0	<b>2688</b>	2688	1.000	
<b>1112</b>	<b>2558</b>	<b>1002</b>	<b>2320</b>	<b>6992</b>			
932	1525	759	2202				
0.838	0.596	0.757	0.949				
19%	68%	32%	5%				

0	61	738	570	<b>1369</b>	1678	1.225	18%
19	0	2	1572	<b>1593</b>	1681	1.055	5%
730	7	0	60	<b>796</b>	945	1.187	16%
183	1457	20	0	<b>1660</b>	2688	1.620	38%
<b>932</b>	<b>1525</b>	<b>759</b>	<b>2202</b>	<b>5418</b>			
932	1525	759	2202				
1.000	1.000	1.000	1.000				

0	75	904	699	<b>1678</b>	1678	1.000	
20	0	2	1659	<b>1681</b>	1681	1.000	
866	8	0	71	<b>945</b>	945	1.000	
297	2360	32	0	<b>2688</b>	2688	1.000	
<b>1183</b>	<b>2443</b>	<b>937</b>	<b>2429</b>	<b>6992</b>			
932	1525	759	2202				
0.788	0.624	0.810	0.907				
27%	60%	24%	10%				

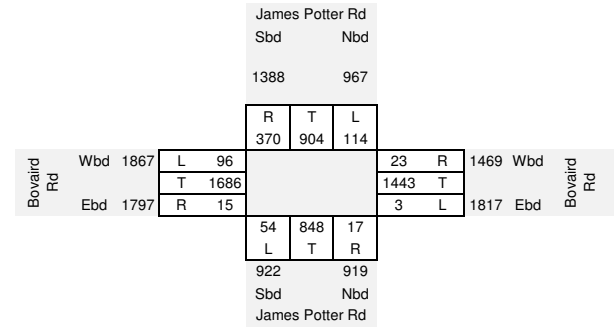
0	47	732	633	<b>1412</b>	1678	1.188	16%
16	0	1	1504	<b>1521</b>	1681	1.105	9%
682	5	0	65	<b>752</b>	945	1.257	20%
234	1473	26	0	<b>1732</b>	2688	1.552	36%
<b>932</b>	<b>1525</b>	<b>759</b>	<b>2202</b>	<b>5418</b>			
932	1525	759	2202				
1.000	1.000	1.000	1.000				

0	56	869	753	<b>1678</b>	1678	1.000	
18	0	2	1662	<b>1681</b>	1681	1.000	
858	6	0	81	<b>945</b>	945	1.000	
363	2286	40	0	<b>2688</b>	2688	1.000	
<b>1238</b>	<b>2348</b>	<b>911</b>	<b>2496</b>	<b>6992</b>			
932	1525	759	2202				
0.753	0.650	0.833	0.882				
33%	54%	20%	13%				

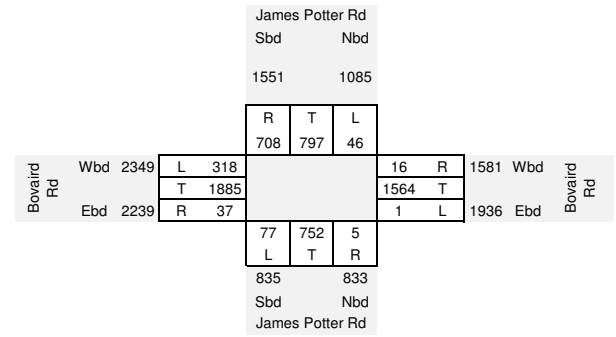
0	36	724	664	<b>1425</b>	1678	1.178	15%
13	0	1	1466	<b>1481</b>	1681	1.135	12%
646	4	0	72	<b>721</b>	945	1.310	24%
273	1485	33	0	<b>1791</b>	2688	1.501	33%
<b>932</b>	<b>1525</b>	<b>759</b>	<b>2202</b>	<b>5418</b>			
932	1525	759	2202				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	46	797	708	<b>1551</b>	1678	1.082	8%
East	16	0	1	1564	<b>1581</b>	1681	1.063	6%
South	752	5	0	77	<b>833</b>	945	1.134	12%
West	318	1885	37	0	<b>2239</b>	2688	1.200	17%
Total	<b>1085</b>	<b>1936</b>	<b>835</b>	<b>2349</b>	<b>6205</b>			
Target	932	1525	759	2202				
	0.859	0.788	0.909	0.938				
	16%	27%	10%	7%				

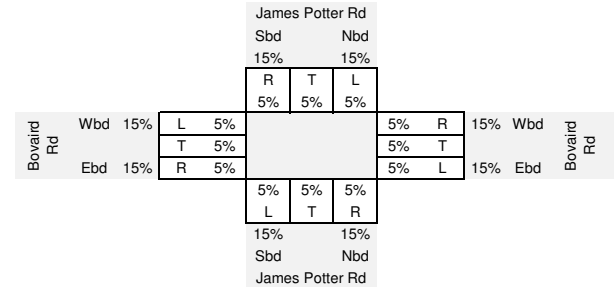
**2021 AM**



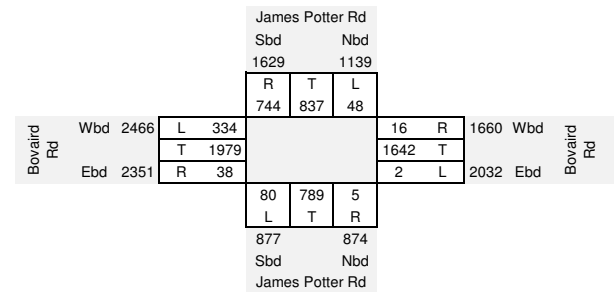
**Forecasted 2031 AM (Auto)**



**Heavy Truck%**



**Forecasted 2031 AM**



**Bovaird Road at Ashby Field Road - AM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	113	42	12	<b>167</b>	157	0.940
East	189	0	59	1291	<b>1539</b>	1681	1.092
South	145	92	0	73	<b>310</b>	286	0.923
West	173	1576	46	0	<b>1795</b>	1525	0.850
Total	<b>507</b>	<b>1781</b>	<b>147</b>	<b>1376</b>	<b>3811</b>		
Target	497	1525	144	1681		3748	
	0.980	0.856	0.980	1.222			

0	106	39	11	<b>157</b>	157	1.000
206	0	64	1410	<b>1681</b>	1681	1.000
134	85	0	67	<b>286</b>	286	1.000
147	1339	39	0	<b>1525</b>	1525	1.000
<b>487</b>	<b>1530</b>	<b>143</b>	<b>1489</b>	<b>3649</b>		
497	1525	144	1681			
1.020	0.997	1.007	1.129			
2%	0%	1%	11%			

0	106	40	13	<b>158</b>	157	0.991	1%
211	0	65	1592	<b>1868</b>	1681	0.900	11%
136	85	0	76	<b>297</b>	286	0.963	4%
150	1335	39	0	<b>1524</b>	1525	1.001	0%
<b>497</b>	<b>1525</b>	<b>144</b>	<b>1681</b>	<b>3847</b>			
497	1525	144	1681				
1.000	1.000	1.000	1.000				

0	105	39	13	<b>157</b>	157	1.000
190	0	58	1433	<b>1681</b>	1681	1.000
131	81	0	73	<b>286</b>	286	1.000
150	1336	39	0	<b>1525</b>	1525	1.000
<b>471</b>	<b>1522</b>	<b>137</b>	<b>1519</b>	<b>3649</b>		
497	1525	144	1681			
1.055	1.002	1.050	1.107			
5%	0%	5%	10%			

0	105	41	14	<b>161</b>	157	0.978	2%
200	0	61	1586	<b>1847</b>	1681	0.910	10%
139	82	0	81	<b>301</b>	286	0.949	5%
158	1338	41	0	<b>1538</b>	1525	0.992	1%
<b>497</b>	<b>1525</b>	<b>144</b>	<b>1681</b>	<b>3847</b>			
497	1525	144	1681				
1.000	1.000	1.000	1.000				

0	103	40	14	<b>157</b>	157	1.000
182	0	56	1443	<b>1681</b>	1681	1.000
132	77	0	77	<b>286</b>	286	1.000
157	1327	41	0	<b>1525</b>	1525	1.000
<b>471</b>	<b>1507</b>	<b>137</b>	<b>1534</b>	<b>3649</b>		
497	1525	144	1681			
1.056	1.012	1.049	1.096			
5%	1%	5%	9%			

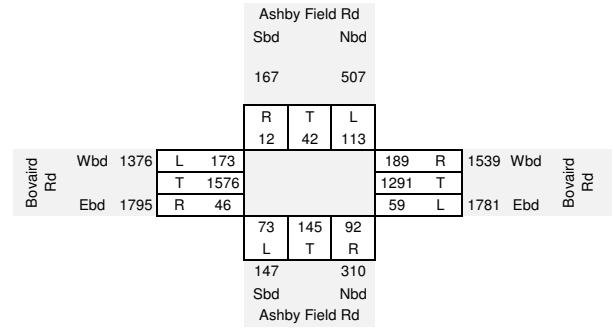
0	104	42	15	<b>162</b>	157	0.972	3%
192	0	59	1582	<b>1832</b>	1681	0.917	9%
139	78	0	84	<b>302</b>	286	0.948	5%
166	1343	43	0	<b>1551</b>	1525	0.983	2%
<b>497</b>	<b>1525</b>	<b>144</b>	<b>1681</b>	<b>3847</b>			
497	1525	144	1681				
1.000	1.000	1.000	1.000				

0	101	41	15	<b>157</b>	157	1.000
176	0	54	1451	<b>1681</b>	1681	1.000
132	74	0	80	<b>286</b>	286	1.000
163	1320	42	0	<b>1525</b>	1525	1.000
<b>471</b>	<b>1495</b>	<b>137</b>	<b>1545</b>	<b>3649</b>		
497	1525	144	1681			
1.055	1.020	1.049	1.088			
5%	2%	5%	8%			

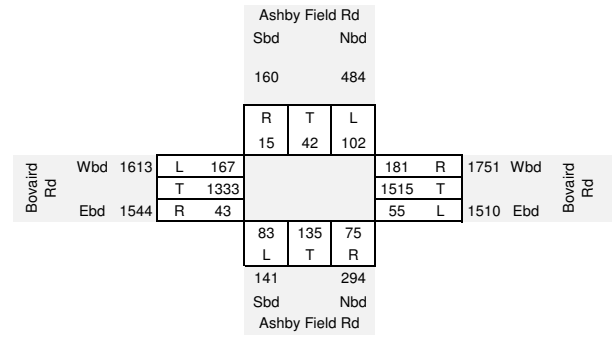
0	103	43	16	<b>162</b>	157	0.967	3%
186	0	56	1578	<b>1821</b>	1681	0.923	8%
139	76	0	87	<b>302</b>	286	0.948	6%
172	1346	44	0	<b>1562</b>	1525	0.976	2%
<b>497</b>	<b>1525</b>	<b>144</b>	<b>1681</b>	<b>3847</b>			
497	1525	144	1681				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	102	42	15	<b>160</b>	157	0.983	2%
East	181	0	55	1515	<b>1751</b>	1681	0.960	4%
South	135	75	0	83	<b>294</b>	286	0.973	3%
West	167	1333	43	0	<b>1544</b>	1525	0.988	1%
Total	<b>484</b>	<b>1510</b>	<b>141</b>	<b>1613</b>	<b>3748</b>			
Target	497	1525	144	1681				
	1.027	1.010	1.024	1.042				
	3%	1%	2%	4%				

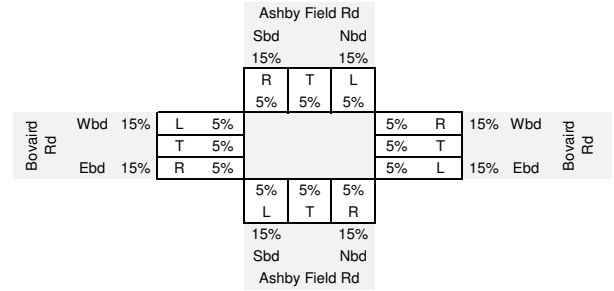
**2021 AM**



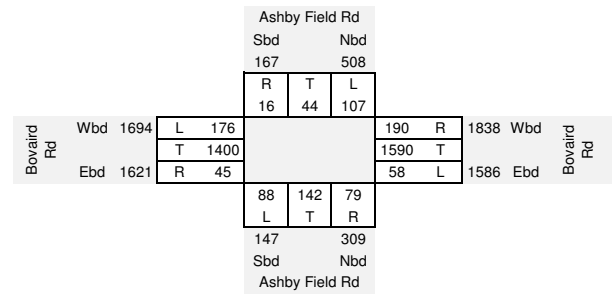
**Forecasted 2031 AM (Auto)**



**Heavy Truck%**



**Forecasted 2031 AM**





Station Road at Heritage Road - AM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	146	694	1	<b>841</b>	1043	1.240
East	136	0	71	1	<b>208</b>	701	3.370
South	282	149	0	1	<b>432</b>	383	0.887
West	1	1	1	0	<b>3</b>	225	75.000
Total	<b>419</b>	<b>296</b>	<b>766</b>	<b>3</b>	<b>1484</b>		
Target	627	739	985	50		2377	
	1.496	2.497	1.286	####			

0	181	861	1	<b>1043</b>	1043	1.000
458	0	239	3	<b>701</b>	701	1.000
250	132	0	1	<b>383</b>	383	1.000
75	75	75	0	<b>225</b>	225	1.000
<b>783</b>	<b>388</b>	<b>1175</b>	<b>5</b>	<b>2352</b>		
627	739	985	50			
0.800	1.904	0.838	9.096			
25%	47%	19%	89%			

0	345	722	11	<b>1078</b>	1043	0.968	3%
367	0	201	31	<b>598</b>	701	1.172	15%
200	251	0	8	<b>460</b>	383	0.833	20%
60	143	63	0	<b>266</b>	225	0.847	18%
<b>627</b>	<b>739</b>	<b>985</b>	<b>50</b>	<b>2401</b>			
627	739	985	50				
1.000	1.000	1.000	1.000				

0	334	698	11	<b>1043</b>	1043	1.000
430	0	235	36	<b>701</b>	701	1.000
167	210	0	7	<b>383</b>	383	1.000
51	121	53	0	<b>225</b>	225	1.000
<b>648</b>	<b>664</b>	<b>987</b>	<b>54</b>	<b>2352</b>		
627	739	985	50			
0.968	1.113	0.998	0.933			
3%	10%	0%	7%			

0	371	697	10	<b>1079</b>	1043	0.967	3%
416	0	235	34	<b>685</b>	701	1.024	2%
161	233	0	6	<b>401</b>	383	0.955	5%
49	135	53	0	<b>237</b>	225	0.950	5%
<b>627</b>	<b>739</b>	<b>985</b>	<b>50</b>	<b>2401</b>			
627	739	985	50				
1.000	1.000	1.000	1.000				

0	359	674	10	<b>1043</b>	1043	1.000
426	0	240	34	<b>701</b>	701	1.000
154	223	0	6	<b>383</b>	383	1.000
47	128	50	0	<b>225</b>	225	1.000
<b>627</b>	<b>710</b>	<b>965</b>	<b>50</b>	<b>2352</b>		
627	739	985	50			
0.999	1.041	1.021	0.996			
0%	4%	2%	0%			

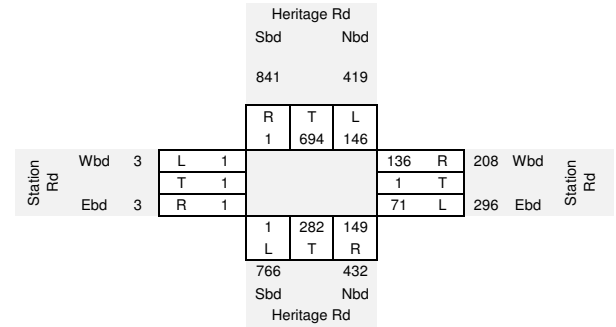
0	374	688	10	<b>1072</b>	1043	0.973	3%
426	0	245	34	<b>706</b>	701	0.993	1%
154	232	0	6	<b>392</b>	383	0.977	2%
47	133	52	0	<b>231</b>	225	0.973	3%
<b>627</b>	<b>739</b>	<b>985</b>	<b>50</b>	<b>2401</b>			
627	739	985	50				
1.000	1.000	1.000	1.000				

0	364	670	10	<b>1043</b>	1043	1.000
423	0	244	34	<b>701</b>	701	1.000
151	227	0	6	<b>383</b>	383	1.000
45	129	50	0	<b>225</b>	225	1.000
<b>619</b>	<b>720</b>	<b>963</b>	<b>49</b>	<b>2352</b>		
627	739	985	50			
1.012	1.027	1.022	1.013			
1%	3%	2%	1%			

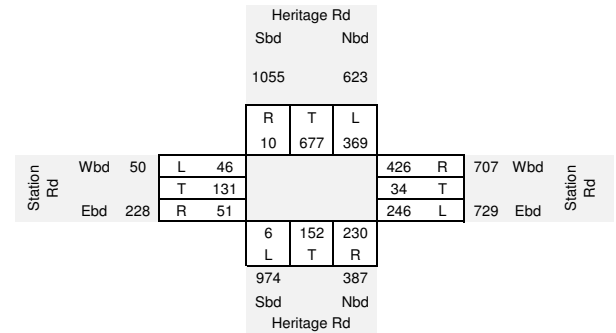
0	374	685	10	<b>1068</b>	1043	0.977	2%
429	0	249	34	<b>712</b>	701	0.984	2%
152	233	0	6	<b>391</b>	383	0.980	2%
46	133	51	0	<b>230</b>	225	0.978	2%
<b>627</b>	<b>739</b>	<b>985</b>	<b>50</b>	<b>2401</b>			
627	739	985	50				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	369	677	10	<b>1055</b>	1043	0.988	1%
East	426	0	246	34	<b>707</b>	701	0.992	1%
South	152	230	0	6	<b>387</b>	383	0.990	1%
West	46	131	51	0	<b>228</b>	225	0.989	1%
Total	<b>623</b>	<b>729</b>	<b>974</b>	<b>50</b>	<b>2377</b>			
Target	627	739	985	50				
	1.006	1.013	1.011	1.006				
	1%	1%	1%	1%				

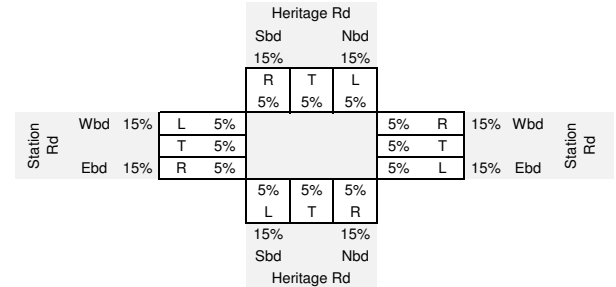
2021 AM



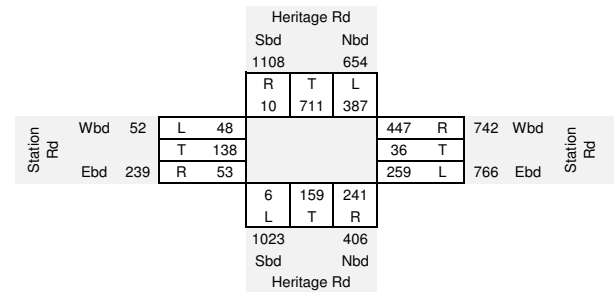
Forecasted 2031 AM (Auto)



Heavy Truck%



Forecasted 2031 AM



Station Road at Mississauga Road - AM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	108	1576	23	1707	1182	0.692
East	58	0	130	696	884	701	0.793
South	292	110	0	23	425	359	0.845
West	10	571	23	0	604	773	1.280
Total	360	789	1729	742	3620		
Target	351	818	1255	750		3095	
	0.975	1.037	0.726	1.011			

0	75	1091	16	1182	1182	1.000
46	0	103	552	701	701	1.000
247	93	0	19	359	359	1.000
13	731	29	0	773	773	1.000
305	898	1224	587	3015		
351	818	1255	750			
1.149	0.910	1.025	1.277			
13%	10%	2%	22%			

0	68	1119	20	1208	1182	0.979	2%
53	0	106	705	863	701	0.812	23%
283	85	0	25	393	359	0.914	9%
15	665	30	0	710	773	1.088	8%
351	818	1255	750	3174			
351	818	1255	750				
1.000	1.000	1.000	1.000				

0	67	1095	20	1182	1182	1.000
43	0	86	572	701	701	1.000
259	77	0	23	359	359	1.000
16	724	33	0	773	773	1.000
318	868	1214	615	3015		
351	818	1255	750			
1.104	0.942	1.034	1.220			
9%	6%	3%	18%			

0	63	1132	24	1219	1182	0.969	3%
47	0	89	698	834	701	0.840	19%
286	73	0	28	386	359	0.929	8%
18	682	34	0	734	773	1.053	5%
351	818	1255	750	3174			
351	818	1255	750				
1.000	1.000	1.000	1.000				

0	61	1098	24	1182	1182	1.000
40	0	75	587	701	701	1.000
266	68	0	26	359	359	1.000
19	719	36	0	773	773	1.000
324	847	1208	636	3015		
351	818	1255	750			
1.083	0.966	1.039	1.179			
8%	4%	4%	15%			

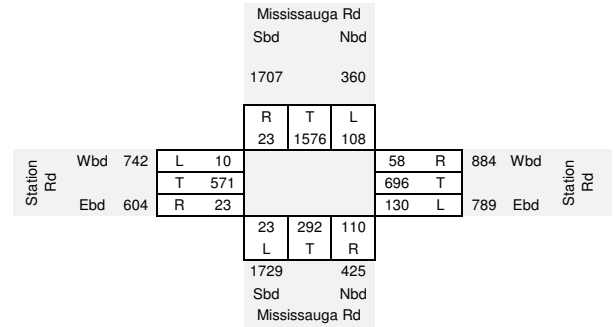
0	59	1140	28	1227	1182	0.963	4%
43	0	77	692	813	701	0.863	16%
288	65	0	30	383	359	0.936	7%
20	694	37	0	751	773	1.029	3%
351	818	1255	750	3174			
351	818	1255	750				
1.000	1.000	1.000	1.000				

0	57	1099	27	1182	1182	1.000
37	0	67	597	701	701	1.000
269	61	0	28	359	359	1.000
21	714	38	0	773	773	1.000
327	832	1204	652	3015		
351	818	1255	750			
1.072	0.983	1.043	1.150			
7%	2%	4%	13%			

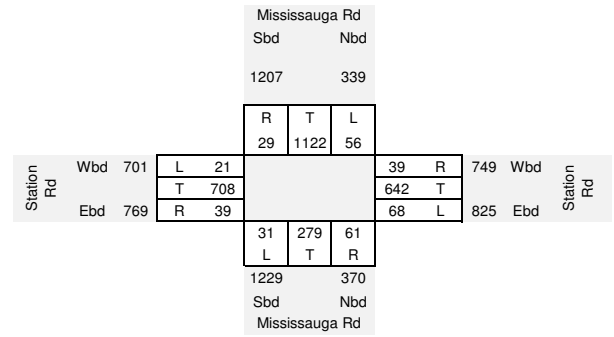
0	56	1145	31	1232	1182	0.959	4%
40	0	70	687	796	701	0.880	14%
289	60	0	33	382	359	0.941	6%
22	702	40	0	764	773	1.011	1%
351	818	1255	750	3174			
351	818	1255	750				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	56	1122	29	1207	1182	0.979
East	39	0	68	642	749	701	0.936
South	279	61	0	31	370	359	0.969
West	21	708	39	0	769	773	1.006
Total	339	825	1229	701	3095		
Target	351	818	1255	750			
	1.035	0.992	1.021	1.070			
	3%	1%	2%	7%			

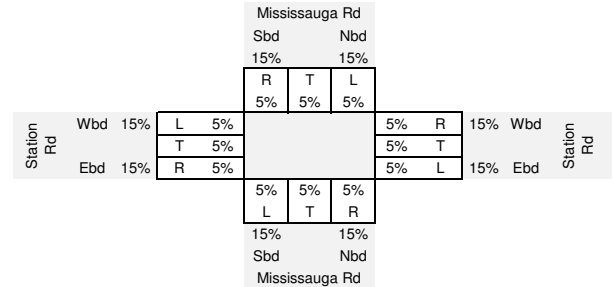
2021 AM



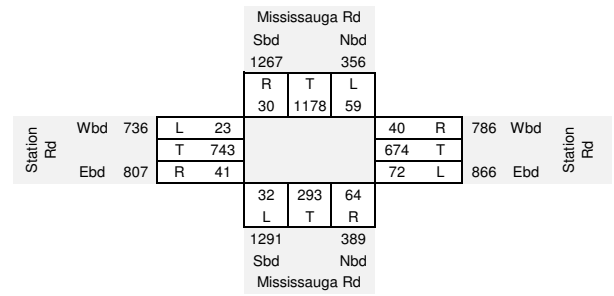
Forecasted 2031 AM (Auto)



Heavy Truck%



Forecasted 2031 AM



Station Road at James Potter Road - AM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	244	694	318	1256	1253	0.998
East	99	0	339	155	593	545	0.919
South	275	332	0	432	1039	932	0.897
West	140	169	481	0	790	818	1.035
Total	514	745	1514	905	3678		
Target	600	614	1678	726		3583	
	1.167	0.824	1.108	0.802			

0	243	692	317	1253	1253	1.000
91	0	312	142	545	545	1.000
247	298	0	388	932	932	1.000
145	175	498	0	818	818	1.000
483	716	1502	847	3548		
600	614	1678	726			
1.243	0.857	1.117	0.857			
20%	17%	10%	17%			

0	209	773	272	1254	1253	0.999	0%
113	0	348	122	583	545	0.934	7%
307	255	0	332	894	932	1.042	4%
180	150	556	0	887	818	0.923	8%
600	614	1678	726	3618			
600	614	1678	726				
1.000	1.000	1.000	1.000				

0	209	773	272	1253	1253	1.000
106	0	325	114	545	545	1.000
320	266	0	346	932	932	1.000
166	138	513	0	818	818	1.000
592	613	1611	732	3548		
600	614	1678	726			
1.014	1.002	1.041	0.992			
1%	0%	4%	1%			

0	209	805	269	1283	1253	0.977	2%
107	0	339	113	559	545	0.975	3%
324	267	0	343	934	932	0.998	0%
169	139	535	0	842	818	0.972	3%
600	614	1678	726	3618			
600	614	1678	726				
1.000	1.000	1.000	1.000				

0	204	786	263	1253	1253	1.000
104	0	330	110	545	545	1.000
323	266	0	343	932	932	1.000
164	135	519	0	818	818	1.000
592	605	1636	716	3548		
600	614	1678	726			
1.014	1.016	1.026	1.014			
1%	2%	3%	1%			

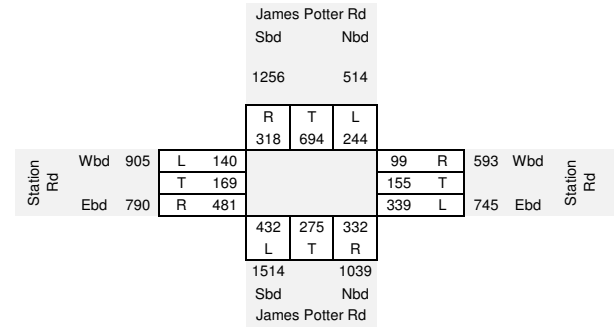
0	207	806	267	1280	1253	0.979	2%
106	0	339	112	557	545	0.979	2%
328	270	0	347	945	932	0.986	1%
166	137	533	0	836	818	0.979	2%
600	614	1678	726	3618			
600	614	1678	726				
1.000	1.000	1.000	1.000				

0	203	789	261	1253	1253	1.000
104	0	332	110	545	545	1.000
323	266	0	342	932	932	1.000
163	134	522	0	818	818	1.000
590	603	1642	713	3548		
600	614	1678	726			
1.018	1.018	1.022	1.018			
2%	2%	2%	2%			

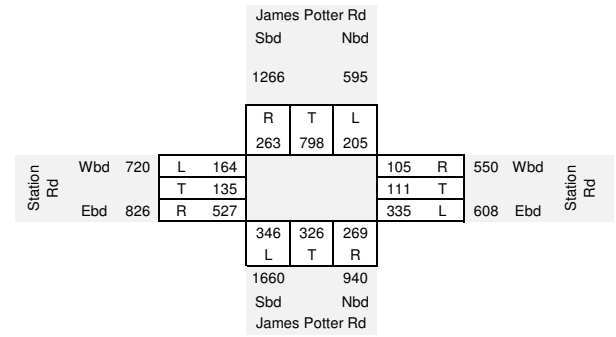
0	206	806	266	1279	1253	0.980	2%
106	0	339	112	556	545	0.980	2%
329	271	0	349	949	932	0.982	2%
165	136	533	0	835	818	0.980	2%
600	614	1678	726	3618			
600	614	1678	726				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	205	798	263	1266	1253	0.990	1%
East	105	0	335	111	550	545	0.990	1%
South	326	269	0	346	940	932	0.991	1%
West	164	135	527	0	826	818	0.990	1%
Total	595	608	1660	720	3583			
Target	600	614	1678	726				
	1.009	1.009	1.011	1.009				
	1%	1%	1%	1%				

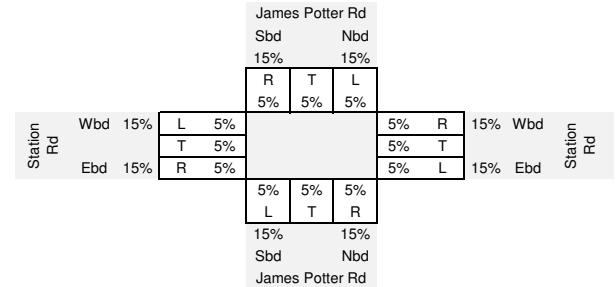
2021 AM



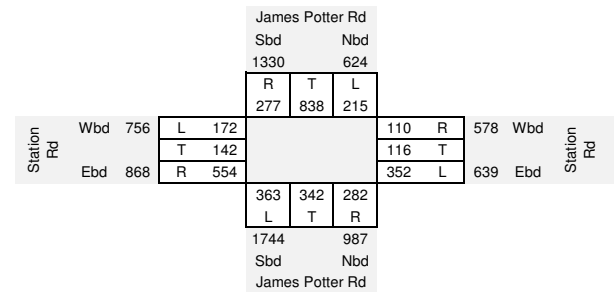
Forecasted 2031 AM (Auto)



Heavy Truck%



Forecasted 2031 AM





# APPENDIX F-4

**2021 PM**

---



**Bovaird Road at Heritage Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	37	6	44	390	8.864
East	12	0	141	830	983	964	0.981
South	305	251	0	156	712	721	1.013
West	10	606	17	0	633	968	1.529
Total	327	858	195	992	2372		
Target	532	973	439	1095		3041	
	1.627	1.134	2.251	1.104			

0	9	328	53	390	390	1.000
12	0	138	814	964	964	1.000
309	254	0	158	721	721	1.000
15	927	26	0	968	968	1.000
<b>336</b>	<b>1190</b>	<b>492</b>	<b>1025</b>	<b>3043</b>		
532	973	439	1095			
1.584	0.818	0.892	1.068			
37%	22%	12%	6%			

0	7	292	57	357	390	1.094	9%
19	0	123	869	1011	964	0.953	5%
489	208	0	169	866	721	0.833	20%
24	758	23	0	805	968	1.202	17%
<b>532</b>	<b>973</b>	<b>439</b>	<b>1095</b>	<b>3039</b>			
532	973	439	1095				
1.000	1.000	1.000	1.000				

0	8	320	62	390	390	1.000	
18	0	118	829	964	964	1.000	
407	173	0	141	721	721	1.000	
29	911	28	0	968	968	1.000	
<b>454</b>	<b>1092</b>	<b>465</b>	<b>1031</b>	<b>3043</b>			
532	973	439	1095				
1.171	0.891	0.943	1.062				
15%	12%	6%	6%				

0	7	302	66	375	390	1.040	4%
21	0	111	880	1012	964	0.953	5%
477	154	0	149	781	721	0.924	8%
34	812	26	0	872	968	1.110	10%
<b>532</b>	<b>973</b>	<b>439</b>	<b>1095</b>	<b>3039</b>			
532	973	439	1095				
1.000	1.000	1.000	1.000				

0	7	314	69	390	390	1.000	
20	0	106	838	964	964	1.000	
441	142	0	138	721	721	1.000	
38	901	29	0	968	968	1.000	
<b>498</b>	<b>1051</b>	<b>449</b>	<b>1045</b>	<b>3043</b>			
532	973	439	1095				
1.067	0.926	0.978	1.048				
6%	8%	2%	5%				

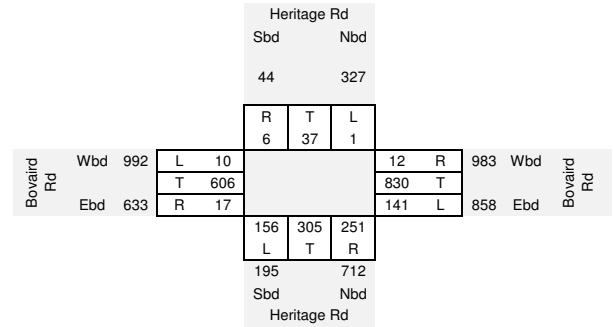
0	7	307	72	386	390	1.011	1%
21	0	103	879	1003	964	0.961	4%
470	132	0	144	747	721	0.965	4%
40	834	29	0	903	968	1.072	7%
<b>532</b>	<b>973</b>	<b>439</b>	<b>1095</b>	<b>3039</b>			
532	973	439	1095				
1.000	1.000	1.000	1.000				

0	7	310	73	390	390	1.000	
20	0	99	844	964	964	1.000	
454	127	0	139	721	721	1.000	
43	894	31	0	968	968	1.000	
<b>518</b>	<b>1028</b>	<b>440</b>	<b>1056</b>	<b>3043</b>			
532	973	439	1095				
1.027	0.946	0.997	1.036				
3%	6%	0%	4%				

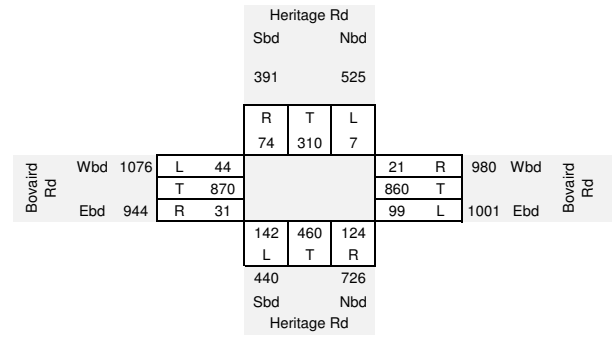
0	7	309	75	391	390	0.997	0%
21	0	99	875	995	964	0.969	3%
467	121	0	145	732	721	0.985	1%
44	846	30	0	921	968	1.051	5%
<b>532</b>	<b>973</b>	<b>439</b>	<b>1095</b>	<b>3039</b>			
532	973	439	1095				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	7	310	74	391	390	0.998	0%
East	21	0	99	860	980	964	0.984	2%
South	460	124	0	142	726	721	0.993	1%
West	44	870	31	0	944	968	1.025	2%
Total	525	1001	440	1076	3041			
Target	532	973	439	1095				
	1.013	0.972	0.998	1.018				
	1%	3%	0%	2%				

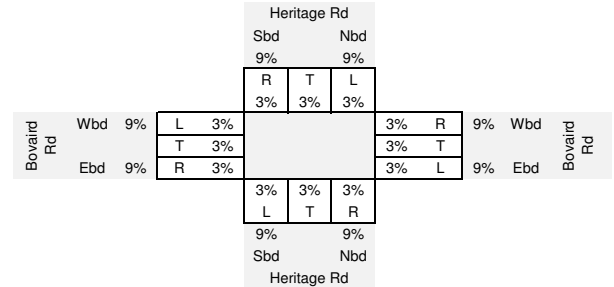
**Existing PM**



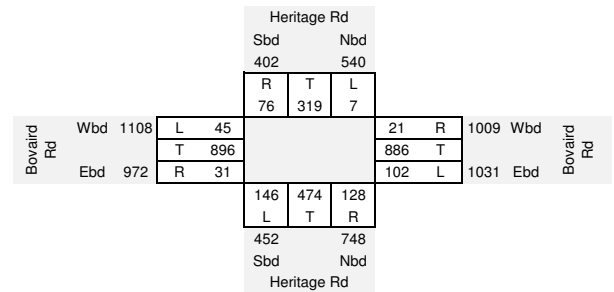
**Forecasted 2021 PM (Auto)**



**Heavy Truck%**



**Forecasted 2021 PM**



**Bovaird Road at Mississauga Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	17	136	21	<b>174</b>	928	5.333
East	76	0	201	663	<b>940</b>	1742	1.853
South	310	239	0	123	<b>672</b>	2322	3.455
West	30	781	64	0	<b>875</b>	990	1.131
Total	<b>416</b>	<b>1037</b>	<b>401</b>	<b>807</b>	<b>2661</b>		
Target	1789	1733	1292	788		5792	
	4.300	1.671	3.222	0.976			

0	91	725	112	<b>928</b>	928	1.000
141	0	372	1229	<b>1742</b>	1742	1.000
1071	826	0	425	<b>2322</b>	2322	1.000
34	884	72	0	<b>990</b>	990	1.000
<b>1246</b>	<b>1800</b>	<b>1170</b>	<b>1766</b>	<b>5982</b>		
1789	1733	1292	788			
1.436	0.963	1.104	0.446			
30%	4%	9%	####			

0	87	801	50	<b>938</b>	928	0.989	1%
202	0	411	548	<b>1162</b>	1742	1.499	33%
1538	795	0	190	<b>2523</b>	2322	0.920	9%
49	851	80	0	<b>979</b>	990	1.011	1%
<b>1789</b>	<b>1733</b>	<b>1292</b>	<b>788</b>	<b>5602</b>			
1789	1733	1292	788				
1.000	1.000	1.000	1.000				

0	86	792	49	<b>928</b>	928	1.000	
303	0	617	822	<b>1742</b>	1742	1.000	
1416	732	0	175	<b>2322</b>	2322	1.000	
49	860	81	0	<b>990</b>	990	1.000	
<b>1768</b>	<b>1678</b>	<b>1490</b>	<b>1046</b>	<b>5982</b>			
1789	1733	1292	788				
1.012	1.033	0.867	0.753				
1%	3%	15%	33%				

0	89	687	37	<b>814</b>	928	1.141	12%
307	0	535	619	<b>1461</b>	1742	1.192	16%
1432	756	0	131	<b>2320</b>	2322	1.001	0%
50	888	70	0	<b>1008</b>	990	0.982	2%
<b>1789</b>	<b>1733</b>	<b>1292</b>	<b>788</b>	<b>5602</b>			
1789	1733	1292	788				
1.000	1.000	1.000	1.000				

0	102	784	42	<b>928</b>	928	1.000	
366	0	638	738	<b>1742</b>	1742	1.000	
1434	757	0	132	<b>2322</b>	2322	1.000	
49	872	69	0	<b>990</b>	990	1.000	
<b>1849</b>	<b>1730</b>	<b>1490</b>	<b>913</b>	<b>5982</b>			
1789	1733	1292	788				
0.968	1.001	0.867	0.864				
3%	0%	15%	16%				

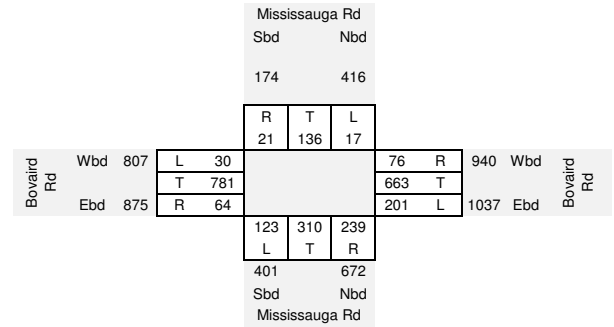
0	102	679	37	<b>818</b>	928	1.134	12%
354	0	553	638	<b>1545</b>	1742	1.128	11%
1388	758	0	114	<b>2259</b>	2322	1.028	3%
47	873	60	0	<b>981</b>	990	1.010	1%
<b>1789</b>	<b>1733</b>	<b>1292</b>	<b>788</b>	<b>5602</b>			
1789	1733	1292	788				
1.000	1.000	1.000	1.000				

0	116	771	42	<b>928</b>	928	1.000	
399	0	624	719	<b>1742</b>	1742	1.000	
1426	779	0	117	<b>2322</b>	2322	1.000	
48	882	60	0	<b>990</b>	990	1.000	
<b>1873</b>	<b>1776</b>	<b>1455</b>	<b>878</b>	<b>5982</b>			
1789	1733	1292	788				
0.955	0.976	0.888	0.898				
5%	2%	13%	11%				

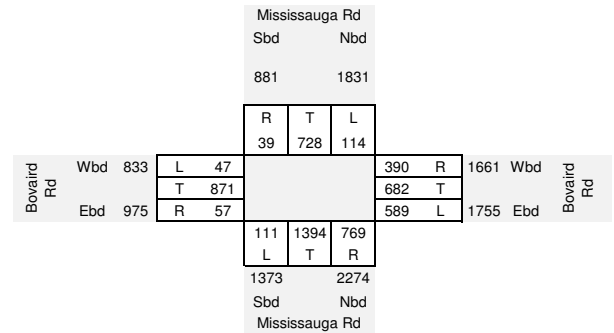
0	113	685	37	<b>835</b>	928	1.112	10%
381	0	554	646	<b>1581</b>	1742	1.102	9%
1362	760	0	105	<b>2227</b>	2322	1.043	4%
46	860	54	0	<b>960</b>	990	1.032	3%
<b>1789</b>	<b>1733</b>	<b>1292</b>	<b>788</b>	<b>5602</b>			
1789	1733	1292	788				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	114	728	39	<b>881</b>	928	1.053	5%
East	390	0	589	682	<b>1661</b>	1742	1.048	5%
South	1394	769	0	111	<b>2274</b>	2322	1.021	2%
West	47	871	57	0	<b>975</b>	990	1.016	2%
Total	<b>1831</b>	<b>1755</b>	<b>1373</b>	<b>833</b>	<b>5792</b>			
Target	1789	1733	1292	788				
	0.977	0.988	0.941	0.946				
	2%	1%	6%	6%				

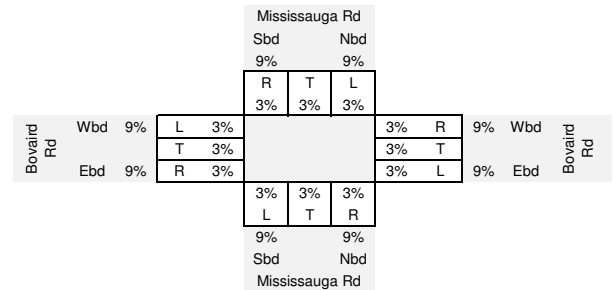
**Existing PM**



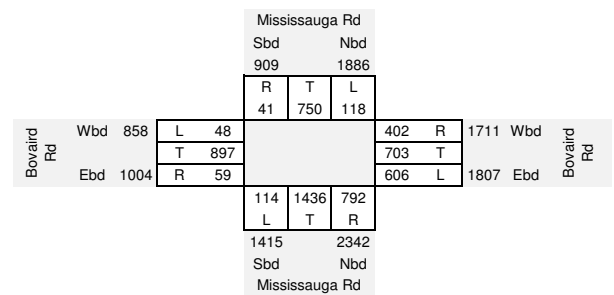
**Forecasted 2021 PM (Auto)**



**Heavy Truck%**



**Forecasted 2021 PM**





**Bovaird Road at James Potter Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	1	1	3	1058	#####
East	1	0	1	915	917	1512	1.649
South	1	1	0	1	3	862	#####
West	1	1037	1	0	1039	1758	1.692
<b>Total</b>	<b>3</b>	<b>1039</b>	<b>3</b>	<b>917</b>	<b>1962</b>		
Target	1350	1356	757	1907		5280	
	####	1.305	#####	2.080			

0	353	353	353	<b>1058</b>	1058	1.000
2	0	2	1509	<b>1512</b>	1512	1.000
287	287	0	287	<b>862</b>	862	1.000
2	1755	2	0	<b>1758</b>	1758	1.000
<b>291</b>	<b>2395</b>	<b>356</b>	<b>2149</b>	<b>5190</b>		
1350	1356	757	1907			
4.644	0.566	2.126	0.888			
78%	77%	53%	13%			

0	200	750	313	<b>1263</b>	1058	0.838	19%
8	0	4	1339	<b>1350</b>	1512	1.120	11%
1334	163	0	255	<b>1752</b>	862	0.492	#####
8	994	4	0	<b>1005</b>	1758	1.749	43%
<b>1350</b>	<b>1356</b>	<b>757</b>	<b>1907</b>	<b>5370</b>			
1350	1356	757	1907				
1.000	1.000	1.000	1.000				

0	167	628	262	<b>1058</b>	1058	1.000	
9	0	4	1499	<b>1512</b>	1512	1.000	
657	80	0	125	<b>862</b>	862	1.000	
14	1738	6	0	<b>1758</b>	1758	1.000	
<b>679</b>	<b>1985</b>	<b>639</b>	<b>1887</b>	<b>5190</b>			
1350	1356	757	1907				
1.989	0.683	1.185	1.010				
50%	46%	16%	1%				

0	114	745	265	<b>1124</b>	1058	0.941	6%
17	0	5	1515	<b>1537</b>	1512	0.984	2%
1306	55	0	127	<b>1487</b>	862	0.580	73%
27	1187	7	0	<b>1222</b>	1758	1.439	30%
<b>1350</b>	<b>1356</b>	<b>757</b>	<b>1907</b>	<b>5370</b>			
1350	1356	757	1907				
1.000	1.000	1.000	1.000				

0	108	701	249	<b>1058</b>	1058	1.000	
17	0	5	1491	<b>1512</b>	1512	1.000	
757	32	0	73	<b>862</b>	862	1.000	
39	1708	11	0	<b>1758</b>	1758	1.000	
<b>813</b>	<b>1847</b>	<b>716</b>	<b>1814</b>	<b>5190</b>			
1350	1356	757	1907				
1.661	0.734	1.057	1.052				
40%	36%	5%	5%				

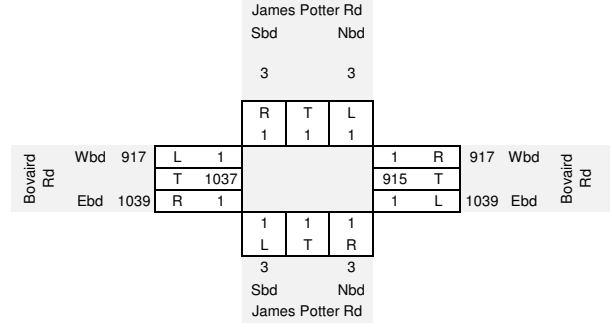
0	79	741	262	<b>1082</b>	1058	0.978	2%
28	0	5	1567	<b>1600</b>	1512	0.945	6%
1257	23	0	77	<b>1357</b>	862	0.635	57%
65	1254	11	0	<b>1330</b>	1758	1.321	24%
<b>1350</b>	<b>1356</b>	<b>757</b>	<b>1907</b>	<b>5370</b>			
1350	1356	757	1907				
1.000	1.000	1.000	1.000				

0	77	724	256	<b>1058</b>	1058	1.000	
26	0	5	1481	<b>1512</b>	1512	1.000	
798	15	0	49	<b>862</b>	862	1.000	
86	1657	15	0	<b>1758</b>	1758	1.000	
<b>911</b>	<b>1749</b>	<b>744</b>	<b>1787</b>	<b>5190</b>			
1350	1356	757	1907				
1.482	0.775	1.018	1.067				
33%	29%	2%	6%				

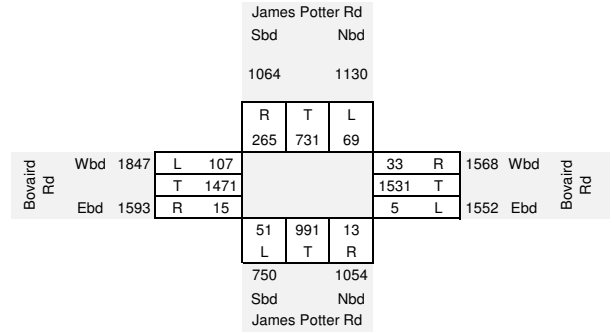
0	60	737	274	<b>1071</b>	1058	0.988	1%
39	0	5	1581	<b>1625</b>	1512	0.931	7%
1183	11	0	52	<b>1247</b>	862	0.691	45%
128	1285	15	0	<b>1428</b>	1758	1.231	19%
<b>1350</b>	<b>1356</b>	<b>757</b>	<b>1907</b>	<b>5370</b>			
1350	1356	757	1907				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	69	731	265	<b>1064</b>	1058	0.994	1%
East	33	0	5	1531	<b>1568</b>	1512	0.964	4%
South	991	13	0	51	<b>1054</b>	862	0.817	22%
West	107	1471	15	0	<b>1593</b>	1758	1.104	9%
<b>Total</b>	<b>1130</b>	<b>1552</b>	<b>750</b>	<b>1847</b>	<b>5280</b>			
Target	1350	1356	757	1907				
	1.194	0.874	1.009	1.033				
	16%	14%	1%	3%				

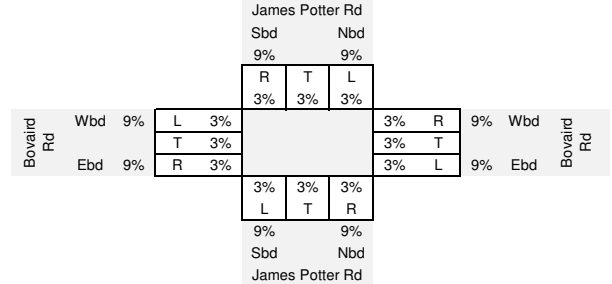
**Existing PM**



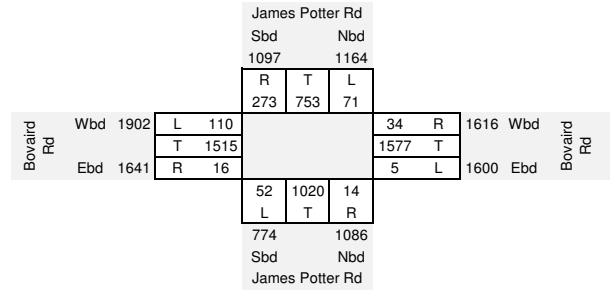
**Forecasted 2021 PM (Auto)**



**Heavy Truck%**



**Forecasted 2021 PM**



**Bovaird Road at Ashby Field Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	311	73	73	<b>457</b>	489	1.070
East	36	0	146	816	<b>998</b>	1512	1.515
South	20	100	0	26	<b>146</b>	146	1.000
West	12	932	32	0	<b>976</b>	1356	1.389
<b>Total</b>	<b>68</b>	<b>1343</b>	<b>251</b>	<b>915</b>	<b>2577</b>		
Target	107	1356	294	1512		3386	
	1.574	1.010	1.171	1.652			

0	333	78	78	<b>489</b>	489	1.000
55	0	221	1236	<b>1512</b>	1512	1.000
20	100	0	26	<b>146</b>	146	1.000
17	1295	44	0	<b>1356</b>	1356	1.000
<b>91</b>	<b>1728</b>	<b>344</b>	<b>1340</b>	<b>3503</b>		
107	1356	294	1512			
1.173	0.785	0.855	1.128			
15%	27%	17%	11%			

0	261	67	88	<b>416</b>	489	1.175	15%
64	0	189	1395	<b>1648</b>	1512	0.918	9%
23	78	0	29	<b>131</b>	146	1.112	10%
20	1016	38	0	<b>1074</b>	1356	1.263	21%
<b>107</b>	<b>1356</b>	<b>294</b>	<b>1512</b>	<b>3269</b>			
107	1356	294	1512				
1.000	1.000	1.000	1.000				

0	307	79	104	<b>489</b>	489	1.000
59	0	174	1280	<b>1512</b>	1512	1.000
26	87	0	33	<b>146</b>	146	1.000
25	1283	48	0	<b>1356</b>	1356	1.000
<b>109</b>	<b>1678</b>	<b>300</b>	<b>1416</b>	<b>3503</b>		
107	1356	294	1512			
0.977	0.808	0.980	1.068			
2%	24%	2%	6%			

0	248	77	111	<b>436</b>	489	1.123	11%
57	0	170	1367	<b>1594</b>	1512	0.949	5%
25	71	0	35	<b>131</b>	146	1.115	10%
24	1037	47	0	<b>1108</b>	1356	1.223	18%
<b>107</b>	<b>1356</b>	<b>294</b>	<b>1512</b>	<b>3269</b>			
107	1356	294	1512				
1.000	1.000	1.000	1.000				

0	279	86	124	<b>489</b>	489	1.000
54	0	161	1296	<b>1512</b>	1512	1.000
28	79	0	39	<b>146</b>	146	1.000
30	1269	58	0	<b>1356</b>	1356	1.000
<b>112</b>	<b>1626</b>	<b>305</b>	<b>1459</b>	<b>3503</b>		
107	1356	294	1512			
0.952	0.834	0.963	1.036			
5%	20%	4%	3%			

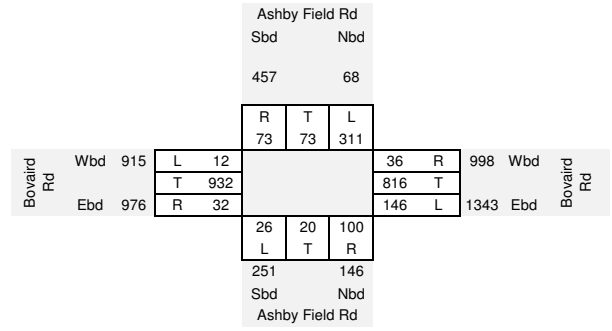
0	232	83	129	<b>444</b>	489	1.101	9%
52	0	155	1343	<b>1550</b>	1512	0.975	3%
27	66	0	40	<b>133</b>	146	1.098	9%
28	1058	55	0	<b>1142</b>	1356	1.188	16%
<b>107</b>	<b>1356</b>	<b>294</b>	<b>1512</b>	<b>3269</b>			
107	1356	294	1512				
1.000	1.000	1.000	1.000				

0	256	92	142	<b>489</b>	489	1.000
51	0	152	1310	<b>1512</b>	1512	1.000
30	72	0	44	<b>146</b>	146	1.000
33	1257	66	0	<b>1356</b>	1356	1.000
<b>114</b>	<b>1585</b>	<b>309</b>	<b>1496</b>	<b>3503</b>		
107	1356	294	1512			
0.941	0.856	0.952	1.011			
6%	17%	5%	1%			

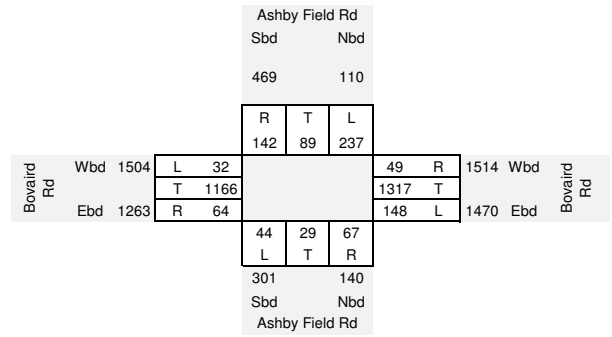
0	219	87	143	<b>449</b>	489	1.089	8%
48	0	144	1324	<b>1516</b>	1512	0.997	0%
28	62	0	45	<b>134</b>	146	1.087	8%
31	1075	63	0	<b>1170</b>	1356	1.159	14%
<b>107</b>	<b>1356</b>	<b>294</b>	<b>1512</b>	<b>3269</b>			
107	1356	294	1512				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	237	89	142	<b>469</b>	489	1.042	4%
East	49	0	148	1317	<b>1514</b>	1512	0.999	0%
South	29	67	0	44	<b>140</b>	146	1.042	4%
West	32	1166	64	0	<b>1263</b>	1356	1.074	7%
<b>Total</b>	<b>110</b>	<b>1470</b>	<b>301</b>	<b>1504</b>	<b>3386</b>			
Target	107	1356	294	1512				
	0.970	0.922	0.975	1.005				
	3%	8%	3%	1%				

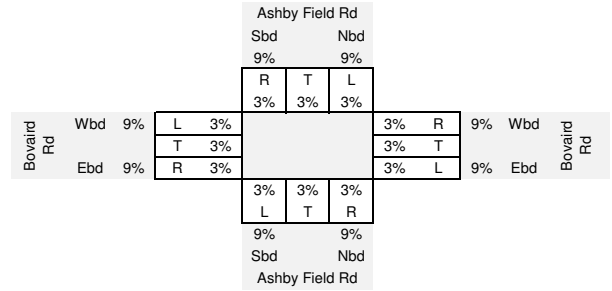
**Existing PM**



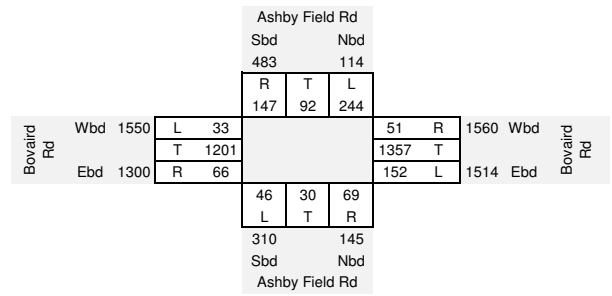
**Forecasted 2021 PM (Auto)**



**Heavy Truck%**



**Forecasted 2021 PM**



**Station Road at Heritage Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	44	1	<b>46</b>	348	7.565
East	1	0	1	1	<b>3</b>	287	95.667
South	327	1	0	1	<b>329</b>	498	1.514
West	1	1	1	0	<b>3</b>	3	1.000
Total	<b>329</b>	<b>3</b>	<b>46</b>	<b>3</b>	<b>381</b>		
Target	605	197	333	3		1137	
	1.839	65.667	7.239	1.000			

0	8	333	8	<b>348</b>	348	1.000
96	0	96	96	<b>287</b>	287	1.000
495	2	0	2	<b>498</b>	498	1.000
1	1	1	0	<b>3</b>	3	1.000
<b>592</b>	<b>10</b>	<b>430</b>	<b>105</b>	<b>1136</b>		
605	197	333	3			
1.023	19.546	0.775	0.029			
2%	95%	29%	####			

0	148	258	0	<b>406</b>	348	0.857	17%
98	0	74	3	<b>175</b>	287	1.643	39%
506	30	0	0	<b>536</b>	498	0.929	8%
1	20	1	0	<b>21</b>	3	0.141	####
<b>605</b>	<b>197</b>	<b>333</b>	<b>3</b>	<b>1138</b>			
605	197	333	3				
1.000	1.000	1.000	1.000				

0	127	221	0	<b>348</b>	348	1.000
161	0	122	5	<b>287</b>	287	1.000
470	27	0	0	<b>498</b>	498	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>631</b>	<b>157</b>	<b>343</b>	<b>5</b>	<b>1136</b>		
605	197	333	3			
0.958	1.255	0.971	0.635			
4%	20%	3%	58%			

0	159	215	0	<b>374</b>	348	0.931	7%
154	0	118	3	<b>275</b>	287	1.043	4%
451	35	0	0	<b>485</b>	498	1.026	3%
0	3	0	0	<b>4</b>	3	0.813	23%
<b>605</b>	<b>197</b>	<b>333</b>	<b>3</b>	<b>1138</b>			
605	197	333	3				
1.000	1.000	1.000	1.000				

0	148	200	0	<b>348</b>	348	1.000
161	0	123	3	<b>287</b>	287	1.000
463	35	0	0	<b>498</b>	498	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>623</b>	<b>186</b>	<b>323</b>	<b>3</b>	<b>1136</b>		
605	197	333	3			
0.971	1.058	1.030	0.963			
3%	5%	3%	4%			

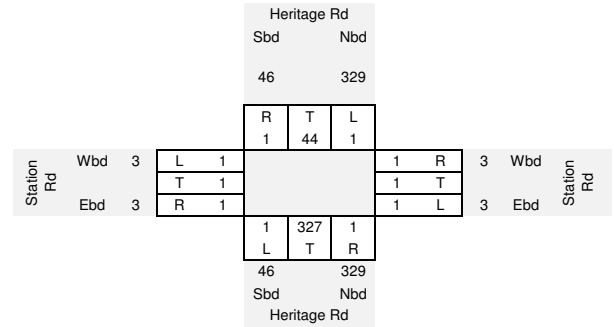
0	157	206	0	<b>363</b>	348	0.960	4%
156	0	127	3	<b>286</b>	287	1.004	0%
449	37	0	0	<b>486</b>	498	1.024	2%
0	3	0	0	<b>3</b>	3	0.949	5%
<b>605</b>	<b>197</b>	<b>333</b>	<b>3</b>	<b>1138</b>			
605	197	333	3				
1.000	1.000	1.000	1.000				

0	150	198	0	<b>348</b>	348	1.000
157	0	128	3	<b>287</b>	287	1.000
460	38	0	0	<b>498</b>	498	1.000
0	3	0	0	<b>3</b>	3	1.000
<b>616</b>	<b>191</b>	<b>325</b>	<b>3</b>	<b>1136</b>		
605	197	333	3			
0.982	1.029	1.024	0.997			
2%	3%	2%	0%			

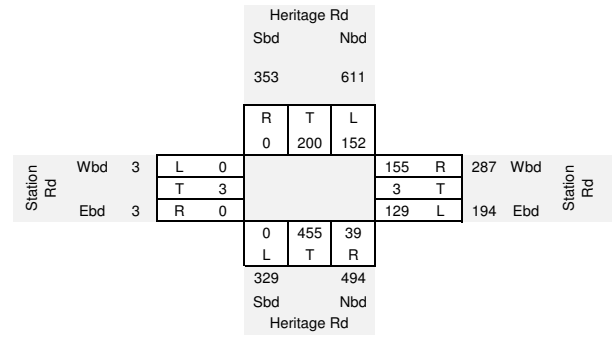
0	155	202	0	<b>357</b>	348	0.975	3%
154	0	131	3	<b>287</b>	287	0.999	0%
451	39	0	0	<b>491</b>	498	1.015	1%
0	3	0	0	<b>3</b>	3	0.974	3%
<b>605</b>	<b>197</b>	<b>333</b>	<b>3</b>	<b>1138</b>			
605	197	333	3				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	152	200	0	<b>353</b>	348	0.987	1%
East	155	0	129	3	<b>287</b>	287	1.000	0%
South	455	39	0	0	<b>494</b>	498	1.007	1%
West	0	3	0	0	<b>3</b>	3	0.987	1%
Total	<b>611</b>	<b>194</b>	<b>329</b>	<b>3</b>	<b>1137</b>			
Target	605	197	333	3				
	0.991	1.014	1.012	0.999				
	1%	1%	1%	0%				

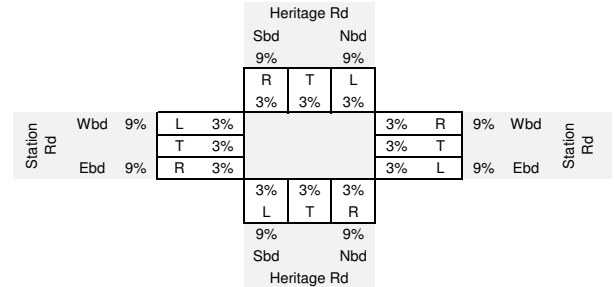
**Existing PM**



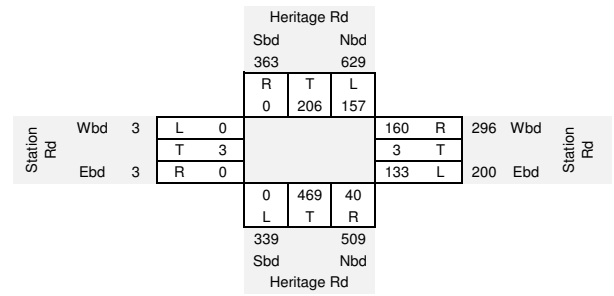
**Forecasted 2021 PM (Auto)**



**Heavy Truck%**



**Forecasted 2021 PM**



Station Road at Mississauga Road - PM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	174	1	176	595	3.381
East	1	0	1	1	3	880	#####
South	416	1	0	1	418	1526	3.651
West	1	1	1	0	3	744	#####
Total	418	3	176	3	600		
Target	1440	802	626	481		3547	
	3.445	#####	3.557	####			

0	3	588	3	595	595	1.000
293	0	293	293	880	880	1.000
1519	4	0	4	1526	1526	1.000
248	248	248	0	744	744	1.000
2060	255	1130	300	3745		
1440	802	626	481			
0.699	3.145	0.554	1.601			
43%	68%	80%	38%			

0	11	326	5	342	595	1.740	43%
205	0	163	470	837	880	1.051	5%
1062	11	0	6	1079	1526	1.414	29%
173	780	137	0	1091	744	0.682	47%
1440	802	626	481	3349			
1440	802	626	481				
1.000	1.000	1.000	1.000				

0	18	567	9	595	595	1.000
215	0	171	494	880	880	1.000
1501	16	0	8	1526	1526	1.000
118	532	94	0	744	744	1.000
1835	567	832	511	3745		
1440	802	626	481			
0.785	1.415	0.753	0.941			
27%	29%	33%	6%			

0	26	427	9	462	595	1.288	22%
169	0	129	464	762	880	1.155	13%
1178	23	0	8	1209	1526	1.262	21%
93	753	71	0	916	744	0.812	23%
1440	802	626	481	3349			
1440	802	626	481				
1.000	1.000	1.000	1.000				

0	34	550	11	595	595	1.000
195	0	148	536	880	880	1.000
1487	29	0	10	1526	1526	1.000
75	611	57	0	744	744	1.000
1758	674	756	557	3745		
1440	802	626	481			
0.819	1.190	0.828	0.863			
22%	16%	21%	16%			

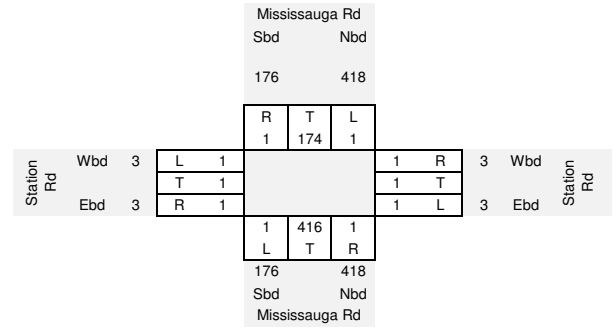
0	40	456	10	505	595	1.177	15%
160	0	123	463	746	880	1.180	15%
1218	35	0	8	1261	1526	1.210	17%
62	727	47	0	837	744	0.889	12%
1440	802	626	481	3349			
1440	802	626	481				
1.000	1.000	1.000	1.000				

0	47	536	12	595	595	1.000
189	0	145	546	880	880	1.000
1474	42	0	10	1526	1526	1.000
55	647	42	0	744	744	1.000
1718	736	724	568	3745		
1440	802	626	481			
0.838	1.090	0.865	0.847			
19%	8%	16%	18%			

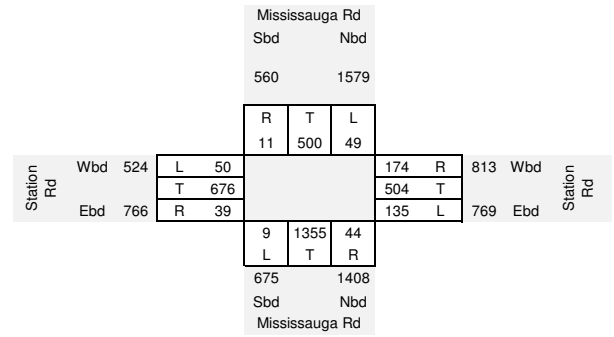
0	51	464	10	525	595	1.133	12%
158	0	126	463	746	880	1.179	15%
1236	46	0	9	1290	1526	1.183	15%
46	705	37	0	788	744	0.945	6%
1440	802	626	481	3349			
1440	802	626	481				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	49	500	11	560	595	1.062	6%
East	174	0	135	504	813	880	1.082	8%
South	1355	44	0	9	1408	1526	1.084	8%
West	50	676	39	0	766	744	0.972	3%
Total	1579	769	675	524	3547			
Target	1440	802	626	481				
	0.912	1.043	0.928	0.917				
	10%	4%	8%	9%				

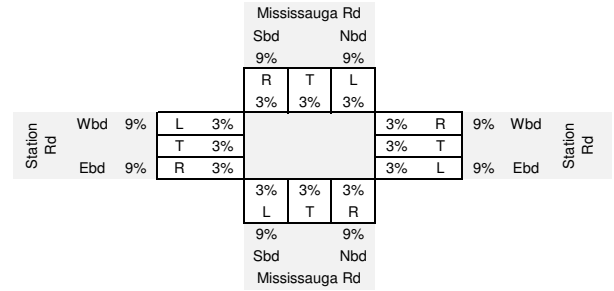
Existing PM



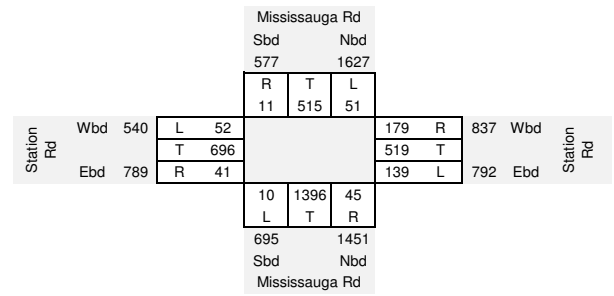
Forecasted 2021 PM (Auto)



Heavy Truck%



Forecasted 2021 PM



Station Road at James Potter Road - PM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	1	1	1	3	455	#####
East	1	0	1	1	3	660	#####
South	1	1	0	1	3	1350	#####
West	1	1	1	0	3	880	#####
<b>Total</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>12</b>		
Target	1275	602	1058	880		3580	
	####	#####	#####	####			

0	152	152	152	455	455	1.000
220	0	220	220	660	660	1.000
450	450	0	450	1350	1350	1.000
293	293	293	0	880	880	1.000
<b>963</b>	<b>895</b>	<b>665</b>	<b>822</b>	<b>3345</b>		
1275	602	1058	880			
1.324	0.673	1.591	1.071			
24%	49%	37%	7%			

0	102	241	162	506	455	0.900	11%
291	0	350	236	877	660	0.753	33%
596	303	0	482	1380	1350	0.978	2%
388	197	467	0	1052	880	0.836	20%
<b>1275</b>	<b>602</b>	<b>1058</b>	<b>880</b>	<b>3815</b>			
1275	602	1058	880				
1.000	1.000	1.000	1.000				

0	92	217	146	455	455	1.000
219	0	263	177	660	660	1.000
583	296	0	471	1350	1350	1.000
325	165	390	0	880	880	1.000
<b>1126</b>	<b>553</b>	<b>871</b>	<b>795</b>	<b>3345</b>		
1275	602	1058	880			
1.132	1.089	1.215	1.107			
12%	8%	18%	10%			

0	100	264	162	525	455	0.866	15%
248	0	320	196	765	660	0.863	16%
659	322	0	522	1504	1350	0.898	11%
368	180	474	0	1021	880	0.862	16%
<b>1275</b>	<b>602</b>	<b>1058</b>	<b>880</b>	<b>3815</b>			
1275	602	1058	880				
1.000	1.000	1.000	1.000				

0	87	228	140	455	455	1.000
214	0	276	170	660	660	1.000
592	289	0	469	1350	1350	1.000
317	155	409	0	880	880	1.000
<b>1123</b>	<b>531</b>	<b>913</b>	<b>778</b>	<b>3345</b>		
1275	602	1058	880			
1.136	1.134	1.159	1.131			
12%	12%	14%	12%			

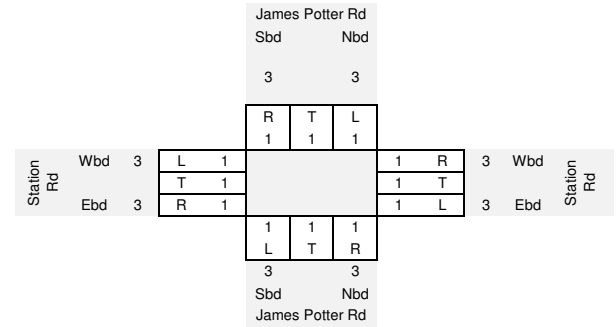
0	98	265	158	521	455	0.873	15%
243	0	320	192	755	660	0.874	14%
672	328	0	530	1530	1350	0.882	13%
360	176	473	0	1008	880	0.873	15%
<b>1275</b>	<b>602</b>	<b>1058</b>	<b>880</b>	<b>3815</b>			
1275	602	1058	880				
1.000	1.000	1.000	1.000				

0	86	231	138	455	455	1.000
213	0	280	168	660	660	1.000
593	290	0	467	1350	1350	1.000
314	153	413	0	880	880	1.000
<b>1119</b>	<b>528</b>	<b>924</b>	<b>773</b>	<b>3345</b>		
1275	602	1058	880			
1.139	1.139	1.145	1.138			
12%	12%	13%	12%			

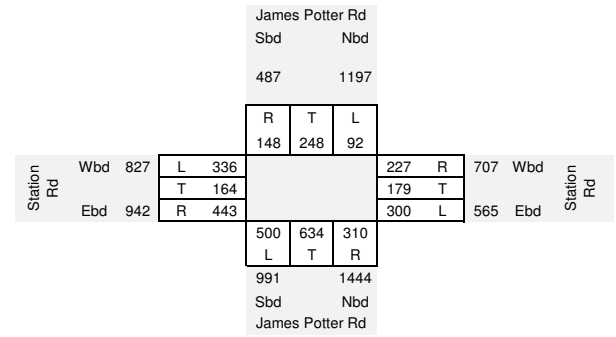
0	98	265	157	520	455	0.876	14%
242	0	320	191	753	660	0.876	14%
675	330	0	532	1537	1350	0.878	14%
357	175	473	0	1005	880	0.876	14%
<b>1275</b>	<b>602</b>	<b>1058</b>	<b>880</b>	<b>3815</b>			
1275	602	1058	880				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	92	248	148	487	455	0.934	7%
East	227	0	300	179	707	660	0.934	7%
South	634	310	0	500	1444	1350	0.935	7%
West	336	164	443	0	942	880	0.934	7%
<b>Total</b>	<b>1197</b>	<b>565</b>	<b>991</b>	<b>827</b>	<b>3580</b>			
Target	1275	602	1058	880				
	1.065	1.065	1.068	1.065				
	6%	6%	6%	6%				

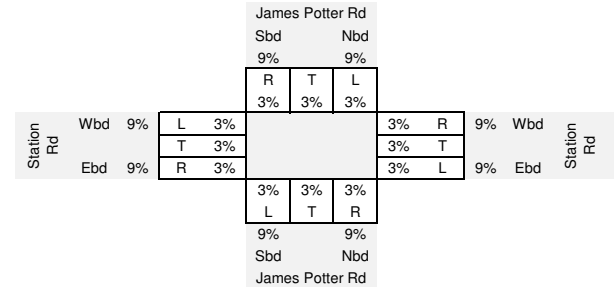
Existing PM



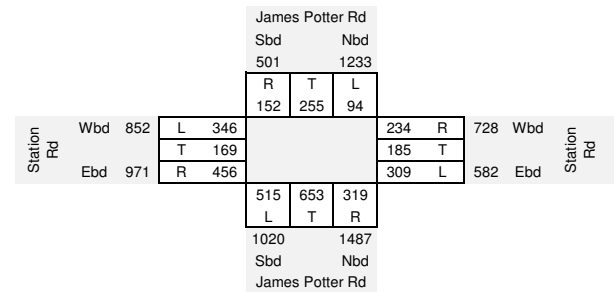
Forecasted 2021 PM (Auto)



Heavy Truck%



Forecasted 2021 PM





# APPENDIX F-5

**2031 PM**

---





**Bovaird Road at Heritage Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	7	319	76	<b>402</b>	537	1.336
East	21	0	102	886	<b>1009</b>	1217	1.206
South	474	128	0	146	<b>748</b>	887	1.186
West	45	896	31	0	<b>972</b>	751	0.773
Total	<b>540</b>	<b>1031</b>	<b>452</b>	<b>1108</b>	<b>3131</b>		
Target	848	1370	423	749		3391	
	1.570	1.329	0.936	0.676			

0	9	426	102	<b>537</b>	537	1.000
25	0	123	1069	<b>1217</b>	1217	1.000
562	152	0	173	<b>887</b>	887	1.000
35	692	24	0	<b>751</b>	751	1.000
<b>622</b>	<b>853</b>	<b>573</b>	<b>1343</b>	<b>3392</b>		
848	1370	423	749			
1.363	1.605	0.738	0.558			
27%	38%	35%	79%			

0	15	315	57	<b>386</b>	537	1.391	28%
35	0	91	596	<b>721</b>	1217	1.688	41%
766	244	0	97	<b>1106</b>	887	0.802	25%
47	1111	18	0	<b>1176</b>	751	0.638	57%
<b>848</b>	<b>1370</b>	<b>423</b>	<b>749</b>	<b>3390</b>			
848	1370	423	749				
1.000	1.000	1.000	1.000				

0	21	437	79	<b>537</b>	537	1.000
58	0	153	1006	<b>1217</b>	1217	1.000
614	195	0	77	<b>887</b>	887	1.000
30	709	11	0	<b>751</b>	751	1.000
<b>703</b>	<b>926</b>	<b>602</b>	<b>1162</b>	<b>3392</b>		
848	1370	423	749			
1.207	1.480	0.703	0.645			
17%	32%	42%	55%			

0	31	307	51	<b>389</b>	537	1.380	28%
70	0	108	648	<b>826</b>	1217	1.473	32%
741	289	0	50	<b>1080</b>	887	0.821	22%
37	1050	8	0	<b>1094</b>	751	0.686	46%
<b>848</b>	<b>1370</b>	<b>423</b>	<b>749</b>	<b>3390</b>			
848	1370	423	749				
1.000	1.000	1.000	1.000				

0	43	424	70	<b>537</b>	537	1.000
104	0	159	955	<b>1217</b>	1217	1.000
609	237	0	41	<b>887</b>	887	1.000
25	721	5	0	<b>751</b>	751	1.000
<b>737</b>	<b>1001</b>	<b>588</b>	<b>1066</b>	<b>3392</b>		
848	1370	423	749			
1.150	1.369	0.719	0.703			
13%	27%	39%	42%			

0	58	305	49	<b>413</b>	537	1.301	23%
119	0	114	671	<b>904</b>	1217	1.346	26%
700	325	0	29	<b>1054</b>	887	0.842	19%
29	987	4	0	<b>1019</b>	751	0.737	36%
<b>848</b>	<b>1370</b>	<b>423</b>	<b>749</b>	<b>3390</b>			
848	1370	423	749				
1.000	1.000	1.000	1.000				

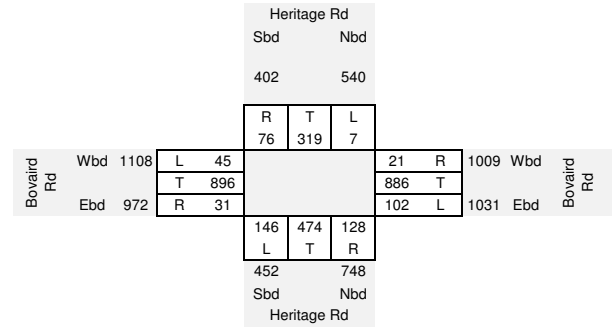
2021 AM F

0	76	397	64	<b>537</b>	537	1.000
160	0	153	903	<b>1217</b>	1217	1.000
589	274	0	24	<b>887</b>	887	1.000
21	727	3	0	<b>751</b>	751	1.000
<b>771</b>	<b>1076</b>	<b>553</b>	<b>991</b>	<b>3392</b>		
848	1370	423	749			
1.100	1.273	0.764	0.755			
9%	21%	31%	32%			

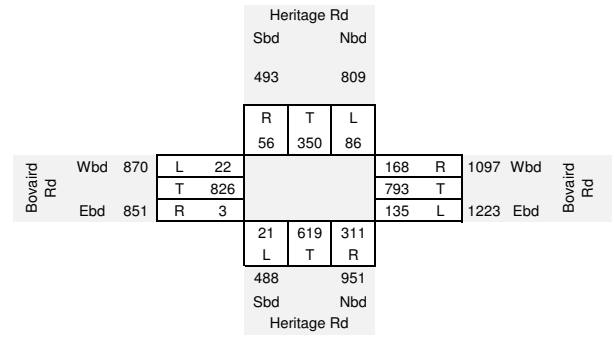
0	97	303	48	<b>449</b>	537	1.197	16%
176	0	117	682	<b>976</b>	1217	1.247	20%
648	348	0	18	<b>1015</b>	887	0.874	14%
23	925	2	0	<b>951</b>	751	0.790	27%
<b>848</b>	<b>1370</b>	<b>423</b>	<b>749</b>	<b>3390</b>			
848	1370	423	749				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	86	350	56	<b>493</b>	537	1.090	8%
East	168	0	135	793	<b>1097</b>	1217	1.110	10%
South	619	311	0	21	<b>951</b>	887	0.933	7%
West	22	826	3	0	<b>851</b>	751	0.883	13%
Total	<b>809</b>	<b>1223</b>	<b>488</b>	<b>870</b>	<b>3391</b>			
Target	848	1370	423	749				
	1.048	1.120	0.867	0.861				
	5%	11%	15%	16%				

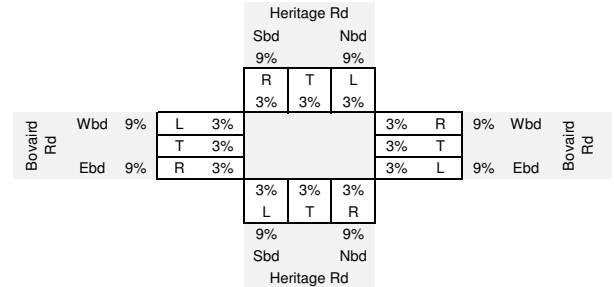
**2021 PM**



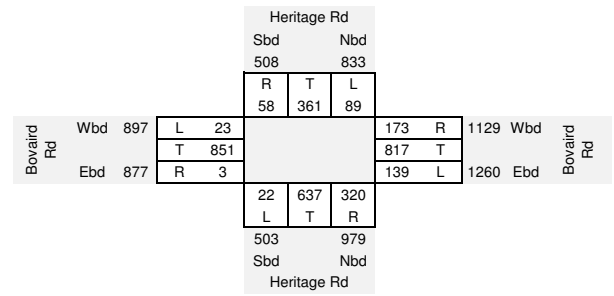
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Bovaird Road at Mississauga Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	118	750	41	909	747	0.822
East	402	0	506	803	1711	2453	1.434
South	1436	792	0	114	2342	2080	0.888
West	48	897	59	0	1004	2266	2.257
Total	1886	1807	1315	958	5966		
Target	1615	2191	1328	1856		7268	
	0.856	1.213	1.010	1.937			

0	97	616	34	747	747	1.000
576	0	725	1151	2453	2453	1.000
1275	703	0	101	2080	2080	1.000
108	2025	133	0	2266	2266	1.000
1960	2825	1475	1286	7546		
1615	2191	1328	1856			
0.824	0.776	0.900	1.443			
21%	29%	11%	31%			

0	75	555	49	679	747	1.101	9%
475	0	653	1661	2789	2453	0.879	14%
1051	546	0	146	1743	2080	1.194	16%
89	1570	120	0	1779	2266	1.273	21%
1615	2191	1328	1856	6990			
1615	2191	1328	1856				
1.000	1.000	1.000	1.000				

0	83	611	54	747	747	1.000
418	0	574	1461	2453	2453	1.000
1254	651	0	174	2080	2080	1.000
114	2000	153	0	2266	2266	1.000
1786	2734	1338	1689	7546		
1615	2191	1328	1856			
0.904	0.801	0.993	1.099			
11%	25%	1%	9%			

0	66	606	59	731	747	1.021	2%
378	0	570	1606	2553	2453	0.961	4%
1134	522	0	192	1848	2080	1.125	11%
103	1603	152	0	1857	2266	1.220	18%
1615	2191	1328	1856	6990			
1615	2191	1328	1856				
1.000	1.000	1.000	1.000				

0	68	619	60	747	747	1.000
363	0	548	1542	2453	2453	1.000
1277	587	0	216	2080	2080	1.000
125	1956	185	0	2266	2266	1.000
1765	2611	1352	1818	7546		
1615	2191	1328	1856			
0.915	0.839	0.982	1.021			
9%	19%	2%	2%			

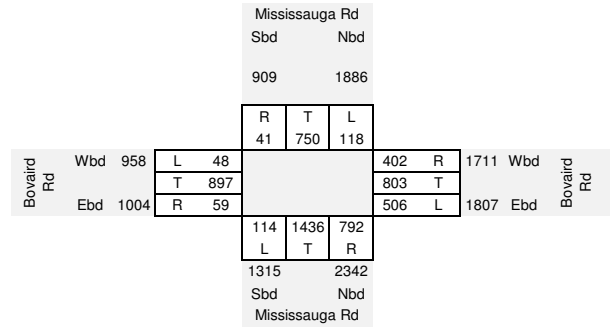
0	57	608	61	726	747	1.028	3%
332	0	538	1574	2445	2453	1.003	0%
1168	493	0	220	1881	2080	1.106	10%
115	1641	182	0	1938	2266	1.169	14%
1615	2191	1328	1856	6990			
1615	2191	1328	1856				
1.000	1.000	1.000	1.000				

0	58	625	63	747	747	1.000
333	0	540	1580	2453	2453	1.000
1292	545	0	243	2080	2080	1.000
134	1919	212	0	2266	2266	1.000
1759	2523	1378	1886	7546		
1615	2191	1328	1856			
0.918	0.868	0.964	0.984			
9%	15%	4%	2%			

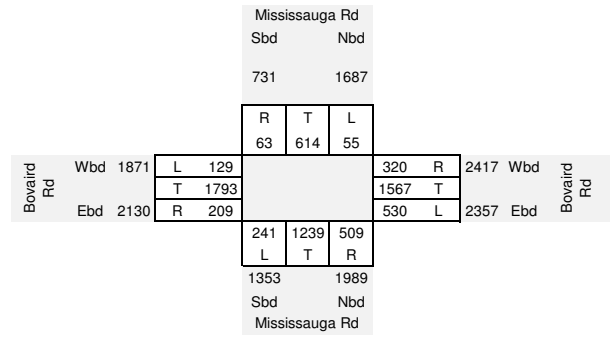
0	51	603	62	716	747	1.044	4%
306	0	520	1554	2381	2453	1.030	3%
1186	473	0	240	1899	2080	1.095	9%
123	1667	205	0	1995	2266	1.136	12%
1615	2191	1328	1856	6990			
1615	2191	1328	1856				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	55	614	63	731	747	1.021	2%
East	320	0	530	1567	2417	2453	1.015	1%
South	1239	509	0	241	1989	2080	1.046	4%
West	129	1793	209	0	2130	2266	1.064	6%
Total	1687	2357	1353	1871	7268			
Target	1615	2191	1328	1856				
	0.957	0.930	0.982	0.992				
	4%	8%	2%	1%				

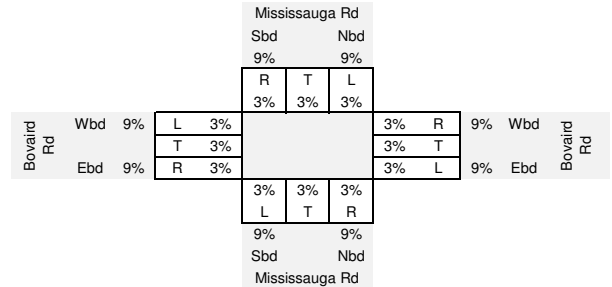
**2021 PM**



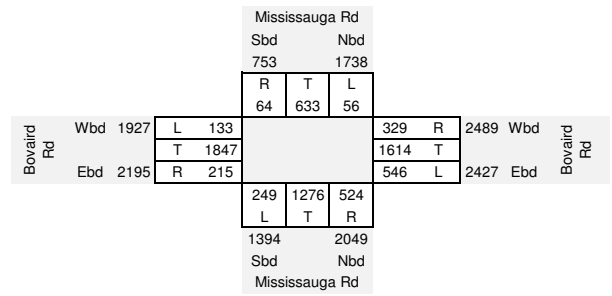
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Bovaird Road at James Potter Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	71	753	273	<b>1097</b>	932	0.850
East	34	0	5	1477	<b>1516</b>	1528	1.008
South	1020	14	0	52	<b>1086</b>	759	0.699
West	110	1615	16	0	<b>1741</b>	2171	1.247
Total	<b>1164</b>	<b>1700</b>	<b>774</b>	<b>1802</b>	<b>5440</b>		
Target	1678	1650	945	2691		6177	
	1.442	0.971	1.221	1.493			

0	60	640	232	<b>932</b>	932	1.000
34	0	5	1489	<b>1528</b>	1528	1.000
713	10	0	36	<b>759</b>	759	1.000
137	2014	20	0	<b>2171</b>	2171	1.000
<b>884</b>	<b>2084</b>	<b>665</b>	<b>1757</b>	<b>5390</b>		
1678	1650	945	2691			
1.898	0.792	1.422	1.532			
47%	26%	30%	35%			

0	48	909	355	<b>1312</b>	932	0.710	41%
65	0	7	2280	<b>2352</b>	1528	0.650	54%
1353	8	0	56	<b>1416</b>	759	0.536	87%
260	1594	28	0	<b>1883</b>	2171	1.153	13%
<b>1678</b>	<b>1650</b>	<b>945</b>	<b>2691</b>	<b>6964</b>			
1678	1650	945	2691				
1.000	1.000	1.000	1.000				

0	34	646	252	<b>932</b>	932	1.000	
42	0	5	1481	<b>1528</b>	1528	1.000	
725	4	0	30	<b>759</b>	759	1.000	
300	1838	33	0	<b>2171</b>	2171	1.000	
<b>1067</b>	<b>1876</b>	<b>683</b>	<b>1763</b>	<b>5390</b>			
1678	1650	945	2691				
1.572	0.879	1.383	1.526				
36%	14%	28%	34%				

0	30	893	385	<b>1308</b>	932	0.712	40%
66	0	6	2260	<b>2333</b>	1528	0.655	53%
1140	4	0	46	<b>1189</b>	759	0.638	57%
472	1617	45	0	<b>2134</b>	2171	1.018	2%
<b>1678</b>	<b>1650</b>	<b>945</b>	<b>2691</b>	<b>6964</b>			
1678	1650	945	2691				
1.000	1.000	1.000	1.000				

0	21	636	274	<b>932</b>	932	1.000	
43	0	4	1480	<b>1528</b>	1528	1.000	
728	2	0	29	<b>759</b>	759	1.000	
480	1645	46	0	<b>2171</b>	2171	1.000	
<b>1251</b>	<b>1669</b>	<b>687</b>	<b>1784</b>	<b>5390</b>			
1678	1650	945	2691				
1.341	0.989	1.376	1.509				
25%	1%	27%	34%				

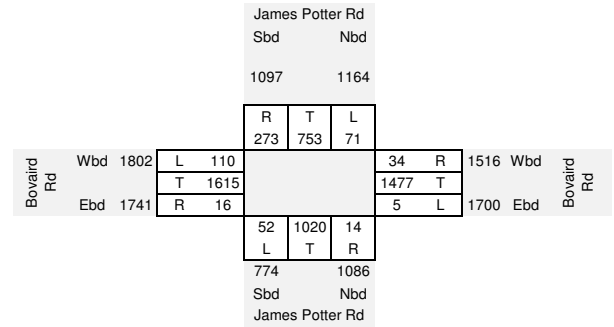
0	21	876	414	<b>1311</b>	932	0.711	41%
58	0	6	2233	<b>2297</b>	1528	0.665	50%
976	2	0	44	<b>1022</b>	759	0.743	35%
644	1627	63	0	<b>2334</b>	2171	0.930	8%
<b>1678</b>	<b>1650</b>	<b>945</b>	<b>2691</b>	<b>6964</b>			
1678	1650	945	2691				
1.000	1.000	1.000	1.000				

0	15	623	294	<b>932</b>	932	1.000	
39	0	4	1485	<b>1528</b>	1528	1.000	
725	2	0	33	<b>759</b>	759	1.000	
599	1513	59	0	<b>2171</b>	2171	1.000	
<b>1362</b>	<b>1530</b>	<b>686</b>	<b>1812</b>	<b>5390</b>			
1678	1650	945	2691				
1.232	1.079	1.378	1.485				
19%	7%	27%	33%				

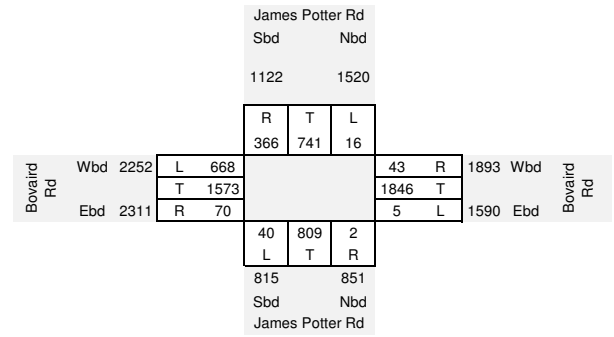
0	16	858	437	<b>1312</b>	932	0.711	41%
48	0	5	2206	<b>2259</b>	1528	0.676	48%
893	2	0	48	<b>943</b>	759	0.805	24%
738	1632	81	0	<b>2451</b>	2171	0.886	13%
<b>1678</b>	<b>1650</b>	<b>945</b>	<b>2691</b>	<b>6964</b>			
1678	1650	945	2691				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	16	741	366	<b>1122</b>	932	0.831	20%
East	43	0	5	1846	<b>1893</b>	1528	0.807	24%
South	809	2	0	40	<b>851</b>	759	0.892	12%
West	668	1573	70	0	<b>2311</b>	2171	0.939	6%
Total	<b>1520</b>	<b>1590</b>	<b>815</b>	<b>2252</b>	<b>6177</b>			
Target	1678	1650	945	2691				
	1.104	1.038	1.159	1.195				
	9%	4%	14%	16%				

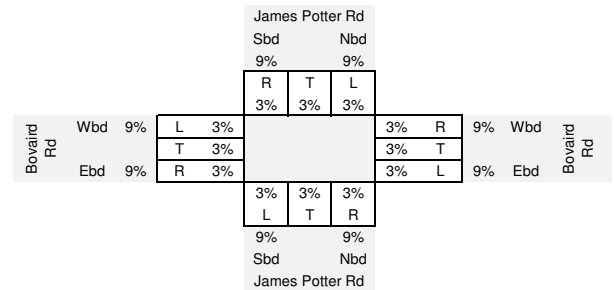
**2021 PM**



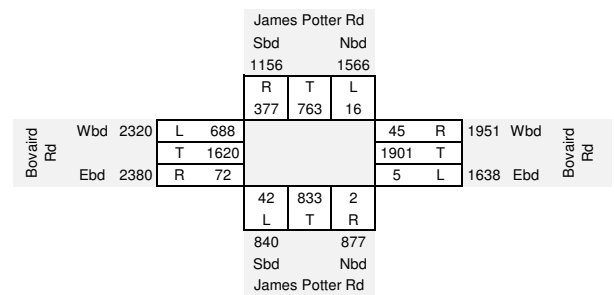
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Bovaird Road at Ashby Field Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	244	92	147	<b>483</b>	489	1.012
East	51	0	152	1357	<b>1560</b>	1528	0.979
South	30	69	0	46	<b>145</b>	146	1.007
West	33	1201	66	0	<b>1300</b>	1650	1.269
Total	<b>114</b>	<b>1514</b>	<b>310</b>	<b>1550</b>	<b>3488</b>		
Target	107	1650	294	1528		3696	
	0.939	1.090	0.948	0.986			

0	247	93	149	<b>489</b>	489	1.000
50	0	149	1329	<b>1528</b>	1528	1.000
30	69	0	46	<b>146</b>	146	1.000
42	1524	84	0	<b>1650</b>	1650	1.000
<b>122</b>	<b>1841</b>	<b>326</b>	<b>1524</b>	<b>3813</b>		
107	1650	294	1528			
0.877	0.896	0.902	1.002			
14%	12%	11%	0%			

0	221	84	149	<b>455</b>	489	1.076	7%
44	0	134	1332	<b>1511</b>	1528	1.012	1%
26	62	0	46	<b>135</b>	146	1.080	7%
37	1366	76	0	<b>1479</b>	1650	1.116	10%
<b>107</b>	<b>1650</b>	<b>294</b>	<b>1528</b>	<b>3579</b>			
107	1650	294	1528				
1.000	1.000	1.000	1.000				

0	238	90	160	<b>489</b>	489	1.000
44	0	136	1348	<b>1528</b>	1528	1.000
29	67	0	50	<b>146</b>	146	1.000
41	1525	84	0	<b>1650</b>	1650	1.000
<b>114</b>	<b>1830</b>	<b>311</b>	<b>1558</b>	<b>3813</b>		
107	1650	294	1528			
0.940	0.902	0.946	0.980			
6%	11%	6%	2%			

0	215	86	157	<b>458</b>	489	1.069	6%
42	0	129	1322	<b>1492</b>	1528	1.024	2%
27	61	0	49	<b>137</b>	146	1.068	6%
39	1375	80	0	<b>1493</b>	1650	1.105	10%
<b>107</b>	<b>1650</b>	<b>294</b>	<b>1528</b>	<b>3579</b>			
107	1650	294	1528				
1.000	1.000	1.000	1.000				

0	229	91	168	<b>489</b>	489	1.000
43	0	132	1354	<b>1528</b>	1528	1.000
29	65	0	53	<b>146</b>	146	1.000
43	1519	88	0	<b>1650</b>	1650	1.000
<b>114</b>	<b>1813</b>	<b>311</b>	<b>1574</b>	<b>3813</b>		
107	1650	294	1528			
0.939	0.910	0.944	0.971			
6%	10%	6%	3%			

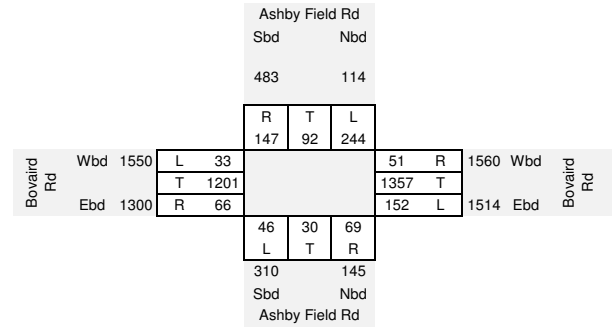
0	209	86	163	<b>458</b>	489	1.067	6%
40	0	124	1314	<b>1478</b>	1528	1.034	3%
27	59	0	51	<b>137</b>	146	1.067	6%
40	1382	83	0	<b>1506</b>	1650	1.096	9%
<b>107</b>	<b>1650</b>	<b>294</b>	<b>1528</b>	<b>3579</b>			
107	1650	294	1528				
1.000	1.000	1.000	1.000				

0	223	92	174	<b>489</b>	489	1.000
41	0	129	1358	<b>1528</b>	1528	1.000
29	63	0	54	<b>146</b>	146	1.000
44	1515	91	0	<b>1650</b>	1650	1.000
<b>114</b>	<b>1801</b>	<b>312</b>	<b>1587</b>	<b>3813</b>		
107	1650	294	1528			
0.939	0.916	0.942	0.963			
7%	9%	6%	4%			

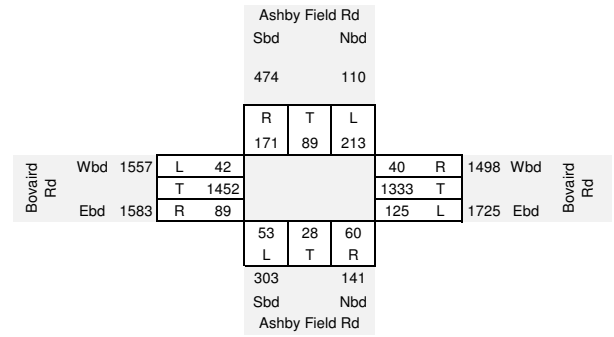
0	204	87	168	<b>459</b>	489	1.066	6%
39	0	121	1308	<b>1468</b>	1528	1.041	4%
27	58	0	52	<b>137</b>	146	1.066	6%
41	1388	86	0	<b>1515</b>	1650	1.089	8%
<b>107</b>	<b>1650</b>	<b>294</b>	<b>1528</b>	<b>3579</b>			
107	1650	294	1528				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	213	89	171	<b>474</b>	489	1.032	3%
East	40	0	125	1333	<b>1498</b>	1528	1.020	2%
South	28	60	0	53	<b>141</b>	146	1.032	3%
West	42	1452	89	0	<b>1583</b>	1650	1.043	4%
Total	<b>110</b>	<b>1725</b>	<b>303</b>	<b>1557</b>	<b>3696</b>			
Target	107	1650	294	1528				
	0.968	0.956	0.970	0.981				
	3%	5%	3%	2%				

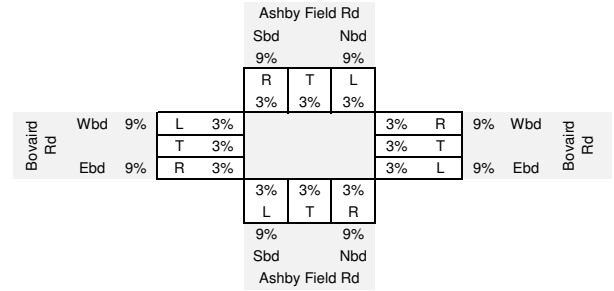
**2021 PM**



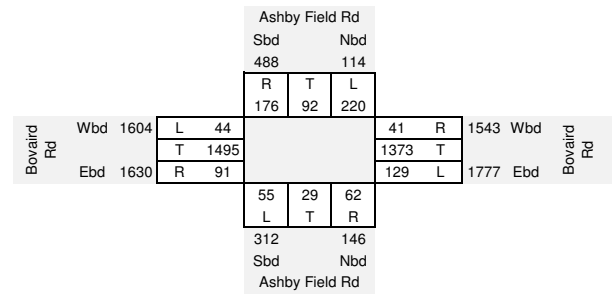
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Station Road at Heritage Road - PM Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	157	206	1	<b>364</b>	561	1.541
East	160	0	133	1	<b>294</b>	739	2.514
South	469	40	0	1	<b>510</b>	774	1.518
West	1	1	1	0	<b>3</b>	53	17.667
<b>Total</b>	<b>630</b>	<b>198</b>	<b>340</b>	<b>3</b>	<b>1171</b>		
Target	832	701	317	225		2101	
	1.321	3.540	0.932	####			

0	242	317	2	<b>561</b>	561	1.000
402	0	334	3	<b>739</b>	739	1.000
712	61	0	2	<b>774</b>	774	1.000
18	18	18	0	<b>53</b>	53	1.000
<b>1132</b>	<b>320</b>	<b>669</b>	<b>6</b>	<b>2127</b>		
832	701	317	225			
0.735	2.188	0.474	####			
36%	54%	111%	98%			

0	529	150	62	<b>742</b>	561	0.756	32%
296	0	158	101	<b>555</b>	739	1.330	25%
523	133	0	61	<b>717</b>	774	1.079	7%
13	39	8	0	<b>60</b>	53	0.883	13%
<b>832</b>	<b>701</b>	<b>317</b>	<b>225</b>	<b>2075</b>			
832	701	317	225				
1.000	1.000	1.000	1.000				

0	400	114	47	<b>561</b>	561	1.000	
393	0	211	135	<b>739</b>	739	1.000	
565	143	0	66	<b>774</b>	774	1.000	
11	34	7	0	<b>53</b>	53	1.000	
<b>969</b>	<b>578</b>	<b>332</b>	<b>248</b>	<b>2127</b>			
832	701	317	225				
0.858	1.213	0.956	0.907				
17%	18%	5%	10%				

0	486	109	43	<b>637</b>	561	0.881	14%
338	0	201	122	<b>661</b>	739	1.117	11%
485	174	0	60	<b>718</b>	774	1.077	7%
10	41	7	0	<b>58</b>	53	0.909	10%
<b>832</b>	<b>701</b>	<b>317</b>	<b>225</b>	<b>2075</b>			
832	701	317	225				
1.000	1.000	1.000	1.000				

0	428	96	38	<b>561</b>	561	1.000	
377	0	225	137	<b>739</b>	739	1.000	
522	187	0	65	<b>774</b>	774	1.000	
9	38	6	0	<b>53</b>	53	1.000	
<b>908</b>	<b>653</b>	<b>327</b>	<b>239</b>	<b>2127</b>			
832	701	317	225				
0.916	1.074	0.969	0.942				
9%	7%	3%	6%				

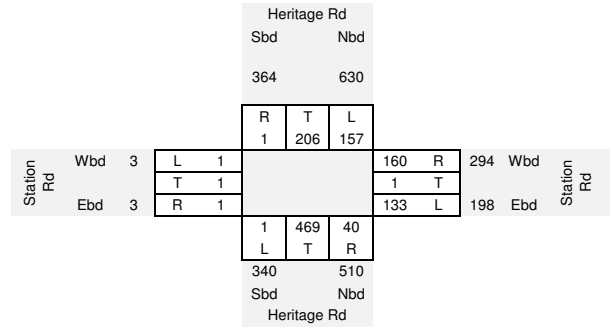
0	459	93	35	<b>587</b>	561	0.955	5%
346	0	218	129	<b>692</b>	739	1.067	6%
478	201	0	61	<b>740</b>	774	1.046	4%
8	40	6	0	<b>55</b>	53	0.967	3%
<b>832</b>	<b>701</b>	<b>317</b>	<b>225</b>	<b>2075</b>			
832	701	317	225				
1.000	1.000	1.000	1.000				

0	439	89	34	<b>561</b>	561	1.000	
369	0	233	137	<b>739</b>	739	1.000	
500	210	0	64	<b>774</b>	774	1.000	
8	39	6	0	<b>53</b>	53	1.000	
<b>877</b>	<b>688</b>	<b>327</b>	<b>235</b>	<b>2127</b>			
832	701	317	225				
0.949	1.019	0.969	0.958				
5%	2%	3%	4%				

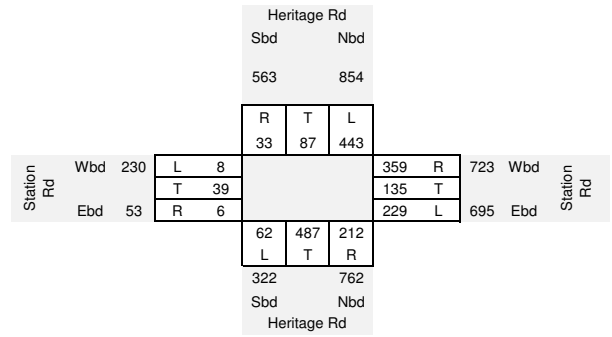
0	447	86	32	<b>565</b>	561	0.993	1%
350	0	225	132	<b>707</b>	739	1.045	4%
474	214	0	61	<b>750</b>	774	1.032	3%
8	40	6	0	<b>53</b>	53	0.997	0%
<b>832</b>	<b>701</b>	<b>317</b>	<b>225</b>	<b>2075</b>			
832	701	317	225				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	443	87	33	<b>563</b>	561	0.996	0%
East	359	0	229	135	<b>723</b>	739	1.022	2%
South	487	212	0	62	<b>762</b>	774	1.016	2%
West	8	39	6	0	<b>53</b>	53	0.999	0%
<b>Total</b>	<b>854</b>	<b>695</b>	<b>322</b>	<b>230</b>	<b>2101</b>			
Target	832	701	317	225				
	0.974	1.009	0.984	0.979				
	3%	1%	2%	2%				

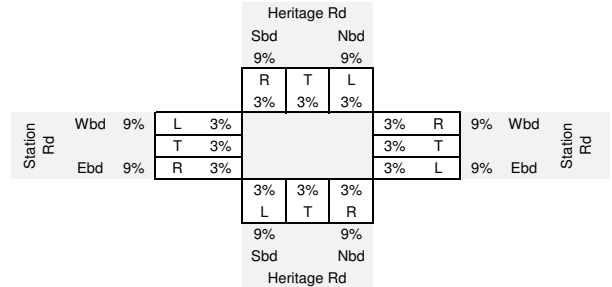
**2021 PM**



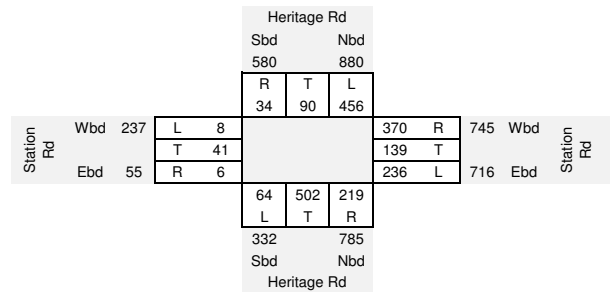
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



Station Road at Mississauga Road - PM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	51	515	11	577	470	0.815
East	179	0	139	519	837	739	0.883
South	1396	45	0	10	1451	1150	0.793
West	52	696	41	0	789	750	0.951
Total	1627	792	695	540	3654		
Target	1107	726	507	773		3111	
	0.680	0.917	0.729	1.431			

0	42	419	9	470	470	1.000
158	0	123	458	739	739	1.000
1106	36	0	8	1150	1150	1.000
49	662	39	0	750	750	1.000
1314	739	581	475	3109		
1107	726	507	773			
0.843	0.983	0.872	1.627			
19%	2%	15%	39%			

0	41	366	15	421	470	1.115	10%
133	0	107	746	986	739	0.750	33%
932	35	0	13	980	1150	1.173	15%
42	650	34	0	726	750	1.033	3%
1107	726	507	773	3113			
1107	726	507	773				
1.000	1.000	1.000	1.000				

0	46	408	16	470	470	1.000
100	0	80	559	739	739	1.000
1094	41	0	15	1150	1150	1.000
43	672	35	0	750	750	1.000
1237	758	524	590	3109		
1107	726	507	773			
0.895	0.957	0.968	1.309			
12%	4%	3%	24%			

0	44	395	21	460	470	1.021	2%
89	0	78	732	899	739	0.822	22%
979	39	0	20	1038	1150	1.108	10%
39	643	34	0	716	750	1.048	5%
1107	726	507	773	3113			
1107	726	507	773				
1.000	1.000	1.000	1.000				

0	45	404	22	470	470	1.000
73	0	64	602	739	739	1.000
1084	44	0	22	1150	1150	1.000
40	674	36	0	750	750	1.000
1198	762	503	645	3109		
1107	726	507	773			
0.924	0.953	1.007	1.198			
8%	5%	1%	17%			

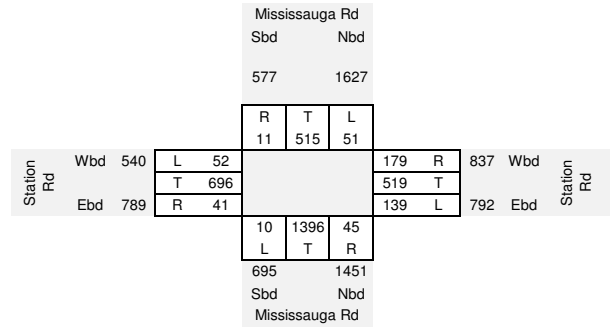
0	42	407	26	475	470	0.989	1%
68	0	64	721	853	739	0.866	15%
1002	42	0	26	1070	1150	1.075	7%
37	642	36	0	715	750	1.049	5%
1107	726	507	773	3113			
1107	726	507	773				
1.000	1.000	1.000	1.000				

0	42	402	26	470	470	1.000
59	0	56	624	739	739	1.000
1077	45	0	28	1150	1150	1.000
39	673	38	0	750	750	1.000
1175	760	496	678	3109		
1107	726	507	773			
0.942	0.955	1.023	1.139			
6%	5%	2%	12%			

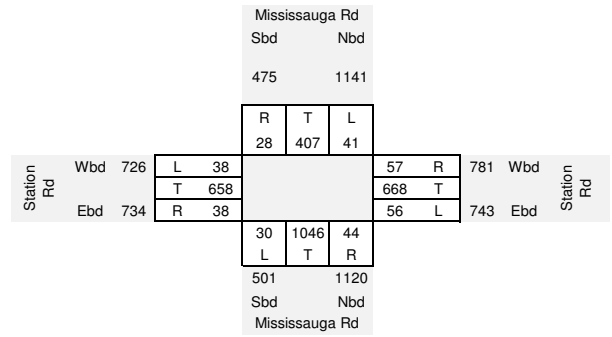
0	40	411	29	481	470	0.977	2%
55	0	57	711	824	739	0.897	11%
1015	43	0	32	1090	1150	1.055	5%
37	643	39	0	719	750	1.044	4%
1107	726	507	773	3113			
1107	726	507	773				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	41	407	28	475	470	0.989	1%
East	57	0	56	668	781	739	0.946	6%
South	1046	44	0	30	1120	1150	1.027	3%
West	38	658	38	0	734	750	1.021	2%
Total	1141	743	501	726	3111			
Target	1107	726	507	773				
	0.970	0.977	1.011	1.065				
	3%	2%	1%	6%				

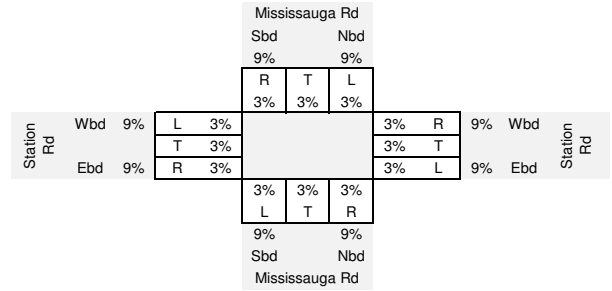
2021 PM



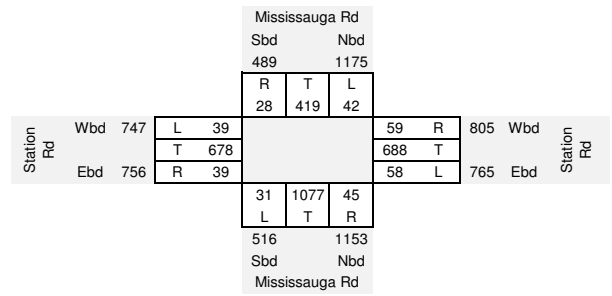
Forecasted 2031 PM (Auto)



Heavy Truck%



Forecasted 2031 PM



Station Road at James Potter Road - PM Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	94	255	152	501	600	1.198
East	234	0	309	185	728	614	0.843
South	653	319	0	515	1487	1678	1.128
West	346	169	456	0	971	726	0.748
Total	1233	582	1020	852	3687		
Target	1253	545	932	818		3583	
	1.016	0.936	0.914	0.960			

0	113	305	182	600	600	1.000
197	0	261	156	614	614	1.000
737	360	0	581	1678	1678	1.000
259	126	341	0	726	726	1.000
1193	599	907	919	3618		
1253	545	932	818			
1.050	0.910	1.028	0.890			
5%	10%	3%	12%			

0	102	314	162	578	600	1.038	4%
207	0	268	139	614	614	1.000	0%
774	328	0	517	1619	1678	1.037	4%
272	115	350	0	737	726	0.985	2%
1253	545	932	818	3548			
1253	545	932	818				
1.000	1.000	1.000	1.000				

0	106	326	168	600	600	1.000
207	0	268	139	614	614	1.000
802	340	0	536	1678	1678	1.000
268	113	345	0	726	726	1.000
1277	559	939	843	3618		
1253	545	932	818			
0.981	0.975	0.993	0.970			
2%	3%	1%	3%			

0	104	323	163	590	600	1.017	2%
203	0	266	135	604	614	1.016	2%
787	331	0	520	1638	1678	1.024	2%
263	110	343	0	716	726	1.014	1%
1253	545	932	818	3548			
1253	545	932	818				
1.000	1.000	1.000	1.000				

0	105	329	166	600	600	1.000
207	0	270	137	614	614	1.000
806	339	0	533	1678	1678	1.000
266	112	348	0	726	726	1.000
1279	556	947	836	3618		
1253	545	932	818			
0.979	0.980	0.984	0.979			
2%	2%	2%	2%			

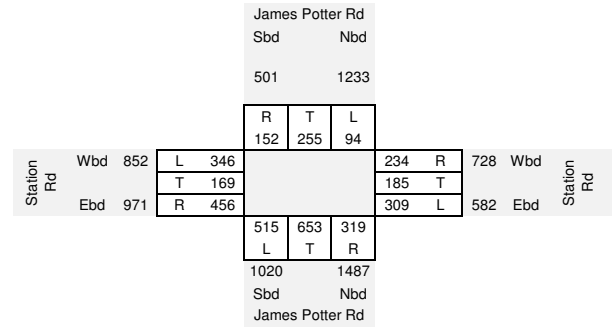
0	103	324	162	589	600	1.018	2%
202	0	266	134	603	614	1.019	2%
790	332	0	522	1643	1678	1.021	2%
261	110	342	0	713	726	1.018	2%
1253	545	932	818	3548			
1253	545	932	818				
1.000	1.000	1.000	1.000				

0	105	330	165	600	600	1.000
206	0	271	137	614	614	1.000
806	339	0	533	1678	1678	1.000
266	112	349	0	726	726	1.000
1278	556	949	835	3618		
1253	545	932	818			
0.980	0.980	0.982	0.980			
2%	2%	2%	2%			

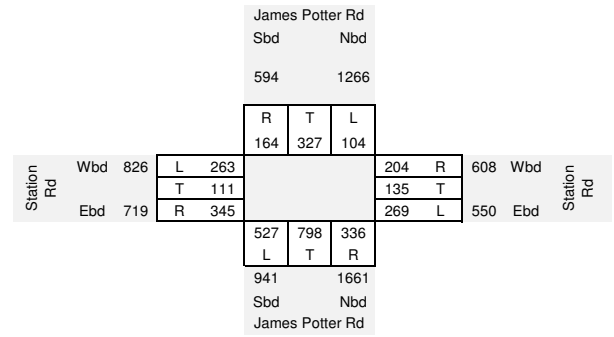
0	103	324	162	589	600	1.019	2%
202	0	266	134	602	614	1.019	2%
790	332	0	522	1645	1678	1.020	2%
260	110	342	0	712	726	1.019	2%
1253	545	932	818	3548			
1253	545	932	818				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	104	327	164	594	600	1.010	1%
East	204	0	269	135	608	614	1.010	1%
South	798	336	0	527	1661	1678	1.010	1%
West	263	111	345	0	719	726	1.010	1%
Total	1266	550	941	826	3583			
Target	1253	545	932	818				
	0.990	0.990	0.991	0.990				
	1%	1%	1%	1%				

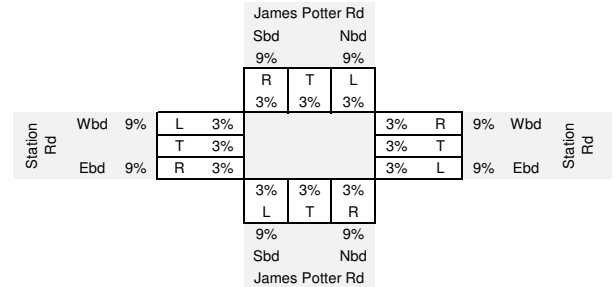
2021 PM



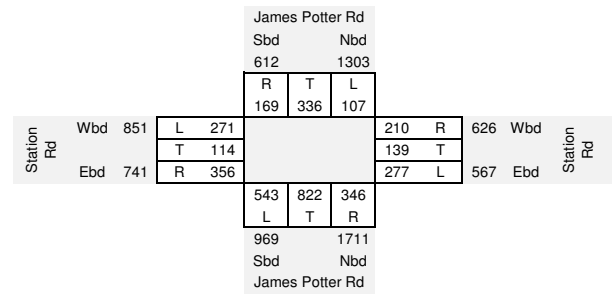
Forecasted 2031 PM (Auto)



Heavy Truck%



Forecasted 2031 PM







APPENDIX F-6

**2021 SATURDAY**

---



**Bovaird Road at Heritage Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	7	319	76	<b>402</b>	461	1.147
East	21	0	102	886	<b>1009</b>	969	0.960
South	474	128	0	146	<b>748</b>	580	0.775
West	45	896	31	0	<b>972</b>	1032	1.062
Total	<b>540</b>	<b>1031</b>	<b>452</b>	<b>1108</b>	<b>3131</b>		
Target	461	969	580	1032		3042	
	0.854	0.940	1.283	0.931			

0	8	366	87	<b>461</b>	461	1.000
20	0	98	851	<b>969</b>	969	1.000
368	99	0	113	<b>580</b>	580	1.000
48	951	33	0	<b>1032</b>	1032	1.000
<b>435</b>	<b>1059</b>	<b>497</b>	<b>1051</b>	<b>3042</b>		
461	969	580	1032			
1.059	0.915	1.168	0.982			
6%	9%	14%	2%			

0	7	427	86	<b>520</b>	461	0.886	13%
21	0	114	835	<b>971</b>	969	0.998	0%
389	91	0	111	<b>591</b>	580	0.981	2%
51	871	38	0	<b>960</b>	1032	1.075	7%
<b>461</b>	<b>969</b>	<b>580</b>	<b>1032</b>	<b>3042</b>			
461	969	580	1032				
1.000	1.000	1.000	1.000				

0	7	379	76	<b>461</b>	461	1.000
21	0	114	834	<b>969</b>	969	1.000
382	89	0	109	<b>580</b>	580	1.000
54	936	41	0	<b>1032</b>	1032	1.000
<b>457</b>	<b>1032</b>	<b>534</b>	<b>1018</b>	<b>3042</b>		
461	969	580	1032			
1.008	0.939	1.086	1.013			
1%	6%	8%	1%			

0	6	411	77	<b>494</b>	461	0.933	7%
21	0	124	845	<b>990</b>	969	0.979	2%
385	84	0	111	<b>579</b>	580	1.002	0%
55	879	45	0	<b>979</b>	1032	1.054	5%
<b>461</b>	<b>969</b>	<b>580</b>	<b>1032</b>	<b>3042</b>			
461	969	580	1032				
1.000	1.000	1.000	1.000				

0	6	384	72	<b>461</b>	461	1.000
21	0	121	827	<b>969</b>	969	1.000
385	84	0	111	<b>580</b>	580	1.000
58	927	47	0	<b>1032</b>	1032	1.000
<b>464</b>	<b>1016</b>	<b>552</b>	<b>1009</b>	<b>3042</b>		
461	969	580	1032			
0.993	0.953	1.050	1.023			
1%	5%	5%	2%			

0	5	403	73	<b>482</b>	461	0.957	4%
21	0	127	845	<b>994</b>	969	0.975	3%
383	80	0	113	<b>576</b>	580	1.007	1%
57	884	50	0	<b>991</b>	1032	1.042	4%
<b>461</b>	<b>969</b>	<b>580</b>	<b>1032</b>	<b>3042</b>			
461	969	580	1032				
1.000	1.000	1.000	1.000				

0	5	386	70	<b>461</b>	461	1.000
20	0	124	824	<b>969</b>	969	1.000
385	81	0	114	<b>580</b>	580	1.000
60	920	52	0	<b>1032</b>	1032	1.000
<b>466</b>	<b>1006</b>	<b>562</b>	<b>1009</b>	<b>3042</b>		
461	969	580	1032			
0.990	0.963	1.033	1.023			
1%	4%	3%	2%			

0	5	398	72	<b>475</b>	461	0.970	3%
20	0	128	844	<b>992</b>	969	0.977	2%
382	78	0	117	<b>576</b>	580	1.007	1%
59	886	53	0	<b>999</b>	1032	1.033	3%
<b>461</b>	<b>969</b>	<b>580</b>	<b>1032</b>	<b>3042</b>			
461	969	580	1032				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	5	392	71	<b>468</b>	461	0.985	2%
East	20	0	126	834	<b>980</b>	969	0.988	1%
South	384	79	0	115	<b>578</b>	580	1.004	0%
West	59	903	53	0	<b>1016</b>	1032	1.016	2%
Total	<b>463</b>	<b>988</b>	<b>571</b>	<b>1020</b>	<b>3042</b>			
Target	461	969	580	1032				
	0.995	0.981	1.016	1.011				
	0%	2%	2%	1%				

**2021 PM**

		Heritage Rd			
		Sbd	Nbd		
		402	540		
		R	T	L	
		76	319	7	
Bovaird Rd	Wbd	L	45	21	R
		T	896	886	T
	Ebd	R	31	102	L
		146	474	128	
		L	T	R	
		452	748		
		Sbd	Nbd		
		Heritage Rd			

**Forecasted 2021 Sat (Auto)**

		Heritage Rd			
		Sbd	Nbd		
		468	463		
		R	T	L	
		71	392	5	
Bovaird Rd	Wbd	L	59	20	R
		T	903	834	T
	Ebd	R	53	126	L
		115	384	79	
		L	T	R	
		571	578		
		Sbd	Nbd		
		Heritage Rd			

**Heavy Truck%**

		Heritage Rd			
		Sbd	Nbd		
		9%	9%		
		R	T	L	
		3%	3%	3%	
Bovaird Rd	Wbd	L	3%	3%	R
		T	3%	3%	T
	Ebd	R	3%	3%	L
		3%	3%	3%	
		L	T	R	
		9%	9%		
		Sbd	Nbd		
		Heritage Rd			

**Forecasted 2021 Sat**

		Heritage Rd			
		Sbd	Nbd		
		482	477		
		R	T	L	
		73	404	5	
Bovaird Rd	Wbd	L	61	21	R
		T	931	859	T
	Ebd	R	54	130	L
		119	395	81	
		L	T	R	
		588	595		
		Sbd	Nbd		
		Heritage Rd			

**Bovaird Road at Mississauga Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	118	750	41	<b>909</b>	1359	1.495
East	402	0	506	803	<b>1711</b>	1738	1.016
South	1436	792	0	114	<b>2342</b>	1807	0.772
West	48	897	59	0	<b>1004</b>	889	0.885
Total	<b>1886</b>	<b>1807</b>	<b>1315</b>	<b>958</b>	<b>5966</b>		
Target	1359	1738	1807	889		5793	
	0.721	0.962	1.374	0.928			

0	176	1121	61	<b>1359</b>	1359	1.000
408	0	514	816	<b>1738</b>	1738	1.000
1108	611	0	88	<b>1807</b>	1807	1.000
43	794	52	0	<b>889</b>	889	1.000
<b>1559</b>	<b>1582</b>	<b>1688</b>	<b>965</b>	<b>5793</b>		
1359	1738	1807	889			
0.872	1.099	1.071	0.921			
15%	9%	7%	9%			

0	194	1201	56	<b>1451</b>	1359	0.937	7%
356	0	550	751	<b>1658</b>	1738	1.048	5%
966	671	0	81	<b>1718</b>	1807	1.052	5%
37	873	56	0	<b>966</b>	889	0.921	9%
<b>1359</b>	<b>1738</b>	<b>1807</b>	<b>889</b>	<b>5793</b>			
1359	1738	1807	889				
1.000	1.000	1.000	1.000				

0	182	1125	53	<b>1359</b>	1359	1.000
373	0	577	788	<b>1738</b>	1738	1.000
1016	706	0	85	<b>1807</b>	1807	1.000
34	803	51	0	<b>889</b>	889	1.000
<b>1423</b>	<b>1691</b>	<b>1753</b>	<b>926</b>	<b>5793</b>		
1359	1738	1807	889			
0.955	1.028	1.031	0.960			
5%	3%	3%	4%			

0	187	1159	51	<b>1397</b>	1359	0.973	3%
356	0	595	756	<b>1708</b>	1738	1.018	2%
970	726	0	82	<b>1778</b>	1807	1.017	2%
33	826	53	0	<b>911</b>	889	0.975	3%
<b>1359</b>	<b>1738</b>	<b>1807</b>	<b>889</b>	<b>5793</b>			
1359	1738	1807	889				
1.000	1.000	1.000	1.000				

0	182	1128	49	<b>1359</b>	1359	1.000
363	0	605	770	<b>1738</b>	1738	1.000
986	738	0	83	<b>1807</b>	1807	1.000
32	805	52	0	<b>889</b>	889	1.000
<b>1381</b>	<b>1725</b>	<b>1785</b>	<b>902</b>	<b>5793</b>		
1359	1738	1807	889			
0.984	1.008	1.012	0.985			
2%	1%	1%	2%			

0	183	1142	49	<b>1373</b>	1359	0.989	1%
357	0	613	758	<b>1728</b>	1738	1.006	1%
971	743	0	82	<b>1796</b>	1807	1.006	1%
31	812	52	0	<b>895</b>	889	0.993	1%
<b>1359</b>	<b>1738</b>	<b>1807</b>	<b>889</b>	<b>5793</b>			
1359	1738	1807	889				
1.000	1.000	1.000	1.000				

0	181	1130	48	<b>1359</b>	1359	1.000
359	0	616	763	<b>1738</b>	1738	1.000
977	748	0	82	<b>1807</b>	1807	1.000
31	806	52	0	<b>889</b>	889	1.000
<b>1367</b>	<b>1735</b>	<b>1798</b>	<b>893</b>	<b>5793</b>		
1359	1738	1807	889			
0.994	1.002	1.005	0.995			
1%	0%	0%	0%			

0	181	1135	48	<b>1365</b>	1359	0.996	0%
357	0	619	759	<b>1735</b>	1738	1.002	0%
971	749	0	82	<b>1802</b>	1807	1.003	0%
31	807	52	0	<b>891</b>	889	0.998	0%
<b>1359</b>	<b>1738</b>	<b>1807</b>	<b>889</b>	<b>5793</b>			
1359	1738	1807	889				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	181	1133	48	<b>1362</b>	1359	0.998	0%
East	358	0	618	761	<b>1737</b>	1738	1.001	0%
South	974	749	0	82	<b>1805</b>	1807	1.001	0%
West	31	807	52	0	<b>890</b>	889	0.999	0%
Total	<b>1363</b>	<b>1736</b>	<b>1803</b>	<b>891</b>	<b>5793</b>			
Target	1359	1738	1807	889				
	0.997	1.001	1.002	0.998				
	0%	0%	0%	0%				

**2021 PM**

		Mississauga Rd				
		Sbd	Nbd			
		909	1886			
		R	T	L		
Bovaird Rd	Wbd 958	L 48			402	R
		T 897			803	T
	Ebd 1004	R 59			506	L
		114	1436	792		
		L	T	R		
		1315	2342			
		Sbd	Nbd			
		Mississauga Rd				

**Forecasted 2021 Sat (Auto)**

		Mississauga Rd				
		Sbd	Nbd			
		1362	1363			
		R	T	L		
Bovaird Rd	Wbd 891	L 31			358	R
		T 807			761	T
	Ebd 890	R 52			618	L
		82	974	749		
		L	T	R		
		1803	1805			
		Sbd	Nbd			
		Mississauga Rd				

**Heavy Truck%**

		Mississauga Rd				
		Sbd	Nbd			
		9%	9%			
		R	T	L		
Bovaird Rd	Wbd 9%	L 3%			3%	R
		T 3%			3%	T
	Ebd 9%	R 3%			3%	L
		3%	3%	3%		
		L	T	R		
		9%	9%			
		Sbd	Nbd			
		Mississauga Rd				

**Forecasted 2021 Sat**

		Mississauga Rd				
		Sbd	Nbd			
		1403	1404			
		R	T	L		
Bovaird Rd	Wbd 918	L 32			369	R
		T 831			784	T
	Ebd 917	R 54			636	L
		85	1003	771		
		L	T	R		
		1857	1859			
		Sbd	Nbd			
		Mississauga Rd				

**Bovaird Road at James Potter Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	71	753	273	<b>1097</b>	1204	1.098
East	34	0	5	1477	<b>1516</b>	1434	0.946
South	1020	14	0	52	<b>1086</b>	810	0.746
West	110	1615	16	0	<b>1741</b>	1833	1.053
<b>Total</b>	<b>1164</b>	<b>1700</b>	<b>774</b>	<b>1802</b>	<b>5440</b>		
Target	1204	1434	810	1833		5281	
	1.034	0.844	1.047	1.017			

0	78	826	300	<b>1204</b>	1204	1.000
32	0	5	1397	<b>1434</b>	1434	1.000
761	10	0	39	<b>810</b>	810	1.000
116	1700	17	0	<b>1833</b>	1833	1.000
<b>909</b>	<b>1789</b>	<b>848</b>	<b>1736</b>	<b>5281</b>		
1204	1434	810	1833			
1.325	0.802	0.955	1.056			
25%	25%	5%	5%			

0	62	789	316	<b>1168</b>	1204	1.031	3%
43	0	5	1476	<b>1523</b>	1434	0.942	6%
1008	8	0	41	<b>1057</b>	810	0.766	31%
153	1363	16	0	<b>1533</b>	1833	1.196	16%
<b>1204</b>	<b>1434</b>	<b>810</b>	<b>1833</b>	<b>5281</b>			
1204	1434	810	1833				
1.000	1.000	1.000	1.000				

0	64	813	326	<b>1204</b>	1204	1.000
40	0	4	1390	<b>1434</b>	1434	1.000
772	6	0	31	<b>810</b>	810	1.000
184	1630	19	0	<b>1833</b>	1833	1.000
<b>996</b>	<b>1701</b>	<b>837</b>	<b>1747</b>	<b>5281</b>		
1204	1434	810	1833			
1.209	0.843	0.968	1.049			
17%	19%	3%	5%			

0	54	787	342	<b>1184</b>	1204	1.017	2%
49	0	4	1458	<b>1511</b>	1434	0.949	5%
934	5	0	33	<b>972</b>	810	0.833	20%
222	1374	19	0	<b>1615</b>	1833	1.135	12%
<b>1204</b>	<b>1434</b>	<b>810</b>	<b>1833</b>	<b>5281</b>			
1204	1434	810	1833				
1.000	1.000	1.000	1.000				

0	55	801	348	<b>1204</b>	1204	1.000
46	0	4	1384	<b>1434</b>	1434	1.000
778	5	0	27	<b>810</b>	810	1.000
252	1560	21	0	<b>1833</b>	1833	1.000
<b>1076</b>	<b>1620</b>	<b>826</b>	<b>1759</b>	<b>5281</b>		
1204	1434	810	1833			
1.119	0.885	0.981	1.042			
11%	13%	2%	4%			

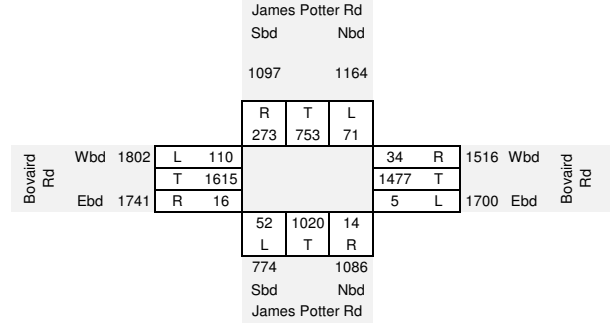
0	49	785	363	<b>1197</b>	1204	1.006	1%
52	0	4	1442	<b>1497</b>	1434	0.958	4%
871	4	0	29	<b>903</b>	810	0.897	12%
282	1381	21	0	<b>1684</b>	1833	1.089	8%
<b>1204</b>	<b>1434</b>	<b>810</b>	<b>1833</b>	<b>5281</b>			
1204	1434	810	1833				
1.000	1.000	1.000	1.000				

0	49	790	365	<b>1204</b>	1204	1.000
49	0	4	1381	<b>1434</b>	1434	1.000
781	4	0	26	<b>810</b>	810	1.000
307	1504	23	0	<b>1833</b>	1833	1.000
<b>1137</b>	<b>1556</b>	<b>816</b>	<b>1771</b>	<b>5281</b>		
1204	1434	810	1833			
1.059	0.921	0.992	1.035			
6%	9%	1%	3%			

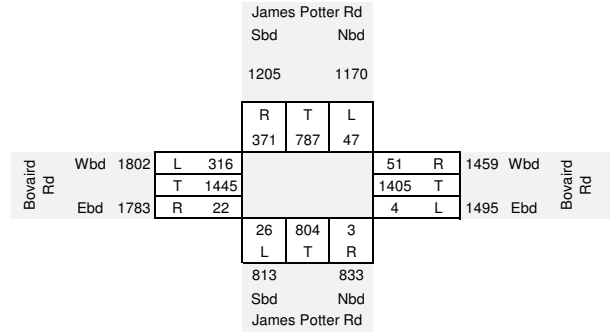
0	45	784	377	<b>1207</b>	1204	0.998	0%
52	0	4	1429	<b>1485</b>	1434	0.966	4%
827	3	0	27	<b>857</b>	810	0.946	6%
325	1385	22	0	<b>1733</b>	1833	1.058	5%
<b>1204</b>	<b>1434</b>	<b>810</b>	<b>1833</b>	<b>5281</b>			
1204	1434	810	1833				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	47	787	371	<b>1205</b>	1204	0.999	0%
East	51	0	4	1405	<b>1459</b>	1434	0.983	2%
South	804	3	0	26	<b>833</b>	810	0.972	3%
West	316	1445	22	0	<b>1783</b>	1833	1.028	3%
<b>Total</b>	<b>1170</b>	<b>1495</b>	<b>813</b>	<b>1802</b>	<b>5281</b>			
Target	1204	1434	810	1833				
	1.029	0.959	0.996	1.017				
	3%	4%	0%	2%				

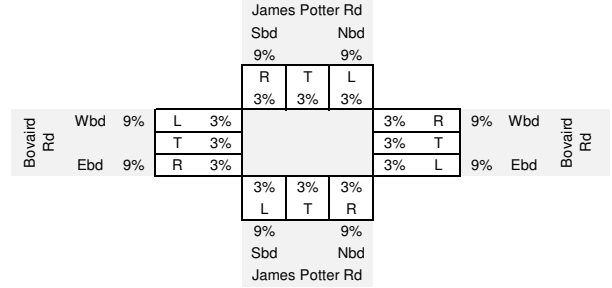
**2021 PM**



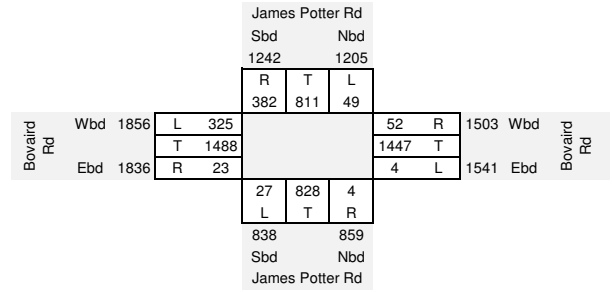
**Forecasted 2021 Sat (Auto)**



**Heavy Truck%**



**Forecasted 2021 Sat**



**Bovaird Road at Ashby Field Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	244	92	147	<b>483</b>	298	0.617
East	51	0	152	1357	<b>1560</b>	1434	0.919
South	30	69	0	46	<b>145</b>	220	1.517
West	33	1201	66	0	<b>1300</b>	1434	1.103
Total	<b>114</b>	<b>1514</b>	<b>310</b>	<b>1550</b>	<b>3488</b>		
Target	298	1434	220	1434		3386	
	2.614	0.947	0.710	0.925			

0	151	57	91	<b>298</b>	298	1.000
47	0	140	1247	<b>1434</b>	1434	1.000
46	105	0	70	<b>220</b>	220	1.000
36	1325	73	0	<b>1434</b>	1434	1.000
<b>129</b>	<b>1580</b>	<b>269</b>	<b>1408</b>	<b>3386</b>		
298	1434	220	1434			
2.314	0.908	0.817	1.019			
57%	10%	22%	2%			

0	137	46	92	<b>275</b>	298	1.082	8%
108	0	114	1271	<b>1493</b>	1434	0.960	4%
105	95	0	71	<b>271</b>	220	0.811	23%
84	1202	59	0	<b>1346</b>	1434	1.065	6%
<b>298</b>	<b>1434</b>	<b>220</b>	<b>1434</b>	<b>3386</b>			
298	1434	220	1434				
1.000	1.000	1.000	1.000				

0	148	50	100	<b>298</b>	298	1.000
104	0	110	1220	<b>1434</b>	1434	1.000
85	77	0	58	<b>220</b>	220	1.000
90	1281	63	0	<b>1434</b>	1434	1.000
<b>279</b>	<b>1506</b>	<b>223</b>	<b>1378</b>	<b>3386</b>		
298	1434	220	1434			
1.067	0.952	0.986	1.041			
6%	5%	1%	4%			

0	141	49	104	<b>294</b>	298	1.013	1%
111	0	108	1270	<b>1489</b>	1434	0.963	4%
91	73	0	60	<b>224</b>	220	0.980	2%
96	1220	62	0	<b>1378</b>	1434	1.041	4%
<b>298</b>	<b>1434</b>	<b>220</b>	<b>1434</b>	<b>3386</b>			
298	1434	220	1434				
1.000	1.000	1.000	1.000				

0	143	50	105	<b>298</b>	298	1.000
107	0	104	1223	<b>1434</b>	1434	1.000
89	72	0	59	<b>220</b>	220	1.000
100	1269	65	0	<b>1434</b>	1434	1.000
<b>296</b>	<b>1484</b>	<b>219</b>	<b>1387</b>	<b>3386</b>		
298	1434	220	1434			
1.007	0.966	1.004	1.034			
1%	3%	0%	3%			

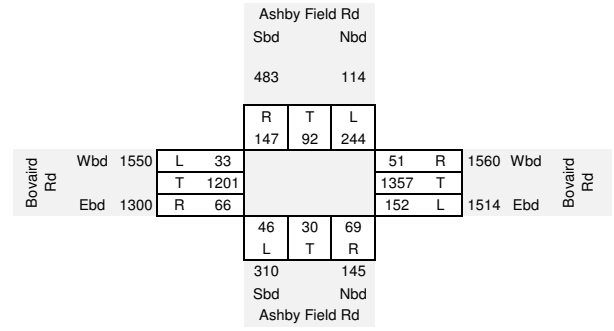
0	138	50	109	<b>297</b>	298	1.003	0%
108	0	104	1264	<b>1477</b>	1434	0.971	3%
90	69	0	61	<b>220</b>	220	0.999	0%
100	1227	65	0	<b>1392</b>	1434	1.030	3%
<b>298</b>	<b>1434</b>	<b>220</b>	<b>1434</b>	<b>3386</b>			
298	1434	220	1434				
1.000	1.000	1.000	1.000				

0	138	50	109	<b>298</b>	298	1.000
105	0	101	1228	<b>1434</b>	1434	1.000
90	69	0	61	<b>220</b>	220	1.000
103	1263	67	0	<b>1434</b>	1434	1.000
<b>298</b>	<b>1471</b>	<b>219</b>	<b>1398</b>	<b>3386</b>		
298	1434	220	1434			
1.001	0.975	1.004	1.026			
0%	3%	0%	3%			

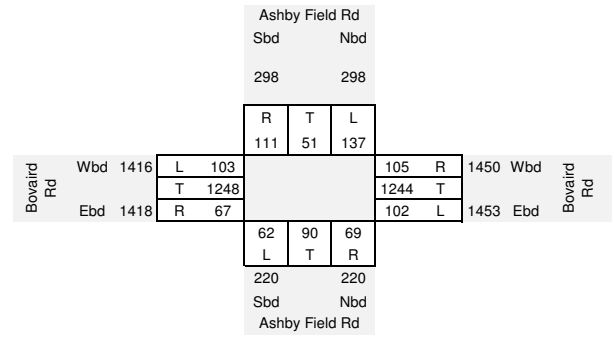
0	135	51	112	<b>298</b>	298	1.002	0%
105	0	102	1260	<b>1466</b>	1434	0.978	2%
90	68	0	62	<b>220</b>	220	1.001	0%
103	1232	67	0	<b>1402</b>	1434	1.023	2%
<b>298</b>	<b>1434</b>	<b>220</b>	<b>1434</b>	<b>3386</b>			
298	1434	220	1434				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	137	51	111	<b>298</b>	298	1.001	0%
East	105	0	102	1244	<b>1450</b>	1434	0.989	1%
South	90	69	0	62	<b>220</b>	220	1.000	0%
West	103	1248	67	0	<b>1418</b>	1434	1.011	1%
Total	<b>298</b>	<b>1453</b>	<b>220</b>	<b>1416</b>	<b>3386</b>			
Target	298	1434	220	1434				
	1.000	0.987	1.002	1.013				
	0%	1%	0%	1%				

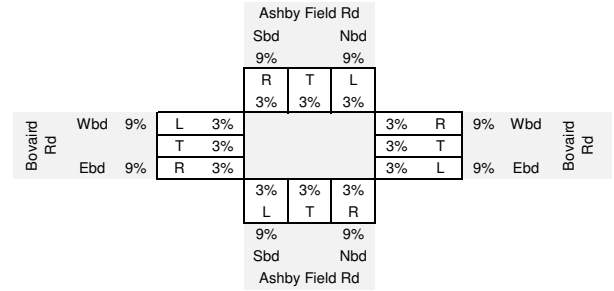
**2021 PM**



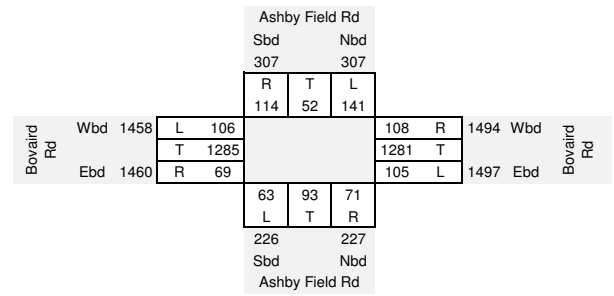
**Forecasted 2021 Sat (Auto)**



**Heavy Truck%**



**Forecasted 2021 Sat**



Station Road at Heritage Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	157	206	10	373	477	1.279
East	160	0	133	10	303	242	0.799
South	469	40	0	10	519	416	0.802
West	10	10	10	0	30	3	0.100
Total	639	207	349	30	1225		
Target	477	242	416	3		1138	
	0.746	1.169	1.192	0.100			

0	201	263	13	477	477	1.000
128	0	106	8	242	242	1.000
376	32	0	8	416	416	1.000
1	1	1	0	3	3	1.000
505	234	371	29	1138		
477	242	416	3			
0.945	1.035	1.122	0.104			
6%	3%	11%	####			

0	208	296	1	505	477	0.945	6%
121	0	119	1	241	242	1.005	0%
355	33	0	1	389	416	1.069	6%
1	1	1	0	3	3	0.967	3%
477	242	416	3	1138			
477	242	416	3				
1.000	1.000	1.000	1.000				

0	196	279	1	477	477	1.000
121	0	120	1	242	242	1.000
380	35	0	1	416	416	1.000
1	1	1	0	3	3	1.000
502	233	400	3	1138		
477	242	416	3			
0.950	1.039	1.039	1.004			
5%	4%	4%	0%			

0	204	290	1	496	477	0.962	4%
115	0	125	1	241	242	1.005	1%
361	37	0	1	399	416	1.044	4%
1	1	1	0	3	3	0.988	1%
477	242	416	3	1138			
477	242	416	3				
1.000	1.000	1.000	1.000				

0	196	279	1	477	477	1.000
116	0	125	1	242	242	1.000
377	38	0	1	416	416	1.000
1	1	1	0	3	3	1.000
493	236	406	3	1138		
477	242	416	3			
0.967	1.026	1.025	1.001			
3%	3%	2%	0%			

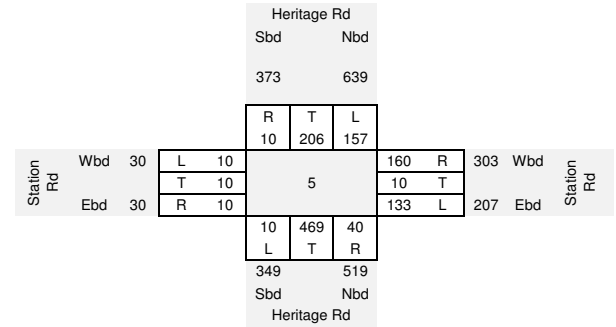
0	201	286	1	489	477	0.975	3%
112	0	128	1	241	242	1.003	0%
364	39	0	1	404	416	1.029	3%
1	1	1	0	3	3	0.991	1%
477	242	416	3	1138			
477	242	416	3				
1.000	1.000	1.000	1.000				

0	196	279	1	477	477	1.000
112	0	129	1	242	242	1.000
374	41	0	1	416	416	1.000
1	1	1	0	3	3	1.000
488	238	409	3	1138		
477	242	416	3			
0.978	1.016	1.017	1.000			
2%	2%	2%	0%			

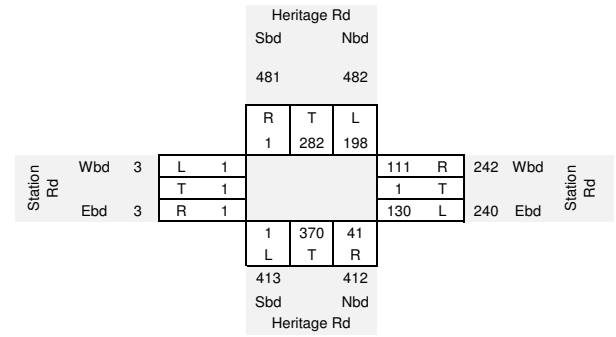
0	200	284	1	485	477	0.984	2%
110	0	131	1	242	242	1.001	0%
366	41	0	1	408	416	1.018	2%
1	1	1	0	3	3	0.994	1%
477	242	416	3	1138			
477	242	416	3				
1.000	1.000	1.000	1.000				

	North	East	South	West	Total	Target		
North	0	198	282	1	481	477	0.992	1%
East	111	0	130	1	242	242	1.001	0%
South	370	41	0	1	412	416	1.009	1%
West	1	1	1	0	3	3	0.997	0%
Total	482	240	413	3	1138			
Target	477	242	416	3				
	0.989	1.008	1.008	1.000				
	1%	1%	1%	0%				

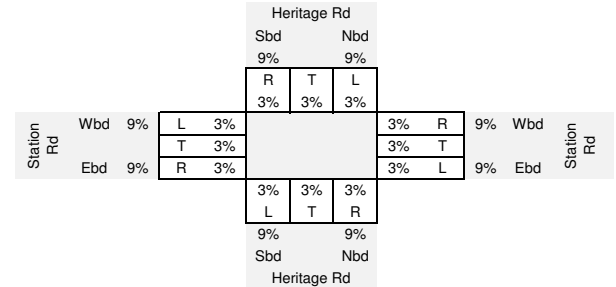
2021 PM



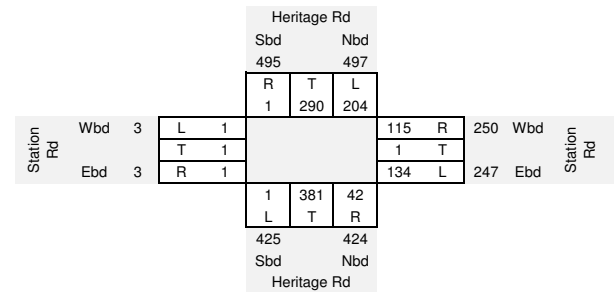
Forecasted 2021 Sat (Auto)



Heavy Truck%



Forecasted 2021 Sat



Station Road at Mississauga Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	51	515	11	577	1018	1.764
East	179	0	139	519	837	841	1.005
South	1396	45	0	10	1451	1076	0.742
West	52	696	41	0	789	613	0.777
Total	1627	792	695	540	3654		
Target	1018	841	1076	613		3548	
	0.626	1.062	1.548	1.135			

0	90	909	19	1018	1018	1.000
180	0	140	521	841	841	1.000
1035	33	0	7	1076	1076	1.000
40	541	32	0	613	613	1.000
1255	664	1080	548	3548		
1018	841	1076	613			
0.811	1.266	0.996	1.118			
23%	21%	0%	11%			

0	114	905	22	1041	1018	0.978	2%
146	0	139	583	868	841	0.969	3%
839	42	0	8	890	1076	1.209	17%
33	685	32	0	749	613	0.818	22%
1018	841	1076	613	3548			
1018	841	1076	613				
1.000	1.000	1.000	1.000				

0	111	885	21	1018	1018	1.000
141	0	135	565	841	841	1.000
1015	51	0	10	1076	1076	1.000
27	560	26	0	613	613	1.000
1183	723	1046	596	3548		
1018	841	1076	613			
0.861	1.164	1.029	1.028			
16%	14%	3%	3%			

0	130	911	22	1062	1018	0.958	4%
122	0	139	581	841	841	1.000	0%
873	59	0	10	943	1076	1.141	12%
23	652	27	0	702	613	0.874	14%
1018	841	1076	613	3548			
1018	841	1076	613				
1.000	1.000	1.000	1.000				

0	124	873	21	1018	1018	1.000
122	0	139	581	841	841	1.000
996	68	0	12	1076	1076	1.000
20	570	23	0	613	613	1.000
1138	762	1035	613	3548		
1018	841	1076	613			
0.894	1.104	1.040	0.999			
12%	9%	4%	0%			

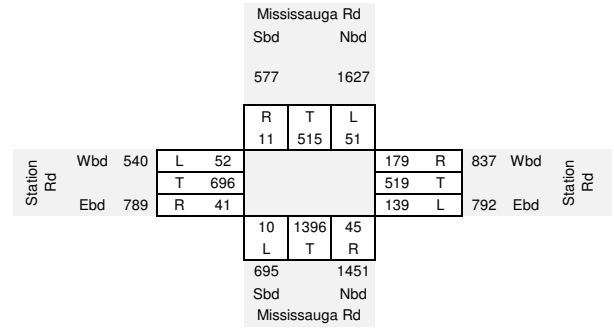
0	137	908	21	1066	1018	0.955	5%
109	0	144	580	833	841	1.009	1%
891	75	0	12	978	1076	1.100	9%
18	629	24	0	671	613	0.913	9%
1018	841	1076	613	3548			
1018	841	1076	613				
1.000	1.000	1.000	1.000				

0	131	867	20	1018	1018	1.000
110	0	146	586	841	841	1.000
981	82	0	13	1076	1076	1.000
16	574	22	0	613	613	1.000
1107	788	1035	619	3548		
1018	841	1076	613			
0.920	1.067	1.040	0.991			
9%	6%	4%	1%			

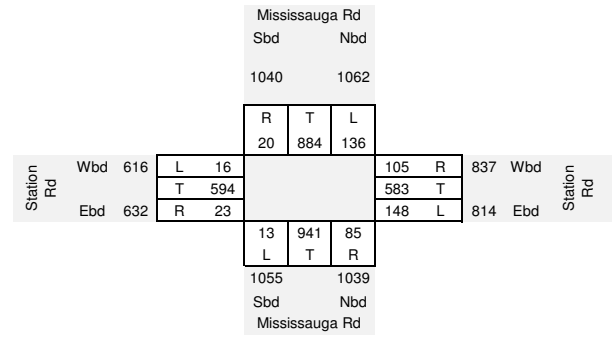
0	140	902	20	1061	1018	0.959	4%
101	0	151	580	833	841	1.010	1%
902	88	0	13	1003	1076	1.073	7%
15	613	23	0	651	613	0.941	6%
1018	841	1076	613	3548			
1018	841	1076	613				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	136	884	20	1040	1018	0.979
East	105	0	148	583	837	841	1.005
South	941	85	0	13	1039	1076	1.035
West	16	594	23	0	632	613	0.970
Total	1062	814	1055	616	3548		
Target	1018	841	1076	613			
	0.958	1.033	1.020	0.995			
	4%	3%	2%	0%			

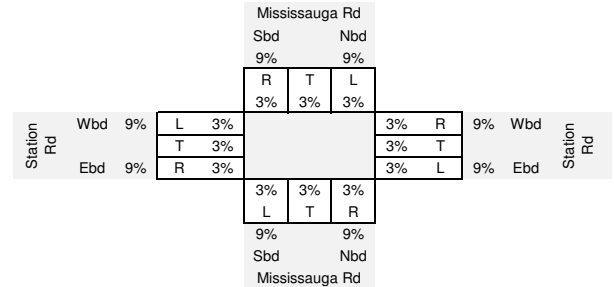
2021 PM



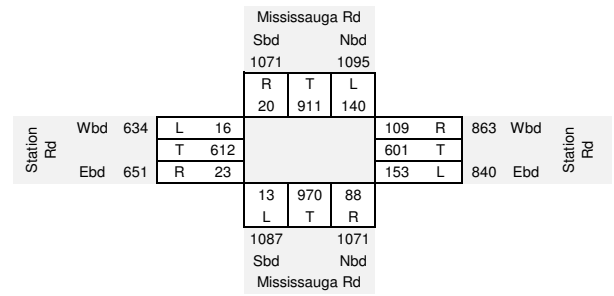
Forecasted 2021 Sat (Auto)



Heavy Truck%



Forecasted 2021 Sat





Station Road at James Potter Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	94	255	152	501	865	1.727
East	234	0	309	185	728	631	0.867
South	653	319	0	515	1487	1204	0.810
West	346	169	456	0	971	841	0.866
Total	1233	582	1020	852	3687		
Target	865	631	1204	841		3541	
	0.702	1.084	1.180	0.987			

0	162	440	262	865	865	1.000
203	0	268	160	631	631	1.000
529	258	0	417	1204	1204	1.000
300	146	395	0	841	841	1.000
1031	567	1103	840	3541		
865	631	1204	841			
0.839	1.113	1.092	1.001			
19%	10%	8%	0%			

0	181	481	263	924	865	0.936	7%
170	0	292	161	623	631	1.013	1%
443	287	0	418	1149	1204	1.048	5%
251	163	431	0	845	841	0.995	1%
865	631	1204	841	3541			
865	631	1204	841				
1.000	1.000	1.000	1.000				

0	169	450	246	865	865	1.000
172	0	296	163	631	631	1.000
465	301	0	438	1204	1204	1.000
250	162	429	0	841	841	1.000
887	632	1175	846	3541		
865	631	1204	841			
0.975	0.998	1.025	0.994			
3%	0%	2%	1%			

0	169	461	244	874	865	0.989	1%
168	0	303	162	633	631	0.997	0%
453	301	0	435	1189	1204	1.013	1%
244	162	440	0	845	841	0.995	0%
865	631	1204	841	3541			
865	631	1204	841				
1.000	1.000	1.000	1.000				

0	167	456	242	865	865	1.000
167	0	302	161	631	631	1.000
459	304	0	441	1204	1204	1.000
243	161	437	0	841	841	1.000
869	632	1196	843	3541		
865	631	1204	841			
0.995	0.998	1.007	0.997			
0%	0%	1%	0%			

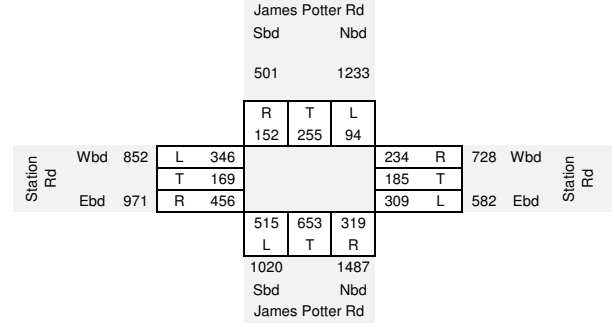
0	167	459	241	867	865	0.998	0%
167	0	304	161	632	631	0.999	0%
457	304	0	439	1200	1204	1.003	0%
241	161	440	0	842	841	0.998	0%
865	631	1204	841	3541			
865	631	1204	841				
1.000	1.000	1.000	1.000				

0	166	458	241	865	865	1.000
166	0	304	160	631	631	1.000
458	305	0	441	1204	1204	1.000
241	160	440	0	841	841	1.000
866	631	1202	842	3541		
865	631	1204	841			
0.999	0.999	1.002	0.999			
0%	0%	0%	0%			

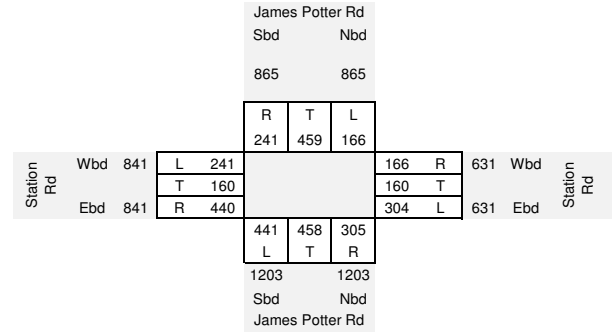
0	166	459	240	865	865	0.999	0%
166	0	305	160	631	631	1.000	0%
458	305	0	440	1203	1204	1.001	0%
241	160	440	0	841	841	1.000	0%
865	631	1204	841	3541			
865	631	1204	841				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	166	459	241	865	865	1.000	0%
East	166	0	304	160	631	631	1.000	0%
South	458	305	0	441	1203	1204	1.000	0%
West	241	160	440	0	841	841	1.000	0%
Total	865	631	1203	841	3541			
Target	865	631	1204	841				
	0.999	1.000	1.001	1.000				
	0%	0%	0%	0%				

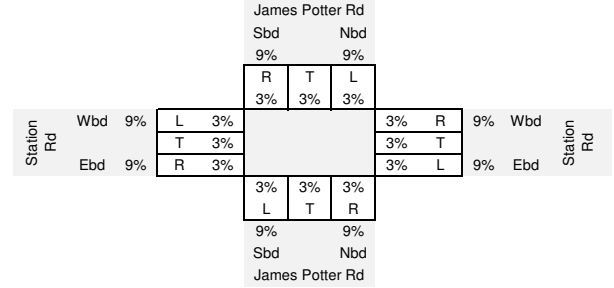
2021 PM



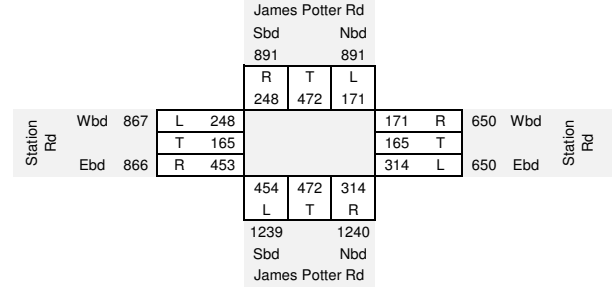
Forecasted 2021 Sat (Auto)



Heavy Truck%



Forecasted 2021 Sat





# APPENDIX F-7

**2031 SATURDAY**

---



**Bovaird Road at Heritage Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	5	404	73	<b>482</b>	693	1.438
East	21	0	130	859	<b>1010</b>	1294	1.281
South	395	81	0	119	<b>595</b>	655	1.101
West	61	931	54	0	<b>1046</b>	750	0.717
Total	<b>477</b>	<b>1017</b>	<b>588</b>	<b>1051</b>	<b>3133</b>		
Target	693	1294	655	750		3392	
	1.453	1.272	1.114	0.714			

0	7	581	105	<b>693</b>	693	1.000
27	0	167	1101	<b>1294</b>	1294	1.000
435	89	0	131	<b>655</b>	655	1.000
44	668	39	0	<b>750</b>	750	1.000
<b>505</b>	<b>764</b>	<b>786</b>	<b>1336</b>	<b>3392</b>		
693	1294	655	750			
1.371	1.694	0.833	0.561			
27%	41%	20%	78%			

0	12	484	59	<b>555</b>	693	1.249	20%
37	0	139	618	<b>793</b>	1294	1.631	39%
596	151	0	74	<b>821</b>	655	0.798	25%
60	1131	32	0	<b>1223</b>	750	0.613	63%
<b>693</b>	<b>1294</b>	<b>655</b>	<b>750</b>	<b>3392</b>			
693	1294	655	750				
1.000	1.000	1.000	1.000				

0	15	604	74	<b>693</b>	693	1.000
60	0	226	1007	<b>1294</b>	1294	1.000
476	121	0	59	<b>655</b>	655	1.000
37	693	20	0	<b>750</b>	750	1.000
<b>573</b>	<b>829</b>	<b>850</b>	<b>1140</b>	<b>3392</b>		
693	1294	655	750			
1.210	1.561	0.770	0.658			
17%	36%	30%	52%			

0	24	465	48	<b>538</b>	693	1.289	22%
73	0	174	663	<b>910</b>	1294	1.422	30%
576	188	0	39	<b>802</b>	655	0.816	23%
44	1082	15	0	<b>1142</b>	750	0.657	52%
<b>693</b>	<b>1294</b>	<b>655</b>	<b>750</b>	<b>3392</b>			
693	1294	655	750				
1.000	1.000	1.000	1.000				

0	31	600	62	<b>693</b>	693	1.000
104	0	248	943	<b>1294</b>	1294	1.000
470	154	0	32	<b>655</b>	655	1.000
29	711	10	0	<b>750</b>	750	1.000
<b>603</b>	<b>895</b>	<b>858</b>	<b>1037</b>	<b>3392</b>		
693	1294	655	750			
1.150	1.446	0.763	0.724			
13%	31%	31%	38%			

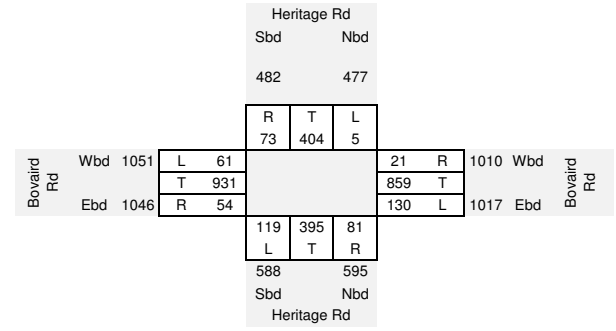
0	44	458	45	<b>547</b>	693	1.266	21%
119	0	189	682	<b>990</b>	1294	1.307	23%
540	222	0	23	<b>785</b>	655	0.834	20%
34	1028	8	0	<b>1069</b>	750	0.702	43%
<b>693</b>	<b>1294</b>	<b>655</b>	<b>750</b>	<b>3392</b>			
693	1294	655	750				
1.000	1.000	1.000	1.000				

0	56	580	57	<b>693</b>	693	1.000
156	0	247	891	<b>1294</b>	1294	1.000
451	185	0	19	<b>655</b>	655	1.000
24	721	5	0	<b>750</b>	750	1.000
<b>630</b>	<b>962</b>	<b>833</b>	<b>967</b>	<b>3392</b>		
693	1294	655	750			
1.100	1.345	0.787	0.775			
9%	26%	27%	29%			

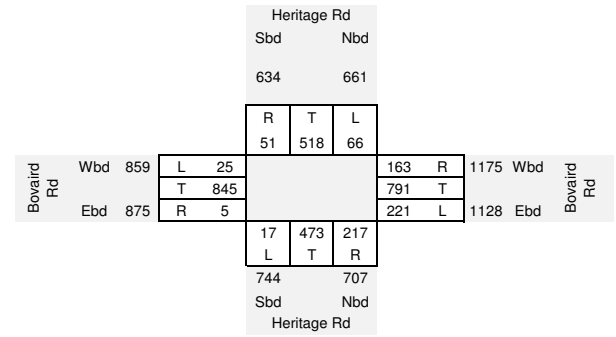
0	75	456	44	<b>576</b>	693	1.204	17%
171	0	195	691	<b>1057</b>	1294	1.225	18%
496	249	0	15	<b>760</b>	655	0.862	16%
26	970	4	0	<b>1000</b>	750	0.750	33%
<b>693</b>	<b>1294</b>	<b>655</b>	<b>750</b>	<b>3392</b>			
693	1294	655	750				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	66	518	51	<b>634</b>	693	1.092	8%
East	163	0	221	791	<b>1175</b>	1294	1.101	9%
South	473	217	0	17	<b>707</b>	655	0.926	8%
West	25	845	5	0	<b>875</b>	750	0.857	17%
Total	<b>661</b>	<b>1128</b>	<b>744</b>	<b>859</b>	<b>3392</b>			
Target	693	1294	655	750				
	1.048	1.147	0.881	0.873				
	5%	13%	14%	14%				

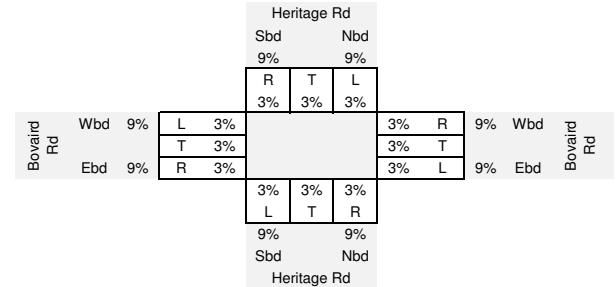
**2021 Sat**



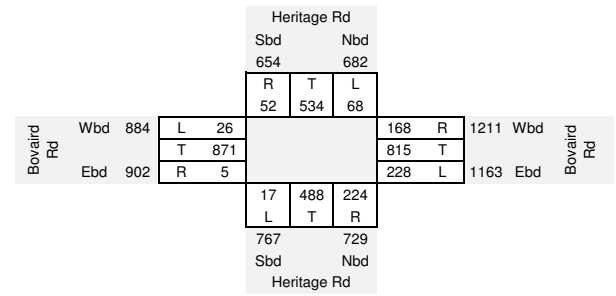
**Forecasted 2031 Sat (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Bovaird Road at Mississauga Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	187	1167	49	<b>1403</b>	1181	0.842
East	369	0	636	784	<b>1789</b>	2322	1.298
South	1003	771	0	85	<b>1859</b>	1704	0.917
West	32	831	54	0	<b>917</b>	2061	2.248
<b>Total</b>	<b>1404</b>	<b>1789</b>	<b>1857</b>	<b>918</b>	<b>5968</b>		
Target	1181	2322	1704	2061		7268	
	0.841	1.298	0.918	2.245			

0	157	982	41	<b>1181</b>	1181	1.000
479	0	825	1018	<b>2322</b>	2322	1.000
919	707	0	78	<b>1704</b>	1704	1.000
72	1868	121	0	<b>2061</b>	2061	1.000
<b>1470</b>	<b>2732</b>	<b>1929</b>	<b>1137</b>	<b>7268</b>		
1181	2322	1704	2061			
0.803	0.850	0.883	1.813			
24%	18%	13%	45%			

0	134	868	75	<b>1076</b>	1181	1.097	9%
385	0	729	1845	<b>2959</b>	2322	0.785	27%
739	601	0	141	<b>1480</b>	1704	1.151	13%
58	1588	107	0	<b>1752</b>	2061	1.176	15%
<b>1181</b>	<b>2322</b>	<b>1704</b>	<b>2061</b>	<b>7268</b>			
1181	2322	1704	2061				
1.000	1.000	1.000	1.000				

0	147	952	82	<b>1181</b>	1181	1.000
302	0	572	1448	<b>2322</b>	2322	1.000
850	691	0	163	<b>1704</b>	1704	1.000
68	1867	126	0	<b>2061</b>	2061	1.000
<b>1220</b>	<b>2705</b>	<b>1650</b>	<b>1693</b>	<b>7268</b>		
1181	2322	1704	2061			
0.968	0.858	1.032	1.218			
3%	17%	3%	18%			

0	126	983	100	<b>1209</b>	1181	0.977	2%
292	0	591	1763	<b>2646</b>	2322	0.877	14%
823	593	0	198	<b>1614</b>	1704	1.056	5%
66	1603	130	0	<b>1798</b>	2061	1.146	13%
<b>1181</b>	<b>2322</b>	<b>1704</b>	<b>2061</b>	<b>7268</b>			
1181	2322	1704	2061				
1.000	1.000	1.000	1.000				

0	123	960	98	<b>1181</b>	1181	1.000
256	0	518	1547	<b>2322</b>	2322	1.000
869	626	0	209	<b>1704</b>	1704	1.000
75	1836	149	0	<b>2061</b>	2061	1.000
<b>1200</b>	<b>2586</b>	<b>1628</b>	<b>1854</b>	<b>7268</b>		
1181	2322	1704	2061			
0.984	0.898	1.047	1.112			
2%	11%	4%	10%			

0	111	1005	109	<b>1224</b>	1181	0.965	4%
252	0	543	1720	<b>2515</b>	2322	0.923	8%
855	562	0	232	<b>1649</b>	1704	1.033	3%
74	1649	156	0	<b>1879</b>	2061	1.097	9%
<b>1181</b>	<b>2322</b>	<b>1704</b>	<b>2061</b>	<b>7268</b>			
1181	2322	1704	2061				
1.000	1.000	1.000	1.000				

0	107	970	105	<b>1181</b>	1181	1.000
233	0	501	1588	<b>2322</b>	2322	1.000
883	581	0	240	<b>1704</b>	1704	1.000
81	1808	171	0	<b>2061</b>	2061	1.000
<b>1197</b>	<b>2496</b>	<b>1642</b>	<b>1933</b>	<b>7268</b>		
1181	2322	1704	2061			
0.987	0.930	1.038	1.066			
1%	8%	4%	6%			

0	99	1006	112	<b>1217</b>	1181	0.970	3%
230	0	520	1693	<b>2443</b>	2322	0.950	5%
871	541	0	256	<b>1667</b>	1704	1.022	2%
80	1682	178	0	<b>1940</b>	2061	1.062	6%
<b>1181</b>	<b>2322</b>	<b>1704</b>	<b>2061</b>	<b>7268</b>			
1181	2322	1704	2061				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	103	988	108	<b>1199</b>	1181	0.985	2%
East	231	0	510	1641	<b>2383</b>	2322	0.975	3%
South	877	561	0	248	<b>1686</b>	1704	1.011	1%
West	81	1745	174	0	<b>2001</b>	2061	1.030	3%
<b>Total</b>	<b>1189</b>	<b>2409</b>	<b>1673</b>	<b>1997</b>	<b>7268</b>			
Target	1181	2322	1704	2061				
	0.993	0.964	1.019	1.032				
	1%	4%	2%	3%				

**2021 Sat**

		Mississauga Rd			
		Sbd	Nbd		
		1403	1404		
		R	T	L	
		49	1167	187	
Bovaird Rd	Wbd 918	L	32		
		T	831	369	R
	Ebd 917	R	54	784	T
				636	L
		85	1003	771	
		L	T	R	
		1857		1859	
		Sbd		Nbd	
				Mississauga Rd	

**Forecasted 2031 PM (Auto)**

		Mississauga Rd			
		Sbd	Nbd		
		1199	1189		
		R	T	L	
		108	988	103	
Bovaird Rd	Wbd 1997	L	81		
		T	1745	231	R
	Ebd 2001	R	174	1641	T
				510	L
		248	877	561	
		L	T	R	
		1673		1686	
		Sbd		Nbd	
				Mississauga Rd	

**Heavy Truck%**

		Mississauga Rd			
		Sbd	Nbd		
		9%	9%		
		R	T	L	
		3%	3%	3%	
Bovaird Rd	Wbd 9%	L	3%		
		T	3%	3%	R
	Ebd 9%	R	3%	3%	T
				3%	L
		3%	3%	3%	
		L	T	R	
		9%		9%	
		Sbd		Nbd	
				Mississauga Rd	

**Forecasted 2031 PM**

		Mississauga Rd			
		Sbd	Nbd		
		1235	1224		
		R	T	L	
		111	1018	106	
Bovaird Rd	Wbd 2056	L	83		
		T	1798	238	R
	Ebd 2061	R	180	1690	T
				526	L
		255	903	578	
		L	T	R	
		1724		1736	
		Sbd		Nbd	
				Mississauga Rd	

**Bovaird Road at James Potter Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	49	811	382	<b>1242</b>	1305	1.051
East	52	0	4	1447	<b>1503</b>	1589	1.057
South	828	4	0	27	<b>859</b>	852	0.992
West	325	1488	23	0	<b>1836</b>	2431	1.324
Total	<b>1205</b>	<b>1541</b>	<b>838</b>	<b>1856</b>	<b>5440</b>		
Target	1305	1589	852	2431		6177	
	1.083	1.031	1.017	1.310			

0	51	852	401	<b>1305</b>	1305	1.000
55	0	4	1530	<b>1589</b>	1589	1.000
821	4	0	27	<b>852</b>	852	1.000
430	1970	30	0	<b>2431</b>	2431	1.000
<b>1307</b>	<b>2026</b>	<b>887</b>	<b>1958</b>	<b>6177</b>		
1305	1589	852	2431			
0.999	0.784	0.961	1.242			
0%	27%	4%	19%			

0	40	819	498	<b>1357</b>	1305	0.961	4%
55	0	4	1899	<b>1958</b>	1589	0.811	23%
820	3	0	33	<b>857</b>	852	0.995	1%
430	1546	29	0	<b>2005</b>	2431	1.213	18%
<b>1305</b>	<b>1589</b>	<b>852</b>	<b>2431</b>	<b>6177</b>			
1305	1589	852	2431				
1.000	1.000	1.000	1.000				

0	39	787	479	<b>1305</b>	1305	1.000
45	0	3	1541	<b>1589</b>	1589	1.000
816	3	0	33	<b>852</b>	852	1.000
521	1874	35	0	<b>2431</b>	2431	1.000
<b>1382</b>	<b>1916</b>	<b>826</b>	<b>2053</b>	<b>6177</b>		
1305	1589	852	2431			
0.945	0.829	1.032	1.184			
6%	21%	3%	16%			

0	32	812	567	<b>1411</b>	1305	0.925	8%
42	0	3	1825	<b>1870</b>	1589	0.850	18%
771	3	0	39	<b>812</b>	852	1.049	5%
492	1554	37	0	<b>2083</b>	2431	1.167	14%
<b>1305</b>	<b>1589</b>	<b>852</b>	<b>2431</b>	<b>6177</b>			
1305	1589	852	2431				
1.000	1.000	1.000	1.000				

0	30	751	524	<b>1305</b>	1305	1.000
36	0	3	1550	<b>1589</b>	1589	1.000
808	3	0	41	<b>852</b>	852	1.000
575	1814	43	0	<b>2431</b>	2431	1.000
<b>1419</b>	<b>1846</b>	<b>796</b>	<b>2116</b>	<b>6177</b>		
1305	1589	852	2431			
0.920	0.861	1.070	1.149			
9%	16%	7%	13%			

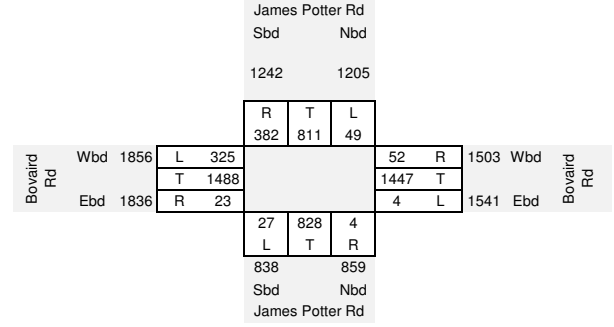
0	26	803	603	<b>1431</b>	1305	0.912	10%
33	0	3	1781	<b>1817</b>	1589	0.874	14%
744	2	0	47	<b>793</b>	852	1.074	7%
529	1561	46	0	<b>2135</b>	2431	1.138	12%
<b>1305</b>	<b>1589</b>	<b>852</b>	<b>2431</b>	<b>6177</b>			
1305	1589	852	2431				
1.000	1.000	1.000	1.000				

0	23	732	549	<b>1305</b>	1305	1.000
29	0	3	1558	<b>1589</b>	1589	1.000
799	2	0	51	<b>852</b>	852	1.000
602	1777	52	0	<b>2431</b>	2431	1.000
<b>1429</b>	<b>1803</b>	<b>787</b>	<b>2158</b>	<b>6177</b>		
1305	1589	852	2431			
0.913	0.881	1.083	1.127			
10%	13%	8%	11%			

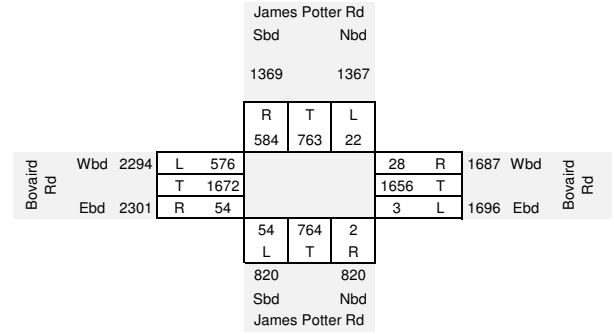
0	21	793	619	<b>1432</b>	1305	0.911	10%
26	0	3	1755	<b>1784</b>	1589	0.891	12%
729	2	0	57	<b>789</b>	852	1.080	7%
549	1566	56	0	<b>2172</b>	2431	1.119	11%
<b>1305</b>	<b>1589</b>	<b>852</b>	<b>2431</b>	<b>6177</b>			
1305	1589	852	2431				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	22	763	584	<b>1369</b>	1305	0.953	5%
East	28	0	3	1656	<b>1687</b>	1589	0.942	6%
South	764	2	0	54	<b>820</b>	852	1.039	4%
West	576	1672	54	0	<b>2301</b>	2431	1.056	5%
Total	<b>1367</b>	<b>1696</b>	<b>820</b>	<b>2294</b>	<b>6177</b>			
Target	1305	1589	852	2431				
	0.955	0.937	1.040	1.060				
	5%	7%	4%	6%				

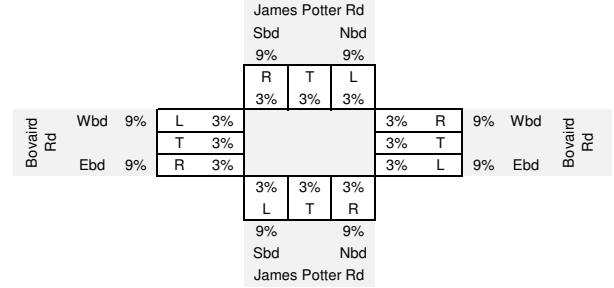
**2021 Sat**



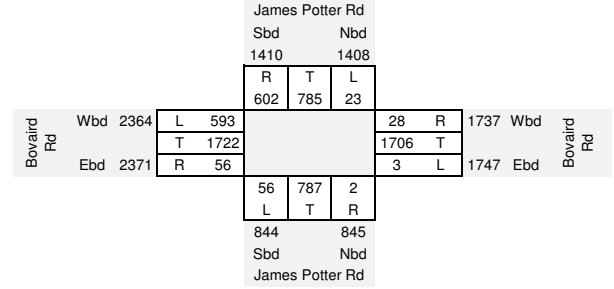
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**



**Bovaird Road at Ashby Field Road - Sat Peak Hour**

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	141	52	114	307	298	0.971
East	108	0	105	1281	1494	1589	1.064
South	93	71	0	63	227	220	0.969
West	106	1285	69	0	1460	1589	1.088
Total	307	1497	226	1458	3488		
Target	298	1589	220	1589		3696	
	0.971	1.061	0.973	1.090			

0	137	50	111	298	298	1.000
115	0	112	1362	1589	1589	1.000
90	69	0	61	220	220	1.000
115	1399	75	0	1589	1589	1.000
320	1604	237	1534	3696		
298	1589	220	1589			
0.930	0.991	0.927	1.036			
8%	1%	8%	3%			

0	136	47	115	297	298	1.003	0%
107	0	104	1411	1622	1589	0.980	2%
84	68	0	63	215	220	1.022	2%
107	1385	70	0	1562	1589	1.017	2%
298	1589	220	1589	3696			
298	1589	220	1589				
1.000	1.000	1.000	1.000				

0	136	47	115	298	298	1.000
105	0	101	1383	1589	1589	1.000
86	70	0	65	220	220	1.000
109	1409	71	0	1589	1589	1.000
300	1615	219	1562	3696		
298	1589	220	1589			
0.995	0.984	1.003	1.017			
1%	2%	0%	2%			

0	134	47	117	298	298	1.000	0%
104	0	102	1406	1612	1589	0.986	1%
85	69	0	66	220	220	1.002	0%
109	1387	71	0	1566	1589	1.015	1%
298	1589	220	1589	3696			
298	1589	220	1589				
1.000	1.000	1.000	1.000				

0	134	47	117	298	298	1.000
103	0	100	1386	1589	1589	1.000
85	69	0	66	220	220	1.000
110	1407	72	0	1589	1589	1.000
298	1609	220	1569	3696		
298	1589	220	1589			
0.999	0.987	1.002	1.013			
0%	1%	0%	1%			

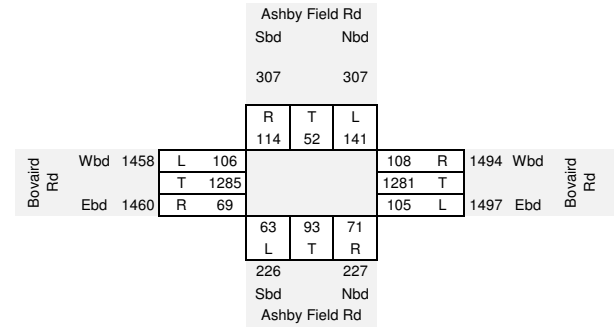
0	132	47	118	298	298	1.000	0%
103	0	101	1404	1607	1589	0.989	1%
85	68	0	67	220	220	1.000	0%
110	1389	72	0	1571	1589	1.011	1%
298	1589	220	1589	3696			
298	1589	220	1589				
1.000	1.000	1.000	1.000				

0	132	47	119	298	298	1.000
101	0	99	1388	1589	1589	1.000
85	68	0	67	220	220	1.000
111	1405	73	0	1589	1589	1.000
298	1605	220	1573	3696		
298	1589	220	1589			
1.000	0.990	1.001	1.010			
0%	1%	0%	1%			

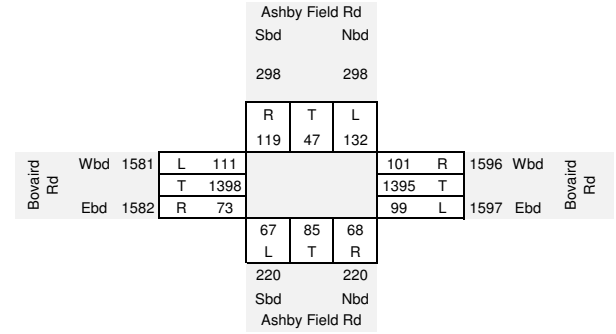
0	131	47	120	298	298	1.000	0%
101	0	100	1402	1603	1589	0.991	1%
85	67	0	67	220	220	1.000	0%
111	1391	73	0	1575	1589	1.009	1%
298	1589	220	1589	3696			
298	1589	220	1589				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	
	North	East	South	West				
North	0	132	47	119	298	298	1.000	0%
East	101	0	99	1395	1596	1589	0.996	0%
South	85	68	0	67	220	220	1.000	0%
West	111	1398	73	0	1582	1589	1.004	0%
Total	298	1597	220	1581	3696			
Target	298	1589	220	1589				
	1.000	0.995	1.001	1.005				
	0%	0%	0%	0%				

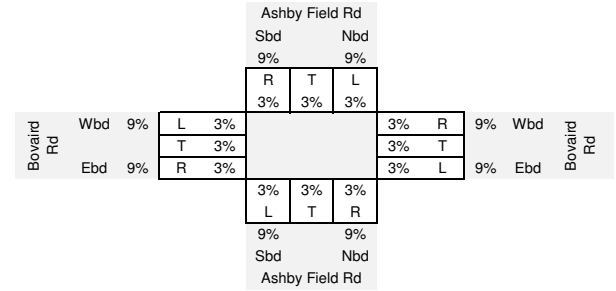
**2021 Sat**



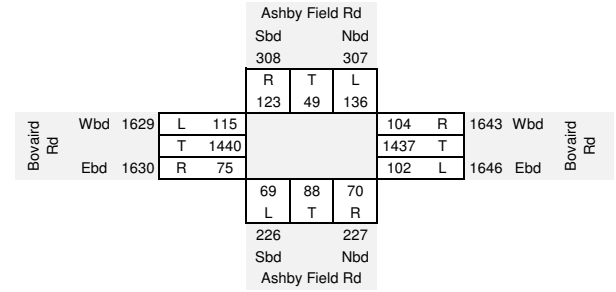
**Forecasted 2031 PM (Auto)**



**Heavy Truck%**



**Forecasted 2031 PM**





Station Road at Heritage Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	204	290	1	495	697	1.408
East	115	0	134	1	250	720	2.880
South	381	42	0	1	424	546	1.288
West	1	1	1	0	3	141	47.000
Total	497	247	425	3	1172		
Target	697	720	546	138		2103	
	1.402	2.915	1.285	####			

0	287	408	1	697	697	1.000
331	0	386	3	720	720	1.000
491	54	0	1	546	546	1.000
47	47	47	0	141	141	1.000
869	388	841	6	2104		
697	720	546	138			
0.802	1.854	0.649	####			
25%	46%	54%	96%			

0	533	265	35	832	697	0.837	19%
266	0	250	71	587	720	1.226	18%
394	100	0	32	526	546	1.039	4%
38	87	31	0	155	141	0.908	10%
697	720	546	138	2101			
697	720	546	138				
1.000	1.000	1.000	1.000				

0	446	222	29	697	697	1.000
326	0	307	87	720	720	1.000
409	104	0	33	546	546	1.000
34	79	28	0	141	141	1.000
769	629	557	150	2104		
697	720	546	138			
0.907	1.144	0.981	0.922			
10%	13%	2%	8%			

0	510	218	27	755	697	0.923	8%
295	0	301	81	677	720	1.063	6%
371	119	0	31	520	546	1.049	5%
31	91	27	0	149	141	0.948	5%
697	720	546	138	2101			
697	720	546	138				
1.000	1.000	1.000	1.000				

0	471	201	25	697	697	1.000
314	0	320	86	720	720	1.000
389	125	0	32	546	546	1.000
29	86	26	0	141	141	1.000
732	682	547	143	2104		
697	720	546	138			
0.952	1.056	0.998	0.968			
5%	5%	0%	3%			

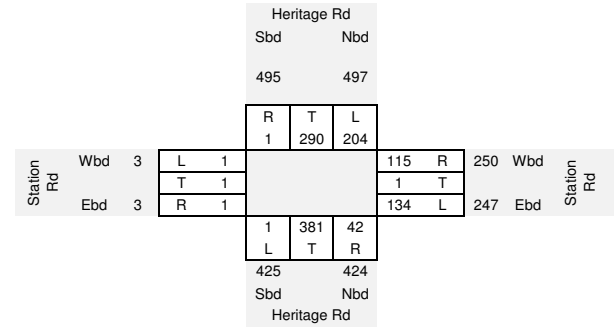
0	497	201	24	722	697	0.965	4%
299	0	320	83	701	720	1.026	3%
370	132	0	31	533	546	1.024	2%
28	91	26	0	144	141	0.977	2%
697	720	546	138	2101			
697	720	546	138				
1.000	1.000	1.000	1.000				

0	480	194	23	697	697	1.000
307	0	328	85	720	720	1.000
379	135	0	32	546	546	1.000
27	89	25	0	141	141	1.000
713	704	547	140	2104		
697	720	546	138			
0.977	1.023	0.998	0.985			
2%	2%	0%	2%			

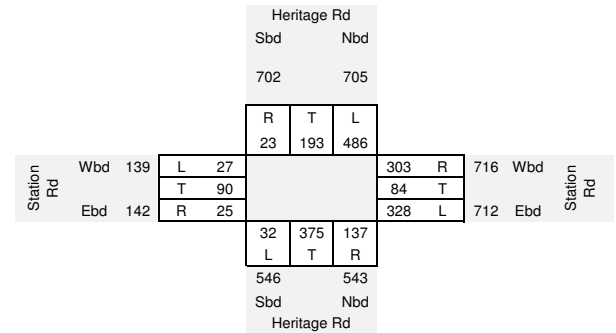
0	491	193	23	707	697	0.985	1%
300	0	328	84	711	720	1.012	1%
370	138	0	31	540	546	1.011	1%
27	91	25	0	142	141	0.990	1%
697	720	546	138	2101			
697	720	546	138				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	486	193	23	702	697	0.993	1%
East	303	0	328	84	716	720	1.006	1%
South	375	137	0	32	543	546	1.005	1%
West	27	90	25	0	142	141	0.995	0%
Total	705	712	546	139	2103			
Target	697	720	546	138				
	0.989	1.011	0.999	0.992				
	1%	1%	0%	1%				

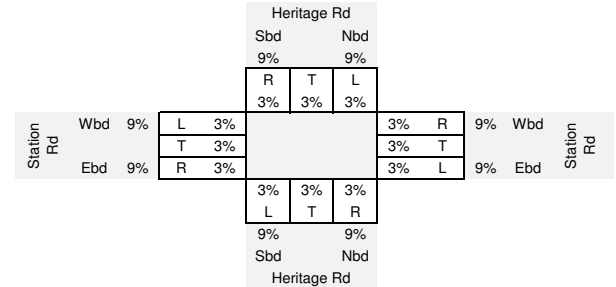
2021 Sat



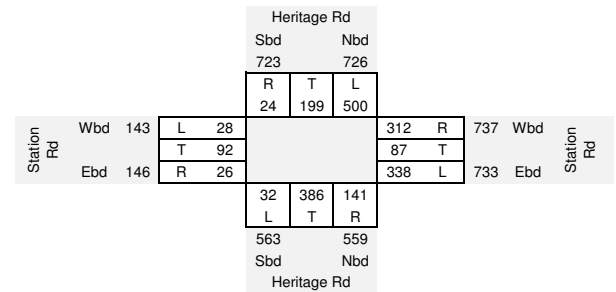
Forecasted 2021 PM (Auto)



Heavy Truck%



Forecasted 2021 PM



Station Road at Mississauga Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	140	911	20	1071	789	0.737
East	109	0	153	601	863	720	0.834
South	970	88	0	13	1071	829	0.774
West	16	612	23	0	651	762	1.171
Total	1095	840	1087	634	3656		
Target	789	772	829	762		3126	
	0.721	0.919	0.763	1.202			

0	103	671	15	789	789	1.000
91	0	128	501	720	720	1.000
751	68	0	10	829	829	1.000
19	716	27	0	762	762	1.000
860	888	826	526	3100		
789	772	829	762			
0.917	0.870	1.004	1.448			
9%	15%	0%	31%			

0	90	674	21	785	789	1.005	1%
83	0	128	726	938	720	0.768	30%
688	59	0	15	762	829	1.088	8%
17	623	27	0	667	762	1.142	12%
789	772	829	762	3152			
789	772	829	762				
1.000	1.000	1.000	1.000				

0	90	677	21	789	789	1.000
64	0	98	558	720	720	1.000
749	64	0	16	829	829	1.000
20	712	31	0	762	762	1.000
832	866	807	595	3100		
789	772	829	762			
0.948	0.891	1.028	1.281			
5%	12%	3%	22%			

0	80	696	27	804	789	0.981	2%
61	0	101	714	876	720	0.822	22%
710	57	0	20	787	829	1.053	5%
19	634	32	0	685	762	1.113	10%
789	772	829	762	3152			
789	772	829	762				
1.000	1.000	1.000	1.000				

0	79	683	27	789	789	1.000
50	0	83	587	720	720	1.000
747	60	0	21	829	829	1.000
21	706	35	0	762	762	1.000
818	845	802	635	3100		
789	772	829	762			
0.965	0.913	1.034	1.199			
4%	9%	3%	17%			

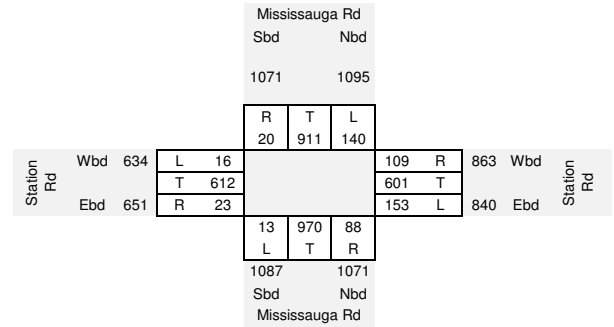
0	72	707	32	811	789	0.973	3%
48	0	86	704	838	720	0.859	16%
721	55	0	26	802	829	1.034	3%
20	645	37	0	701	762	1.087	8%
789	772	829	762	3152			
789	772	829	762				
1.000	1.000	1.000	1.000				

0	70	687	31	789	789	1.000
41	0	74	605	720	720	1.000
745	57	0	27	829	829	1.000
22	701	40	0	762	762	1.000
808	828	801	663	3100		
789	772	829	762			
0.976	0.933	1.035	1.150			
2%	7%	3%	13%			

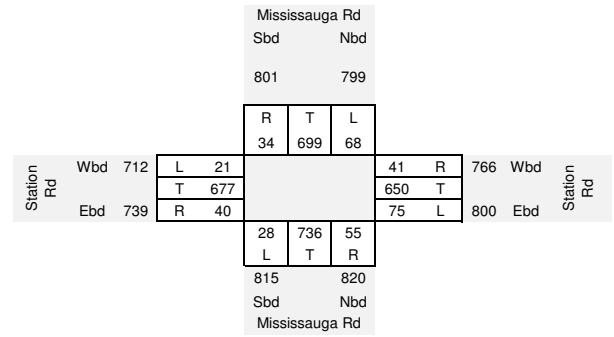
0	65	711	36	813	789	0.970	3%
40	0	76	695	812	720	0.887	13%
727	53	0	30	811	829	1.022	2%
21	653	41	0	716	762	1.065	6%
789	772	829	762	3152			
789	772	829	762				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	68	699	34	801	789	0.985	2%
East	41	0	75	650	766	720	0.940	6%
South	736	55	0	28	820	829	1.011	1%
West	21	677	40	0	739	762	1.031	3%
Total	799	800	815	712	3126			
Target	789	772	829	762				
	0.988	0.965	1.017	1.070				
	1%	4%	2%	7%				

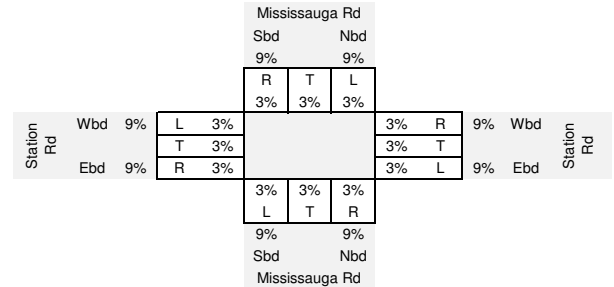
2021 Sat



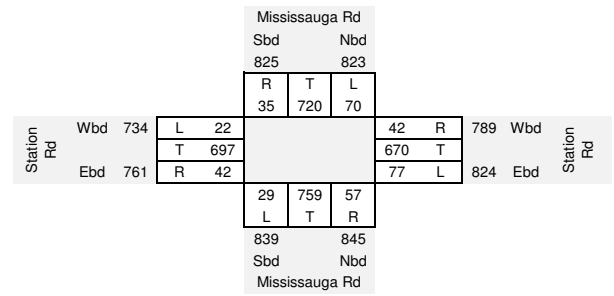
Forecasted 2031 PM (Auto)



Heavy Truck%



Forecasted 2031 PM



Station Road at James Potter Road - Sat Peak Hour

Origins	Destinations				Total	Target	Factor
	North	East	South	West			
North	0	171	472	248	<b>891</b>	927	1.040
East	171	0	314	165	<b>650</b>	580	0.892
South	472	314	0	454	<b>1240</b>	1305	1.052
West	248	165	453	0	<b>866</b>	772	0.891
Total	<b>891</b>	<b>650</b>	<b>1239</b>	<b>867</b>	<b>3647</b>		
Target	927	580	1305	772		3584	
	1.040	0.892	1.053	0.890			

0	178	491	258	<b>927</b>	927	1.000
153	0	280	147	<b>580</b>	580	1.000
497	330	0	478	<b>1305</b>	1305	1.000
221	147	404	0	<b>772</b>	772	1.000
<b>870</b>	<b>655</b>	<b>1175</b>	<b>883</b>	<b>3584</b>		
927	580	1305	772			
1.065	0.885	1.111	0.874			
6%	13%	10%	14%			

0	157	545	226	<b>928</b>	927	0.999	0%
163	0	311	129	<b>602</b>	580	0.963	4%
529	292	0	418	<b>1239</b>	1305	1.053	5%
235	130	448	0	<b>814</b>	772	0.948	5%
<b>927</b>	<b>580</b>	<b>1305</b>	<b>772</b>	<b>3584</b>			
927	580	1305	772				
1.000	1.000	1.000	1.000				

0	157	545	225	<b>927</b>	927	1.000
156	0	300	124	<b>580</b>	580	1.000
557	308	0	440	<b>1305</b>	1305	1.000
223	123	425	0	<b>772</b>	772	1.000
<b>937</b>	<b>589</b>	<b>1269</b>	<b>789</b>	<b>3584</b>		
927	580	1305	772			
0.989	0.985	1.028	0.978			
1%	1%	3%	2%			

0	155	560	220	<b>935</b>	927	0.991	1%
155	0	308	121	<b>584</b>	580	0.993	1%
551	303	0	430	<b>1285</b>	1305	1.015	2%
221	122	437	0	<b>780</b>	772	0.990	1%
<b>927</b>	<b>580</b>	<b>1305</b>	<b>772</b>	<b>3584</b>			
927	580	1305	772				
1.000	1.000	1.000	1.000				

0	154	555	218	<b>927</b>	927	1.000
154	0	306	120	<b>580</b>	580	1.000
560	308	0	437	<b>1305</b>	1305	1.000
219	120	433	0	<b>772</b>	772	1.000
<b>932</b>	<b>582</b>	<b>1294</b>	<b>776</b>	<b>3584</b>		
927	580	1305	772			
0.994	0.996	1.009	0.995			
1%	0%	1%	1%			

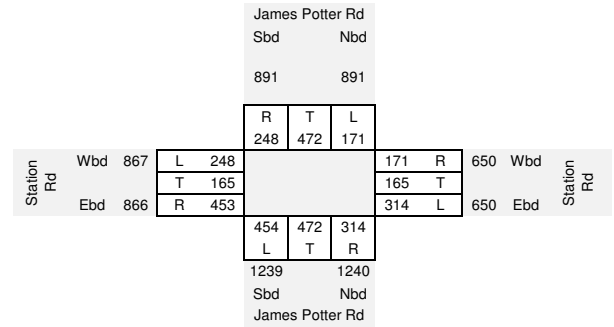
0	153	560	217	<b>930</b>	927	0.997	0%
153	0	309	120	<b>581</b>	580	0.998	0%
557	307	0	435	<b>1298</b>	1305	1.005	0%
217	120	437	0	<b>774</b>	772	0.997	0%
<b>927</b>	<b>580</b>	<b>1305</b>	<b>772</b>	<b>3584</b>			
927	580	1305	772				
1.000	1.000	1.000	1.000				

0	152	558	217	<b>927</b>	927	1.000
153	0	308	120	<b>580</b>	580	1.000
559	309	0	437	<b>1305</b>	1305	1.000
217	120	435	0	<b>772</b>	772	1.000
<b>929</b>	<b>581</b>	<b>1301</b>	<b>773</b>	<b>3584</b>		
927	580	1305	772			
0.998	0.999	1.003	0.998			
0%	0%	0%	0%			

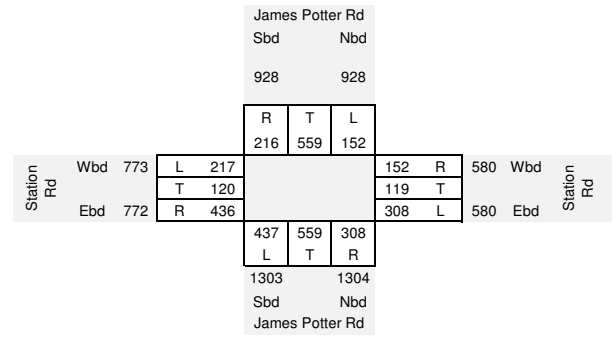
0	152	560	216	<b>928</b>	927	0.999	0%
152	0	309	119	<b>580</b>	580	0.999	0%
558	308	0	436	<b>1303</b>	1305	1.002	0%
216	120	437	0	<b>773</b>	772	0.999	0%
<b>927</b>	<b>580</b>	<b>1305</b>	<b>772</b>	<b>3584</b>			
927	580	1305	772				
1.000	1.000	1.000	1.000				

Origins	Destinations				Total	Target	Factor	%
	North	East	South	West				
North	0	152	559	216	<b>928</b>	927	0.999	0%
East	152	0	308	119	<b>580</b>	580	1.000	0%
South	559	308	0	437	<b>1304</b>	1305	1.001	0%
West	217	120	436	0	<b>772</b>	772	1.000	0%
Total	<b>928</b>	<b>580</b>	<b>1303</b>	<b>773</b>	<b>3584</b>			
Target	927	580	1305	772				
	0.999	0.999	1.001	0.999				
	0%	0%	0%	0%				

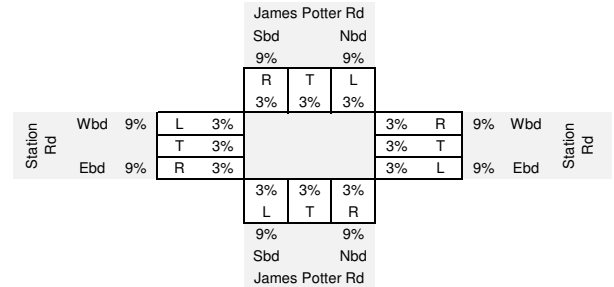
2021 Sat



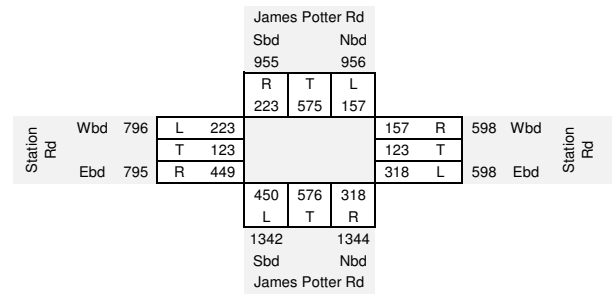
Forecasted 2031 PM (Auto)



Heavy Truck%



Forecasted 2031 PM





# Appendix G

**FUTURE (2031) INTERSECTION CAPACITY ANALYSIS AND  
QUEUING ANALYSIS SYNCHRO SHEETS**



## APPENDIX G-1

### **2031 TRAFFIC – BOVAIRD DRIVE LANE CONFIGURATION AS PER BOVAIRD DRIVE EA**

---



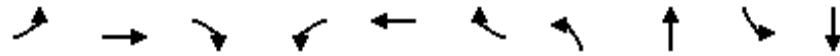


## Queues

&lt;2031 Bovaird EA LC&gt; AM Peak Hour

## 1: Heritage Road &amp; Bovaird Drive

6/9/2015


























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	636	16	404	663	209	7	336	35	968
v/c Ratio	0.36	0.78	0.04	0.87	0.50	0.30	0.06	0.24	0.09	0.69
Control Delay	18.6	44.9	0.2	39.3	25.6	6.3	26.1	23.0	24.3	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	44.9	0.2	39.3	25.6	6.3	26.1	23.0	24.3	31.1
Queue Length 50th (m)	10.9	63.4	0.0	52.4	53.1	5.5	0.9	22.9	4.3	83.9
Queue Length 95th (m)	19.3	90.5	0.0	90.1	68.1	18.8	4.7	41.1	13.1	133.1
Internal Link Dist (m)		326.4			946.6			240.2		235.2
Turn Bay Length (m)	50.0		30.0	55.0		30.0	30.0		30.0	
Base Capacity (vph)	303	1089	537	571	1859	908	122	1391	397	1394
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	0.36	0.58	0.03	0.71	0.36	0.23	0.06	0.24	0.09	0.69

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
 1: Heritage Road & Bovaird Drive

<2031 Bovaird EA LC> AM Peak Hour

6/9/2015

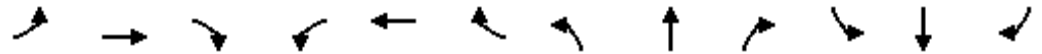
													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	108	636	16	404	663	209	7	320	16	35	948	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2		6.2	6.2		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1738	3476	1529	1738	3476	1555	1738	3451		1738	3465		
Flt Permitted	0.40	1.00	1.00	0.21	1.00	1.00	0.17	1.00		0.54	1.00		
Satd. Flow (perm)	731	3476	1529	377	3476	1555	303	3451		990	3465		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	108	636	16	404	663	209	7	320	16	35	948	20	
RTOR Reduction (vph)	0	0	12	0	0	103	0	3	0	0	1	0	
Lane Group Flow (vph)	108	636	4	404	663	106	7	333	0	35	967	0	
Confl. Bikes (#/hr)			5									3	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA		
Protected Phases	5	2		1	6			8			4		
Permitted Phases	2		2	6		6	8			4			
Actuated Green, G (s)	31.0	24.9	24.9	49.1	40.0	40.0	42.2	42.2		42.2	42.2		
Effective Green, g (s)	31.0	24.9	24.9	49.1	40.0	40.0	42.2	42.2		42.2	42.2		
Actuated g/C Ratio	0.30	0.24	0.24	0.47	0.38	0.38	0.40	0.40		0.40	0.40		
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2		6.2	6.2		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	274	825	362	451	1325	592	121	1388		398	1393		
v/s Ratio Prot	0.02	0.18		c0.18	0.19			0.10			c0.28		
v/s Ratio Perm	0.09		0.00	c0.24		0.07	0.02			0.04			
v/c Ratio	0.39	0.77	0.01	0.90	0.50	0.18	0.06	0.24		0.09	0.69		
Uniform Delay, d1	27.8	37.3	30.6	22.6	24.8	21.6	19.2	20.7		19.4	26.0		
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	0.9	4.5	0.0	19.9	0.3	0.1	0.9	0.4		0.4	2.9		
Delay (s)	28.7	41.8	30.6	42.4	25.1	21.7	20.1	21.1		19.9	28.9		
Level of Service	C	D	C	D	C	C	C	C		B	C		
Approach Delay (s)		39.7			30.0			21.1			28.6		
Approach LOS		D			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			30.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.83										
Actuated Cycle Length (s)			104.9									Sum of lost time (s)	16.6
Intersection Capacity Utilization			83.7%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

Queues  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> AM Peak Hour

6/9/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104
v/c Ratio	0.58	1.08	0.56	1.18	0.63	0.08	1.26	0.27	0.59	0.42	1.17	0.22
Control Delay	70.2	90.6	28.4	119.5	15.7	2.0	206.6	40.0	7.5	32.5	126.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	90.6	28.4	119.5	15.7	2.0	206.6	40.0	7.5	32.5	126.1	12.5
Queue Length 50th (m)	9.1	~185.6	46.2	~128.5	134.6	1.1	~32.1	25.4	0.0	28.9	~177.1	4.4
Queue Length 95th (m)	#28.0	#215.1	76.1m	#143.1	m145.5	m2.6	#56.5	34.5	26.4	46.2	#206.8	18.3
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	115.0		75.0	180.0		35.0	137.0		200.0	90.0		35.0
Base Capacity (vph)	74	1629	575	700	2781	890	155	1244	694	388	1360	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.08	0.56	1.18	0.63	0.08	1.26	0.27	0.59	0.42	1.17	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> AM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	1738	4995	1555
Flt Permitted	0.12	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	228	4995	1555	3372	4995	1555	3372	4995	1555	893	4995	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104
RTOR Reduction (vph)	0	0	69	0	0	24	0	0	307	0	0	59
Lane Group Flow (vph)	43	1767	253	826	1746	43	195	335	102	163	1589	45
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2			6			8	4		4
Actuated Green, G (s)	42.4	42.4	42.4	27.0	72.4	72.4	6.0	32.4	32.4	44.4	35.4	35.4
Effective Green, g (s)	42.4	42.4	42.4	27.0	72.4	72.4	6.0	32.4	32.4	44.4	35.4	35.4
Actuated g/C Ratio	0.33	0.33	0.33	0.21	0.56	0.56	0.05	0.25	0.25	0.34	0.27	0.27
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	74	1629	507	700	2781	866	155	1244	387	363	1360	423
v/s Ratio Prot		c0.35		c0.24	0.35		c0.06	0.07		c0.03	c0.32	
v/s Ratio Perm	0.19		0.16			0.03			0.07	0.12		0.03
v/c Ratio	0.58	1.08	0.50	1.18	0.63	0.05	1.26	0.27	0.26	0.45	1.17	0.11
Uniform Delay, d1	36.4	43.8	35.3	51.5	19.6	13.1	62.0	39.3	39.2	31.2	47.3	35.4
Progression Factor	1.00	1.00	1.00	0.63	0.77	0.42	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.2	49.1	3.5	88.0	0.5	0.0	157.8	0.1	0.4	0.9	84.1	0.1
Delay (s)	65.6	92.9	38.7	120.6	15.6	5.6	219.8	39.4	39.6	32.0	131.4	35.6
Level of Service	E	F	D	F	B	A	F	D	D	C	F	D
Approach Delay (s)		84.2			48.2			76.9			117.3	
Approach LOS		F			D			E			F	

Intersection Summary

HCM 2000 Control Delay	78.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> AM Peak Hour

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	334	1979	38	2	1642	16	80	789	5	48	837	744
v/c Ratio	0.98	0.75	0.05	0.04	0.96	0.03	0.59	0.61	0.01	0.32	0.65	0.93
Control Delay	44.2	18.5	1.5	31.0	38.1	1.8	53.7	35.6	0.0	36.5	36.6	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	18.5	1.5	31.0	38.1	1.8	53.7	35.6	0.0	36.5	36.6	39.9
Queue Length 50th (m)	53.5	188.8	1.1	0.2	44.6	0.0	16.4	85.7	0.0	8.7	92.5	111.9
Queue Length 95th (m)	m#57.5	m167.1	m1.3	m0.4	#175.5	m0.2	#39.0	106.4	0.0	20.3	114.3	#197.0
Internal Link Dist (m)		401.2			445.4			387.7			242.7	
Turn Bay Length (m)	170.0		80.0	85.0		110.0	50.0		50.0			
Base Capacity (vph)	341	2628	834	56	1705	567	135	1294	613	151	1294	799
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.75	0.05	0.04	0.96	0.03	0.59	0.61	0.01	0.32	0.65	0.93

Intersection Summary































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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis  
 3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> AM Peak Hour  
 6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Volume (vph)	334	1979	38	2	1642	16	80	789	5	48	837	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	1738	4995	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.08	1.00	1.00	0.09	1.00	1.00	0.20	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	154	4995	1555	165	4995	1555	364	3476	1555	408	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	334	1979	38	2	1642	16	80	789	5	48	837	744
RTOR Reduction (vph)	0	0	17	0	0	11	0	0	3	0	0	220
Lane Group Flow (vph)	334	1979	21	2	1642	5	80	789	2	48	837	524
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)	68.4	68.4	68.4	44.4	44.4	44.4	48.4	48.4	48.4	48.4	48.4	48.4
Effective Green, g (s)	68.4	68.4	68.4	44.4	44.4	44.4	48.4	48.4	48.4	48.4	48.4	48.4
Actuated g/C Ratio	0.53	0.53	0.53	0.34	0.34	0.34	0.37	0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	336	2628	818	56	1705	531	135	1294	578	151	1294	578
v/s Ratio Prot	c0.16	0.40			0.33			0.23			0.24	
v/s Ratio Perm	c0.36		0.01	0.01		0.00	0.22		0.00	0.12		c0.34
v/c Ratio	0.99	0.75	0.03	0.04	0.96	0.01	0.59	0.61	0.00	0.32	0.65	0.91
Uniform Delay, d1	41.6	24.2	14.8	28.5	42.0	28.3	32.9	33.1	25.6	29.0	33.7	38.6
Progression Factor	0.48	0.73	0.28	1.01	0.60	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.6	0.7	0.0	0.9	12.0	0.0	17.7	2.1	0.0	5.5	2.5	20.3
Delay (s)	46.3	18.3	4.1	29.8	37.3	28.3	50.5	35.3	25.7	34.5	36.2	58.9
Level of Service	D	B	A	C	D	C	D	D	C	C	D	E
Approach Delay (s)		22.1			37.2			36.6			46.6	
Approach LOS		C			D			D			D	

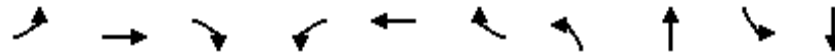
Intersection Summary		
HCM 2000 Control Delay	34.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.98	C
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	98.7%	16.2
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		F

## Queues

&lt;2031 Bovaird EA LC&gt; AM Peak Hour

## 4: Station Road &amp; Bovaird Drive

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	1600	45	58	1590	190	88	221	107	60
v/c Ratio	0.71	0.60	0.05	0.33	0.68	0.23	0.29	0.53	0.83	0.10
Control Delay	63.7	6.3	0.4	16.0	29.4	3.7	44.1	44.8	105.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	6.3	0.4	16.0	29.4	3.7	44.1	44.8	105.2	25.1
Queue Length 50th (m)	32.4	11.9	0.0	5.6	114.5	0.0	18.7	45.3	14.3	8.2
Queue Length 95th (m)	m48.8	34.7	m0.2	11.1	138.9	13.3	34.0	71.0	#30.7	18.4
Internal Link Dist (m)		445.4			528.3			204.6		104.7
Turn Bay Length (m)	130.0		110.0	95.0		110.0	50.0		50.0	
Base Capacity (vph)	296	2674	877	179	2335	818	306	418	129	620
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	0.59	0.60	0.05	0.32	0.68	0.23	0.29	0.53	0.83	0.10

## Intersection Summary

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

Queue shown is maximum after two cycles.























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

# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> AM Peak Hour

## 4: Station Road & Bovaird Drive

6/9/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	176	1600	45	58	1590	190	88	142	79	107	44	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7	
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00		
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1738	4995	1555	1738	4995	1534	1738	1732		3372	1969		
Flt Permitted	0.08	1.00	1.00	0.11	1.00	1.00	0.72	1.00		0.95	1.00		
Satd. Flow (perm)	143	4995	1555	201	4995	1534	1313	1732		3372	1969		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	176	1600	45	58	1590	190	88	142	79	107	44	16	
RTOR Reduction (vph)	0	0	21	0	0	101	0	15	0	0	10	0	
Lane Group Flow (vph)	176	1600	24	58	1590	89	88	206	0	107	50	0	
Confl. Peds. (#/hr)	1					1							
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA		
Protected Phases	5	2		1	6			4		3	8		
Permitted Phases	2		2	6		6	4						
Actuated Green, G (s)	76.8	69.0	69.0	65.6	60.8	60.8	30.3	30.3		5.0	40.3		
Effective Green, g (s)	76.8	69.0	69.0	65.6	60.8	60.8	30.3	30.3		5.0	40.3		
Actuated g/C Ratio	0.59	0.53	0.53	0.50	0.47	0.47	0.23	0.23		0.04	0.31		
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	243	2651	825	158	2336	717	306	403		129	610		
v/s Ratio Prot	c0.07	0.32		0.01	0.32			c0.12		c0.03	0.03		
v/s Ratio Perm	c0.35		0.02	0.17		0.06	0.07						
v/c Ratio	0.72	0.60	0.03	0.37	0.68	0.12	0.29	0.51		0.83	0.08		
Uniform Delay, d1	26.5	21.1	14.5	17.6	27.0	19.6	41.0	43.4		62.1	31.7		
Progression Factor	2.36	0.27	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	6.8	0.7	0.0	1.4	1.6	0.4	2.4	4.6		33.6	0.3		
Delay (s)	69.2	6.3	14.6	19.1	28.6	19.9	43.3	48.0		95.7	32.0		
Level of Service	E	A	B	B	C	B	D	D		F	C		
Approach Delay (s)		12.6			27.4			46.6			72.8		
Approach LOS		B			C			D			E		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			24.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.68										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			75.2%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													



Queues  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> AM Peak Hour  
6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	191	259	483	6	159	241	387	721
v/c Ratio	0.21	0.18	0.78	0.41	0.02	0.08	0.25	0.58	0.37
Control Delay	22.0	14.2	43.2	4.1	10.7	9.8	2.3	17.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	14.2	43.2	4.1	10.7	9.8	2.3	17.7	11.6
Queue Length 50th (m)	5.4	8.0	36.7	2.1	0.4	5.7	0.0	37.5	31.2
Queue Length 95th (m)	13.3	14.9	63.0	12.0	2.4	11.8	10.6	77.5	51.1
Internal Link Dist (m)		463.8		1138.2		701.6			832.8
Turn Bay Length (m)									
Base Capacity (vph)	312	1421	454	1447	361	1963	983	672	1960
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.57	0.33	0.02	0.08	0.25	0.58	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> AM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	138	53	259	36	447	6	159	241	387	711	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	0.86		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3332		1738	2994		1738	3476	1555	1738	3469	
Flt Permitted	0.41	1.00		0.63	1.00		0.35	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	749	3332		1156	2994		639	3476	1555	1192	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	138	53	259	36	447	6	159	241	387	711	10
RTOR Reduction (vph)	0	36	0	0	318	0	0	0	105	0	1	0
Lane Group Flow (vph)	48	155	0	259	165	0	6	159	136	387	720	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	25.6	25.6		23.6	23.6		46.4	46.4	46.4	46.4	46.4	
Effective Green, g (s)	25.6	25.6		23.6	23.6		46.4	46.4	46.4	46.4	46.4	
Actuated g/C Ratio	0.31	0.31		0.29	0.29		0.57	0.57	0.57	0.57	0.57	
Clearance Time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	233	1040		332	861		361	1966	879	674	1962	
v/s Ratio Prot		0.05			0.05			0.05			0.21	
v/s Ratio Perm	0.06			c0.22			0.01		0.09	c0.32		
v/c Ratio	0.21	0.15		0.78	0.19		0.02	0.08	0.16	0.57	0.37	
Uniform Delay, d1	20.7	20.3		26.8	22.0		7.8	8.1	8.5	11.4	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.1		11.3	0.1		0.1	0.1	0.4	3.5	0.5	
Delay (s)	21.2	20.4		38.1	22.1		7.9	8.2	8.8	15.0	10.3	
Level of Service	C	C		D	C		A	A	A	B	B	
Approach Delay (s)		20.6			27.7			8.6			11.9	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; AM Peak Hour

## 6: Mississauga Road &amp; Station Road

6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	784	72	714	32	293	64	59	1208
v/c Ratio	0.15	0.71	0.57	0.65	0.18	0.11	0.08	0.11	0.47
Control Delay	20.1	26.0	39.8	24.4	14.9	10.3	3.6	11.7	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	26.0	39.8	24.4	14.9	10.3	3.6	11.7	12.9
Queue Length 50th (m)	2.3	50.2	8.4	44.4	2.3	7.2	0.0	4.0	36.8
Queue Length 95th (m)	7.5	67.5	22.4	60.6	9.1	14.0	6.1	11.9	59.2
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)									
Base Capacity (vph)	249	1800	208	1800	179	2601	840	539	2594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.44	0.35	0.40	0.18	0.11	0.08	0.11	0.47

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031 Bovaird EA LC> AM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	743	41	72	674	40	32	293	64	59	1178	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Flt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3449		1738	3447		1738	4995	1555	1738	4976	
Flt Permitted	0.26	1.00		0.22	1.00		0.19	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	478	3449		400	3447		345	4995	1555	1035	4976	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	743	41	72	674	40	32	293	64	59	1178	30
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	31	0	2	0
Lane Group Flow (vph)	23	779	0	72	709	0	32	293	33	59	1206	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	24.0	24.0		24.0	24.0		39.2	39.2	39.2	39.2	39.2	
Effective Green, g (s)	24.0	24.0		24.0	24.0		39.2	39.2	39.2	39.2	39.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.52	0.52	0.52	0.52	0.52	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	152	1100		127	1100		179	2603	810	539	2593	
v/s Ratio Prot		c0.23			0.21			0.06			c0.24	
v/s Ratio Perm	0.05			0.18			0.09		0.02	0.06		
v/c Ratio	0.15	0.71		0.57	0.64		0.18	0.11	0.04	0.11	0.46	
Uniform Delay, d1	18.3	22.5		21.3	21.9		9.5	9.2	8.8	9.1	11.4	
Progression Factor	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		5.7	1.3		2.2	0.1	0.1	0.4	0.6	
Delay (s)	18.8	24.6		27.0	23.2		11.7	9.2	8.9	9.5	12.0	
Level of Service	B	C		C	C		B	A	A	A	B	
Approach Delay (s)		24.5			23.6			9.4			11.9	
Approach LOS		C			C			A			B	

Intersection Summary

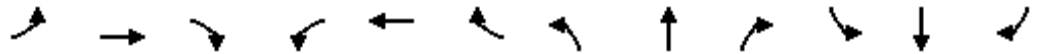
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; AM Peak Hour

## 7: James Potter Road &amp; Station Road

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	142	554	352	116	110	363	342	282	215	838	277
v/c Ratio	0.38	0.36	0.94	0.76	0.28	0.24	0.90	0.25	0.36	0.41	0.75	0.40
Control Delay	22.2	32.0	39.9	35.5	29.7	3.7	44.7	19.4	3.9	13.7	32.4	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	32.0	39.9	35.5	29.7	3.7	44.7	19.4	3.9	13.7	32.4	5.0
Queue Length 50th (m)	19.8	20.5	40.8	45.7	16.2	0.0	40.5	21.1	0.0	18.1	68.6	0.0
Queue Length 95th (m)	34.1	36.6	#103.3	#74.7	30.2	7.0	#90.9	31.0	14.9	30.3	90.4	16.5
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)												
Base Capacity (vph)	449	439	620	461	460	499	409	1353	777	532	1111	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.32	0.89	0.76	0.25	0.22	0.89	0.25	0.36	0.40	0.75	0.40

## Intersection Summary

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

























Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> AM Peak Hour

## 7: James Potter Road & Station Road

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	142	554	352	116	110	363	342	282	215	838	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.68	1.00	1.00	0.63	1.00	1.00	0.16	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	1248	1830	1555	1158	1830	1555	291	3476	1555	999	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	142	554	352	116	110	363	342	282	215	838	277
RTOR Reduction (vph)	0	0	256	0	0	85	0	0	172	0	0	188
Lane Group Flow (vph)	172	142	298	352	116	25	363	342	110	215	838	89
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	25.9	18.9	18.9	27.9	19.9	19.9	45.9	34.3	34.3	36.7	28.1	28.1
Effective Green, g (s)	25.9	18.9	18.9	27.9	19.9	19.9	45.9	34.3	34.3	36.7	28.1	28.1
Actuated g/C Ratio	0.29	0.22	0.22	0.32	0.23	0.23	0.52	0.39	0.39	0.42	0.32	0.32
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	393	334	420	414	352	396	1357	607	489	1112	497
v/s Ratio Prot	0.03	0.08		c0.08	0.06		c0.15	0.10		0.04	0.24	
v/s Ratio Perm	0.09		c0.19	0.19		0.02	c0.32		0.07	0.14		0.06
v/c Ratio	0.42	0.36	0.89	0.84	0.28	0.07	0.92	0.25	0.18	0.44	0.75	0.18
Uniform Delay, d1	24.2	29.3	33.5	26.8	28.0	26.7	19.8	18.1	17.5	17.0	26.7	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.6	24.5	13.6	0.4	0.1	25.5	0.4	0.7	0.6	4.7	0.8
Delay (s)	24.9	29.9	58.0	40.4	28.4	26.8	45.3	18.5	18.2	17.6	31.5	22.3
Level of Service	C	C	E	D	C	C	D	B	B	B	C	C
Approach Delay (s)		46.8			35.4			28.3			27.3	
Approach LOS		D			D			C			C	

### Intersection Summary

HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	87.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1	1	1
Vehs Entered	9726	9854	9728	9773	9687	9755
Vehs Exited	9693	9811	9692	9726	9655	9715
Starting Vehs	402	392	413	417	360	397
Ending Vehs	435	435	449	464	392	432
Denied Entry Before	1	0	0	1	0	0
Travel Distance (km)	17725	18091	17830	17993	17750	17878
Travel Time (hr)	405.8	419.1	408.3	430.7	417.1	416.2
Total Delay (hr)	119.9	128.6	121.2	140.7	129.8	128.0
Total Stops	8575	8509	8590	8588	8479	8551
Fuel Used (l)	1374.7	1417.1	1388.6	1412.2	1384.9	1395.5

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	9726	9854	9728	9773	9687	9755
Vehs Exited	9693	9811	9692	9726	9655	9715
Starting Vehs	402	392	413	417	360	397
Ending Vehs	435	435	449	464	392	432
Denied Entry Before	1	0	0	1	0	0
Travel Distance (km)	17725	18091	17830	17993	17750	17878
Travel Time (hr)	405.8	419.1	408.3	430.7	417.1	416.2
Total Delay (hr)	119.9	128.6	121.2	140.7	129.8	128.0
Total Stops	8575	8509	8590	8588	8479	8551
Fuel Used (l)	1374.7	1417.1	1388.6	1412.2	1384.9	1395.5

Queuing and Blocking Report  
 <2031 Bovaird EA LC> AM Peak Hour

6/9/2015

Intersection: 4: Station Road & Bovaird Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	T	L	T	T	T	R	L	TR	L
Maximum Queue (m)	63.4	87.5	96.2	100.7	29.1	206.3	114.2	105.2	14.1	42.1	72.5	34.6
Average Queue (m)	29.8	53.6	60.8	61.2	11.4	84.8	77.5	64.8	1.0	17.5	41.0	16.2
95th Queue (m)	54.1	76.4	85.9	88.2	23.1	152.3	103.4	95.6	8.4	34.8	65.6	30.0
Link Distance (m)		1284.2	1284.2	1284.2		537.1	537.1	537.1			211.0	103.1
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (m)	130.0				95.0				110.0	50.0		
Storage Blk Time (%)				0		2		0		0	5	
Queuing Penalty (veh)				0		1		0		0	4	

Intersection: 4: Station Road & Bovaird Drive

Movement	SB	SB
Directions Served	L	TR
Maximum Queue (m)	36.4	25.6
Average Queue (m)	19.9	10.2
95th Queue (m)	34.1	22.0
Link Distance (m)	103.1	103.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Queuing and Blocking Report  
 <2031 Bovaird EA LC> AM Peak Hour

6/9/2015

Intersection: 5: Heritage Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	R	L	T
Maximum Queue (m)	22.7	26.8	25.4	72.4	14.4	276.0	4.1	19.6	16.6	29.3	89.1	49.7
Average Queue (m)	6.0	10.2	7.9	35.1	2.1	34.2	0.4	8.2	3.2	12.4	44.4	26.2
95th Queue (m)	16.0	20.6	19.2	61.4	7.5	182.8	2.2	17.3	11.3	22.4	77.7	42.7
Link Distance (m)	473.1	473.1	473.1	1137.7	1137.7	1137.7	706.3	706.3	706.3	706.3	842.1	842.1
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Heritage Road & Station Road

Movement	SB
Directions Served	TR
Maximum Queue (m)	53.4
Average Queue (m)	28.4
95th Queue (m)	47.2
Link Distance (m)	842.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 <2031 Bovaird EA LC> AM Peak Hour

6/9/2015

Intersection: 6: Mississauga Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	18.8	70.7	70.6	40.1	52.4	57.9	22.1	35.4	23.7	5.8	15.6	23.9
Average Queue (m)	4.2	32.6	40.5	12.4	28.8	34.9	5.2	16.9	5.4	0.2	5.4	6.8
95th Queue (m)	12.9	57.4	63.6	27.8	48.5	54.7	15.3	31.5	16.0	2.2	12.5	17.5
Link Distance (m)	196.9	196.9	196.9	539.5	539.5	539.5	361.6	361.6	361.6	361.6	361.6	1578.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 6: Mississauga Road & Station Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	63.2	66.9	60.2
Average Queue (m)	36.4	43.7	33.2
95th Queue (m)	56.1	64.8	58.4
Link Distance (m)	1578.9	1578.9	1578.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report  
 <2031 Bovaird EA LC> AM Peak Hour

6/9/2015

Intersection: 7: James Potter Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	61.4	185.9	236.2	251.3	197.5	27.6	147.0	93.6	43.8	26.8	51.7	83.1
Average Queue (m)	27.7	51.2	133.9	155.7	43.8	11.8	81.4	31.5	12.6	12.3	24.5	54.2
95th Queue (m)	52.7	156.7	248.8	276.4	147.6	21.9	163.1	78.1	33.4	23.3	43.1	76.7
Link Distance (m)	539.5	539.5	539.5	344.7	344.7	344.7	240.9	240.9	240.9	240.9	619.6	619.6
Upstream Blk Time (%)							1	0				
Queuing Penalty (veh)							0	0				
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 7: James Potter Road & Station Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	83.0	31.8
Average Queue (m)	54.2	13.8
95th Queue (m)	77.1	25.4
Link Distance (m)	619.6	619.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

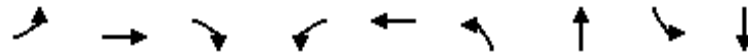
Network wide Queuing Penalty: 6

## Queues

&lt;2031 Bovaird EA LC&gt; PM Peak Hour

## 1: Heritage Road &amp; Bovaird Drive

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	851	3	139	990	22	957	89	419
v/c Ratio	0.12	0.84	0.01	0.54	0.77	0.05	0.61	0.54	0.27
Control Delay	17.8	44.9	0.0	25.3	34.6	19.8	23.2	39.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	44.9	0.0	25.3	34.6	19.8	23.2	39.3	19.2
Queue Length 50th (m)	2.7	90.3	0.0	17.3	100.4	2.6	73.7	13.7	27.6
Queue Length 95th (m)	7.0	118.4	0.0	28.9	124.8	8.3	107.3	#39.7	43.6
Internal Link Dist (m)		326.4			946.6		240.2		235.2
Turn Bay Length (m)	50.0		30.0	55.0		30.0		30.0	
Base Capacity (vph)	184	1189	579	317	1475	408	1568	165	1574
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.72	0.01	0.44	0.67	0.05	0.61	0.54	0.27

## Intersection Summary























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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

<2031 Bovaird EA LC> PM Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	851	3	139	817	173	22	637	320	89	361	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4		6.2	6.2		6.2	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	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	0.97		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	3476	1531	1738	3385		1738	3302		1738	3398	
Flt Permitted	0.17	1.00	1.00	0.14	1.00		0.48	1.00		0.20	1.00	
Satd. Flow (perm)	317	3476	1531	254	3385		885	3302		359	3398	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	851	3	139	817	173	22	637	320	89	361	58
RTOR Reduction (vph)	0	0	2	0	16	0	0	49	0	0	10	0
Lane Group Flow (vph)	23	851	1	139	974	0	22	908	0	89	409	0
Confl. Bikes (#/hr)			5									3
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	36.8	33.9	33.9	47.5	41.6		51.0	51.0		51.0	51.0	
Effective Green, g (s)	36.8	33.9	33.9	47.5	41.6		51.0	51.0		51.0	51.0	
Actuated g/C Ratio	0.33	0.30	0.30	0.42	0.37		0.45	0.45		0.45	0.45	
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4		6.2	6.2		6.2	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	1051	462	247	1256		402	1502		163	1545	
v/s Ratio Prot	0.00	0.24		c0.05	c0.29			c0.27				0.12
v/s Ratio Perm	0.05		0.00	0.18			0.02			0.25		
v/c Ratio	0.16	0.81	0.00	0.56	0.78		0.05	0.60		0.55	0.26	
Uniform Delay, d1	26.5	36.1	27.3	22.9	31.1		17.1	23.0		22.2	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	4.7	0.0	2.9	3.1		0.3	1.8		12.5	0.4	
Delay (s)	27.0	40.8	27.3	25.8	34.2		17.3	24.8		34.7	19.3	
Level of Service	C	D	C	C	C		B	C		C	B	
Approach Delay (s)		40.4			33.2			24.6			22.0	
Approach LOS		D			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			31.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			112.1			Sum of lost time (s)			16.6			
Intersection Capacity Utilization			85.8%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

Queues  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> PM Peak Hour

6/9/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
v/c Ratio	1.13	0.82	0.28	1.17	0.53	0.32	0.81	1.07	0.91	0.43	0.73	0.18
Control Delay	156.5	35.2	8.8	126.9	11.1	2.8	78.3	94.4	45.0	43.1	56.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.5	35.2	8.8	126.9	11.1	2.8	78.3	94.4	45.0	43.1	56.6	2.8
Queue Length 50th (m)	~39.4	148.7	10.6	~83.0	130.0	14.8	32.7	~138.6	71.7	10.1	56.9	0.0
Queue Length 95th (m)	#80.3	168.7	26.4	m#84.1	m104.7	m15.2	#52.5	#168.0	#140.6	20.4	71.0	3.0
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	115.0		60.0	180.0		36.0	137.0		200.0	60.0		60.0
Base Capacity (vph)	118	2243	776	466	3050	1017	311	1191	575	130	865	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.82	0.28	1.17	0.53	0.32	0.80	1.07	0.91	0.43	0.73	0.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> PM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	1738	4995	1555
Flt Permitted	0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	263	4995	1555	3372	4995	1555	3372	4995	1555	317	4995	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
RTOR Reduction (vph)	0	0	79	0	0	69	0	0	205	0	0	53
Lane Group Flow (vph)	133	1847	136	546	1614	260	249	1276	319	56	633	11
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2			6			8	4		4
Actuated Green, G (s)	57.8	57.8	57.8	18.0	78.8	78.8	11.9	31.0	31.0	27.1	23.1	23.1
Effective Green, g (s)	57.8	57.8	57.8	18.0	78.8	78.8	11.9	31.0	31.0	27.1	23.1	23.1
Actuated g/C Ratio	0.44	0.44	0.44	0.14	0.61	0.61	0.09	0.24	0.24	0.21	0.18	0.18
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	2220	691	466	3027	942	308	1191	370	109	887	276
v/s Ratio Prot		0.37		c0.16	0.32		c0.07	c0.26		0.02	0.13	
v/s Ratio Perm	c0.51		0.09			0.17			0.21	0.09		0.01
v/c Ratio	1.15	0.83	0.20	1.17	0.53	0.28	0.81	1.07	0.86	0.51	0.71	0.04
Uniform Delay, d1	36.1	31.8	22.0	56.0	14.9	12.1	57.9	49.5	47.5	43.5	50.3	44.3
Progression Factor	1.00	1.00	1.00	0.81	0.74	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	128.3	3.8	0.6	86.3	0.3	0.3	14.4	47.5	18.3	4.0	2.7	0.1
Delay (s)	164.4	35.6	22.6	131.5	11.3	5.8	72.3	97.0	65.7	47.6	53.1	44.3
Level of Service	F	D	C	F	B	A	E	F	E	D	D	D
Approach Delay (s)		42.2			36.9			86.0			51.9	
Approach LOS		D			D			F			D	

Intersection Summary

HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> PM Peak Hour

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	688	1620	72	5	1901	45	42	833	2	16	763	377
v/c Ratio	1.18	0.48	0.07	0.05	1.07	0.08	0.75	1.10	0.01	0.29	1.01	0.60
Control Delay	113.0	5.3	0.8	16.6	68.5	0.4	112.9	109.5	0.0	57.7	84.4	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.0	5.3	0.8	16.6	68.5	0.4	112.9	109.5	0.0	57.7	84.4	9.4
Queue Length 50th (m)	~196.5	55.5	1.2	0.3	~198.0	0.0	10.1	~127.0	0.0	3.4	~104.5	2.3
Queue Length 95th (m)	m#255.5	54.4	m1.3	m0.8	#227.6	m0.1	#31.8	#166.7	0.0	11.3	#146.3	30.2
Internal Link Dist (m)		401.2			445.4			387.7			242.7	
Turn Bay Length (m)	170.0		80.0	85.0		110.0	50.0		50.0			
Base Capacity (vph)	581	3396	1067	93	1782	590	56	759	382	56	759	625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.48	0.07	0.05	1.07	0.08	0.75	1.10	0.01	0.29	1.01	0.60

























Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



HCM Signalized Intersection Capacity Analysis  
3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> PM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	688	1620	72	5	1901	45	42	833	2	16	763	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	1738	4995	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.08	1.00	1.00	0.14	1.00	1.00	0.14	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	148	4995	1555	261	4995	1555	258	3476	1555	258	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	688	1620	72	5	1901	45	42	833	2	16	763	377
RTOR Reduction (vph)	0	0	10	0	0	29	0	0	2	0	0	286
Lane Group Flow (vph)	688	1620	62	5	1901	16	42	833	0	16	763	91
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)	88.4	88.4	88.4	46.4	46.4	46.4	28.4	28.4	28.4	28.4	28.4	28.4
Effective Green, g (s)	88.4	88.4	88.4	46.4	46.4	46.4	28.4	28.4	28.4	28.4	28.4	28.4
Actuated g/C Ratio	0.68	0.68	0.68	0.36	0.36	0.36	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	577	3396	1057	93	1782	555	56	759	339	56	759	339
v/s Ratio Prot	c0.36	0.32			0.38			c0.24			0.22	
v/s Ratio Perm	c0.45		0.04	0.02		0.01	0.16		0.00	0.06		0.06
v/c Ratio	1.19	0.48	0.06	0.05	1.07	0.03	0.75	1.10	0.00	0.29	1.01	0.27
Uniform Delay, d1	39.3	9.9	6.9	27.4	41.8	27.2	47.5	50.8	39.7	42.3	50.8	42.2
Progression Factor	0.47	0.51	0.18	0.54	0.65	0.04	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	95.7	0.3	0.1	1.0	40.9	0.1	62.1	62.6	0.0	12.4	34.0	1.9
Delay (s)	114.2	5.2	1.3	15.9	67.9	1.2	109.6	113.4	39.7	54.7	84.8	44.1
Level of Service	F	A	A	B	E	A	F	F	D	D	F	D
Approach Delay (s)		36.6			66.2			113.0			71.1	
Approach LOS		D			E			F			E	

Intersection Summary

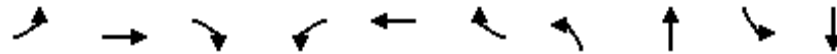
HCM 2000 Control Delay	62.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; PM Peak Hour

## 4: Station Road &amp; Bovaird Drive

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	44	1495	91	129	1373	41	55	91	220	268
v/c Ratio	0.21	0.70	0.12	0.63	0.58	0.05	0.22	0.21	0.66	0.36
Control Delay	7.8	10.3	0.3	32.4	26.4	0.1	43.6	17.2	66.6	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	10.3	0.3	32.4	26.4	0.1	43.6	17.2	66.6	21.5
Queue Length 50th (m)	1.9	24.3	0.0	15.3	94.1	0.0	11.6	5.9	28.2	33.2
Queue Length 95th (m)	3.8	25.8	0.0	33.1	109.0	0.0	23.7	20.2	41.2	55.6
Internal Link Dist (m)		445.4			528.3			204.6		104.7
Turn Bay Length (m)	130.0		110.0	95.0		110.0	50.0			
Base Capacity (vph)	214	2142	737	229	2366	778	255	433	363	739
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	0.70	0.12	0.56	0.58	0.05	0.22	0.21	0.61	0.36

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> PM Peak Hour

## 4: Station Road & Bovaird Drive

6/9/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	1495	91	129	1373	41	55	29	62	220	92	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	4.8	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.90	
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)	1948	4995	1555	1738	4995	1534	1738	1643		3372	1849	
Flt Permitted	0.13	1.00	1.00	0.08	1.00	1.00	0.59	1.00		0.95	1.00	
Satd. Flow (perm)	276	4995	1555	150	4995	1534	1087	1643		3372	1849	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	1495	91	129	1373	41	55	29	62	220	92	176
RTOR Reduction (vph)	0	0	52	0	0	22	0	47	0	0	53	0
Lane Group Flow (vph)	44	1495	39	129	1373	19	55	44	0	220	215	0
Confl. Peds. (#/hr)	1					1						
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4					
Actuated Green, G (s)	60.6	55.8	55.8	68.8	61.0	61.0	30.5	30.5		12.8	48.3	
Effective Green, g (s)	60.6	55.8	55.8	68.8	61.0	61.0	30.5	30.5		12.8	48.3	
Actuated g/C Ratio	0.47	0.43	0.43	0.53	0.47	0.47	0.23	0.23		0.10	0.37	
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	190	2144	667	201	2343	719	255	385		332	686	
v/s Ratio Prot	0.01	c0.30		c0.05	0.27			0.03		c0.07	c0.12	
v/s Ratio Perm	0.10		0.03	0.29		0.01	0.05					
v/c Ratio	0.23	0.70	0.06	0.64	0.59	0.03	0.22	0.11		0.66	0.31	
Uniform Delay, d1	20.0	30.2	21.7	21.4	25.3	18.5	40.1	39.1		56.5	29.1	
Progression Factor	0.42	0.28	0.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.7	0.2	6.8	1.1	0.1	1.9	0.6		4.9	1.2	
Delay (s)	9.0	10.1	0.2	28.2	26.3	18.6	42.0	39.7		61.4	30.3	
Level of Service	A	B	A	C	C	B	D	D		E	C	
Approach Delay (s)		9.6			26.3			40.6			44.3	
Approach LOS		A			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			22.0									C
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			130.0							20.9		
Intersection Capacity Utilization			78.0%									D
Analysis Period (min)			15									
c Critical Lane Group												

Queues  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> PM Peak Hour  
6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	47	236	509	64	502	219	456	124
v/c Ratio	0.05	0.05	0.74	0.50	0.14	0.38	0.30	0.68	0.06
Control Delay	22.8	20.1	44.5	9.1	23.2	22.6	5.1	13.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	20.1	44.5	9.1	23.2	22.6	5.1	13.6	5.8
Queue Length 50th (m)	1.0	2.5	35.2	9.3	6.8	30.7	0.0	32.4	2.8
Queue Length 95th (m)	4.1	6.4	59.6	21.5	19.1	55.4	16.3	57.6	6.8
Internal Link Dist (m)		459.1		1138.2		701.6			832.8
Turn Bay Length (m)									
Base Capacity (vph)	216	1139	409	1212	472	1334	731	782	2073
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.58	0.42	0.14	0.38	0.30	0.58	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> PM Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	41	6	236	139	370	64	502	219	456	90	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.98		1.00	0.89		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3410		1738	3097		1738	3476	1555	1738	3333	
Flt Permitted	0.36	1.00		0.72	1.00		0.67	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	650	3410		1326	3097		1232	3476	1555	712	3333	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	41	6	236	139	370	64	502	219	456	90	34
RTOR Reduction (vph)	0	4	0	0	281	0	0	0	135	0	13	0
Lane Group Flow (vph)	8	43	0	236	228	0	64	502	84	456	111	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.2	22.2		20.2	20.2		32.4	32.4	32.4	52.2	52.2	
Effective Green, g (s)	22.2	22.2		20.2	20.2		32.4	32.4	32.4	52.2	52.2	
Actuated g/C Ratio	0.26	0.26		0.24	0.24		0.38	0.38	0.38	0.62	0.62	
Clearance Time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	170	896		317	741		472	1334	596	644	2061	
v/s Ratio Prot		0.01			0.07			0.14		c0.14	0.03	
v/s Ratio Perm	0.01			c0.18			0.05		0.05	c0.30		
v/c Ratio	0.05	0.05		0.74	0.31		0.14	0.38	0.14	0.71	0.05	
Uniform Delay, d1	23.2	23.2		29.7	26.4		16.9	18.7	16.9	8.8	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.0		9.1	0.2		0.6	0.8	0.5	3.6	0.0	
Delay (s)	23.3	23.2		38.8	26.6		17.5	19.5	17.4	12.3	6.4	
Level of Service	C	C		D	C		B	B	B	B	A	
Approach Delay (s)		23.2			30.5			18.8			11.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; PM Peak Hour

## 6: Mississauga Road &amp; Station Road

6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	717	58	747	31	1077	45	42	447
v/c Ratio	0.29	0.67	0.40	0.70	0.07	0.41	0.05	0.19	0.17
Control Delay	25.2	25.1	28.9	25.7	11.0	11.9	4.0	14.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.1	28.9	25.7	11.0	11.9	4.0	14.0	9.8
Queue Length 50th (m)	4.1	44.6	6.3	46.9	2.0	30.9	0.0	2.9	10.6
Queue Length 95th (m)	11.8	61.0	16.6	63.8	7.2	50.0	5.0	10.6	19.4
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)									
Base Capacity (vph)	226	1822	245	1817	467	2634	841	219	2618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.39	0.24	0.41	0.07	0.41	0.05	0.19	0.17

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031 Bovaird EA LC> PM Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	678	39	58	688	59	31	1077	45	42	419	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3448		1738	3435		1738	4995	1555	1738	4948	
Flt Permitted	0.24	1.00		0.25	1.00		0.48	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	430	3448		465	3435		886	4995	1555	418	4948	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	678	39	58	688	59	31	1077	45	42	419	28
RTOR Reduction (vph)	0	6	0	0	8	0	0	0	21	0	7	0
Lane Group Flow (vph)	39	711	0	58	739	0	31	1077	24	42	440	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.0	23.0		23.0	23.0		39.2	39.2	39.2	39.2	39.2	
Effective Green, g (s)	23.0	23.0		23.0	23.0		39.2	39.2	39.2	39.2	39.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53	0.53	0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	133	1068		144	1064		468	2638	821	220	2614	
v/s Ratio Prot		0.21			c0.22			c0.22			0.09	
v/s Ratio Perm	0.09			0.12			0.04		0.02	0.10		
v/c Ratio	0.29	0.67		0.40	0.69		0.07	0.41	0.03	0.19	0.17	
Uniform Delay, d1	19.4	22.3		20.2	22.5		8.6	10.5	8.4	9.2	9.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.6		1.8	2.0		0.3	0.5	0.1	1.9	0.1	
Delay (s)	20.7	23.8		22.0	24.5		8.8	11.0	8.4	11.1	9.2	
Level of Service	C	C		C	C		A	B	A	B	A	
Approach Delay (s)		23.7			24.3			10.8			9.4	
Approach LOS		C			C			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			74.2			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			68.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c	Critical Lane Group											

## Queues

&lt;2031 Bovaird EA LC&gt; PM Peak Hour

## 7: James Potter Road &amp; Station Road

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	271	114	356	277	139	210	543	822	346	107	336	169
v/c Ratio	0.70	0.46	0.69	0.70	0.56	0.58	0.75	0.40	0.33	0.49	0.27	0.26
Control Delay	35.6	40.1	11.4	35.6	43.6	15.9	17.7	10.9	2.0	32.8	21.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	40.1	11.4	35.6	43.6	15.9	17.7	10.9	2.0	32.8	21.6	4.8
Queue Length 50th (m)	36.0	17.5	0.0	36.9	21.6	5.6	44.5	35.5	0.0	13.8	20.9	0.0
Queue Length 95th (m)	57.9	32.8	23.1	59.1	38.9	25.0	#79.3	53.7	11.1	32.7	33.5	13.1
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)												
Base Capacity (vph)	387	341	579	396	341	430	738	2030	1052	220	1222	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.33	0.61	0.70	0.41	0.49	0.74	0.40	0.33	0.49	0.27	0.26

## Intersection Summary

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

Queue shown is maximum after two cycles.



























# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> PM Peak Hour

## 7: James Potter Road & Station Road

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	114	356	277	139	210	543	822	346	107	336	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.66	1.00	1.00	0.68	1.00	1.00	0.50	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1201	1830	1555	1251	1830	1555	913	3476	1555	625	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	271	114	356	277	139	210	543	822	346	107	336	169
RTOR Reduction (vph)	0	0	308	0	0	149	0	0	144	0	0	109
Lane Group Flow (vph)	271	114	48	277	139	61	543	822	202	107	336	60
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.6	11.6	11.6	20.6	11.6	11.6	50.1	50.1	50.1	30.2	30.2	30.2
Effective Green, g (s)	20.6	11.6	11.6	20.6	11.6	11.6	50.1	50.1	50.1	30.2	30.2	30.2
Actuated g/C Ratio	0.24	0.14	0.14	0.24	0.14	0.14	0.58	0.58	0.58	0.35	0.35	0.35
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	345	247	210	351	247	210	696	2032	909	220	1224	547
v/s Ratio Prot	0.08	0.06		c0.08	0.08		c0.15	0.24			0.10	
v/s Ratio Perm	0.11		0.03	c0.11		0.04	c0.30		0.13	0.17		0.04
v/c Ratio	0.79	0.46	0.23	0.79	0.56	0.29	0.78	0.40	0.22	0.49	0.27	0.11
Uniform Delay, d1	29.5	34.2	33.1	29.6	34.7	33.4	10.9	9.7	8.5	21.7	19.9	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.2	1.4	0.6	11.2	2.9	0.8	5.7	0.6	0.6	7.5	0.6	0.4
Delay (s)	40.7	35.5	33.6	40.8	37.6	34.1	16.5	10.3	9.1	29.2	20.5	19.1
Level of Service	D	D	C	D	D	C	B	B	A	C	C	B
Approach Delay (s)		36.5			37.8			12.0			21.6	
Approach LOS		D			D			B			C	

### Intersection Summary

HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	85.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1	1	1
Vehs Entered	9132	9195	9250	9182	9167	9186
Vehs Exited	9114	9131	9244	9171	9134	9160
Starting Vehs	376	358	383	362	341	361
Ending Vehs	394	422	389	373	374	387
Denied Entry Before	0	1	0	1	0	0
Travel Distance (km)	16603	16729	16786	16667	16779	16713
Travel Time (hr)	373.9	386.8	387.4	372.1	377.4	379.6
Total Delay (hr)	105.0	115.1	116.1	103.4	105.3	109.0
Total Stops	8071	8731	8561	8202	8426	8398
Fuel Used (l)	1279.6	1298.0	1308.2	1282.4	1295.8	1292.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	9132	9195	9250	9182	9167	9186
Vehs Exited	9114	9131	9244	9171	9134	9160
Starting Vehs	376	358	383	362	341	361
Ending Vehs	394	422	389	373	374	387
Denied Entry Before	0	1	0	1	0	0
Travel Distance (km)	16603	16729	16786	16667	16779	16713
Travel Time (hr)	373.9	386.8	387.4	372.1	377.4	379.6
Total Delay (hr)	105.0	115.1	116.1	103.4	105.3	109.0
Total Stops	8071	8731	8561	8202	8426	8398
Fuel Used (l)	1279.6	1298.0	1308.2	1282.4	1295.8	1292.8

Queuing and Blocking Report  
 <2031 Bovaird EA LC> PM Peak Hour

6/9/2015

Intersection: 4: Station Road & Bovaird Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	T	L	T	T	T	L	TR	L	L
Maximum Queue (m)	20.6	98.4	106.9	103.4	45.8	192.1	103.2	82.1	37.3	41.9	46.9	48.8
Average Queue (m)	6.1	68.5	76.2	73.7	23.3	72.0	65.1	50.1	13.9	15.5	25.6	28.6
95th Queue (m)	15.7	91.6	99.5	96.9	41.0	140.0	91.8	79.1	29.4	31.8	41.5	43.6
Link Distance (m)		1284.0	1284.0	1284.0		537.2	537.2	537.2		210.5	102.5	102.5
Upstream Blk Time (%)						0						
Queuing Penalty (veh)						0						
Storage Bay Dist (m)	130.0				95.0				50.0			
Storage Blk Time (%)				0		0			0	0		
Queuing Penalty (veh)				0		1			0	0		

Intersection: 4: Station Road & Bovaird Drive

Movement	SB
Directions Served	TR
Maximum Queue (m)	79.9
Average Queue (m)	38.1
95th Queue (m)	67.8
Link Distance (m)	102.5
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Heritage Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	R	L	T
Maximum Queue (m)	8.7	14.4	8.9	80.9	36.6	79.8	23.9	52.4	55.1	30.6	105.3	13.5
Average Queue (m)	1.3	3.4	1.0	36.9	13.3	40.1	7.1	31.7	28.9	14.2	51.2	4.9
95th Queue (m)	5.7	9.8	5.2	66.2	28.8	70.6	17.3	48.8	49.5	24.3	87.3	11.3
Link Distance (m)	468.4	468.4	468.4	1137.7	1137.7	1137.7	706.3	706.3	706.3	706.3	842.1	842.1
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Heritage Road & Station Road

Movement	SB
Directions Served	TR
Maximum Queue (m)	19.6
Average Queue (m)	4.5
95th Queue (m)	14.2
Link Distance (m)	842.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 <2031 Bovaird EA LC> PM Peak Hour

6/9/2015

Intersection: 6: Mississauga Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	28.0	60.4	69.6	27.5	60.3	63.4	11.5	72.8	69.5	46.5	14.3	34.0
Average Queue (m)	8.1	33.7	39.5	9.2	31.1	38.2	2.2	47.8	37.8	13.9	4.3	12.0
95th Queue (m)	21.3	55.8	63.7	20.4	52.3	59.3	7.4	68.5	63.8	36.5	11.6	28.2
Link Distance (m)	196.9	196.9	196.9	539.6	539.6	539.6	362.2	362.2	362.2	362.2	362.2	1578.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 6: Mississauga Road & Station Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	28.2	36.8	22.7
Average Queue (m)	15.1	17.6	6.6
95th Queue (m)	25.8	31.8	17.2
Link Distance (m)	1578.9	1578.9	1578.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: James Potter Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	120.2	54.5	79.0	127.7	79.4	38.5	157.5	102.8	100.5	35.3	44.7	44.4
Average Queue (m)	61.2	23.0	42.9	66.9	27.9	19.5	90.0	47.7	27.7	14.2	21.0	23.7
95th Queue (m)	109.5	42.8	70.8	124.6	61.9	31.9	180.1	111.5	67.8	28.8	37.8	40.7
Link Distance (m)	539.6	539.6	539.6	344.7	344.7	344.7	240.9	240.9	240.9	240.9	619.6	619.6
Upstream Blk Time (%)							1	0	0			
Queuing Penalty (veh)							0	0	0			
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 7: James Potter Road & Station Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	42.4	21.2
Average Queue (m)	17.9	9.1
95th Queue (m)	36.5	18.1
Link Distance (m)	619.6	619.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

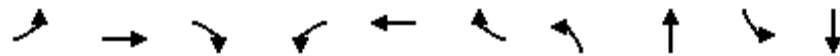
Network wide Queuing Penalty: 1
---------------------------------

## Queues

&lt;2031 Bovaird EA LC&gt; Sat Peak Hour

## 1: Heritage Road &amp; Bovaird Drive

6/9/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	26	871	5	228	815	168	17	712	68	586
v/c Ratio	0.13	0.79	0.01	0.71	0.50	0.21	0.07	0.53	0.33	0.43
Control Delay	26.5	37.7	0.0	28.4	19.3	4.6	24.4	24.5	31.2	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	37.7	0.0	28.4	19.3	4.6	24.4	24.5	31.2	25.0
Queue Length 50th (m)	3.6	81.6	0.0	23.8	56.1	3.8	2.1	50.4	9.2	43.1
Queue Length 95th (m)	10.5	109.0	0.0	45.1	70.7	13.7	8.1	84.1	25.8	71.8
Internal Link Dist (m)		326.4			946.6			240.2		235.2
Turn Bay Length (m)	50.0		30.0	55.0		30.0	30.0		30.0	
Base Capacity (vph)	290	1604	737	385	2293	1070	260	1346	206	1356
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	0.09	0.54	0.01	0.59	0.36	0.16	0.07	0.53	0.33	0.43

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

<2031 Bovaird EA LC> Sat Peak Hour

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	871	5	228	815	168	17	488	224	68	534	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.2	6.2		6.2	6.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	3476	1531	1738	3476	1555	1738	3312		1738	3426	
Flt Permitted	0.34	1.00	1.00	0.15	1.00	1.00	0.36	1.00		0.29	1.00	
Satd. Flow (perm)	630	3476	1531	268	3476	1555	660	3312		524	3426	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	871	5	228	815	168	17	488	224	68	534	52
RTOR Reduction (vph)	0	0	3	0	0	69	0	41	0	0	5	0
Lane Group Flow (vph)	26	871	2	228	815	99	17	671	0	68	581	0
Confl. Bikes (#/hr)			5									3
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	32.2	32.2	32.2	48.0	48.0	48.0	40.2	40.2		40.2	40.2	
Effective Green, g (s)	32.2	32.2	32.2	48.0	48.0	48.0	40.2	40.2		40.2	40.2	
Actuated g/C Ratio	0.32	0.32	0.32	0.47	0.47	0.47	0.39	0.39		0.39	0.39	
Clearance Time (s)	7.4	7.4	7.4	3.0	7.4	7.4	6.2	6.2		6.2	6.2	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	1099	484	311	1638	733	260	1307		206	1352	
v/s Ratio Prot		c0.25		c0.09	0.23			c0.20			0.17	
v/s Ratio Perm	0.04		0.00	0.25		0.06	0.03			0.13		
v/c Ratio	0.13	0.79	0.00	0.73	0.50	0.13	0.07	0.51		0.33	0.43	
Uniform Delay, d1	24.8	31.8	23.8	19.4	18.6	15.2	19.1	23.4		21.4	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	4.0	0.0	8.6	0.2	0.1	0.5	1.4		4.2	1.0	
Delay (s)	25.1	35.7	23.8	28.0	18.8	15.3	19.6	24.8		25.7	23.4	
Level of Service	C	D	C	C	B	B	B	C		C	C	
Approach Delay (s)		35.4			20.0			24.7			23.7	
Approach LOS		D			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			25.7									C
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			101.8							16.6		
Intersection Capacity Utilization			83.9%									E
Analysis Period (min)			15									

c Critical Lane Group



Queues  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> Sat Peak Hour

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
v/c Ratio	0.91	0.95	0.26	0.95	0.59	0.25	0.91	0.71	0.91	0.65	0.96	0.26
Control Delay	111.7	47.8	7.6	57.7	8.0	0.8	89.2	44.4	38.7	49.9	66.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.7	47.8	7.6	57.7	8.0	0.8	89.2	44.4	38.7	49.9	66.4	8.2
Queue Length 50th (m)	18.3	148.5	5.3	54.8	69.8	1.6	31.1	71.2	64.8	17.2	87.5	0.0
Queue Length 95th (m)	#50.5	#181.7	20.0	m#63.7	m70.7	m1.7	#55.2	86.5	#134.3	#34.7	#115.6	13.7
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	115.0		75.0	180.0		36.0	137.0		200.0	60.0		60.0
Base Capacity (vph)	91	1898	680	553	2842	951	281	1269	636	162	1061	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.95	0.26	0.95	0.59	0.25	0.91	0.71	0.91	0.65	0.96	0.26

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031 Bovaird EA LC> Sat Peak Hour  
6/9/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	1738	4995	1555
Flt Permitted	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	242	4995	1555	3372	4995	1555	3372	4995	1555	369	4995	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
RTOR Reduction (vph)	0	0	89	0	0	66	0	0	242	0	0	87
Lane Group Flow (vph)	83	1798	91	526	1690	172	255	903	336	106	1018	24
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2			6			8	4		4
Actuated Green, G (s)	45.6	45.6	45.6	19.7	68.3	68.3	10.0	30.5	30.5	30.5	25.5	25.5
Effective Green, g (s)	45.6	45.6	45.6	19.7	68.3	68.3	10.0	30.5	30.5	30.5	25.5	25.5
Actuated g/C Ratio	0.38	0.38	0.38	0.16	0.57	0.57	0.08	0.25	0.25	0.25	0.21	0.21
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	91	1898	590	553	2842	885	281	1269	395	150	1061	330
v/s Ratio Prot		c0.36		c0.16	0.34		c0.08	0.18		0.03	c0.20	
v/s Ratio Perm	0.34		0.06			0.11			0.22	0.15		0.02
v/c Ratio	0.91	0.95	0.15	0.95	0.59	0.19	0.91	0.71	0.85	0.71	0.96	0.07
Uniform Delay, d1	35.3	36.0	24.5	49.7	16.8	12.5	54.5	40.7	42.6	37.1	46.7	37.8
Progression Factor	1.00	1.00	1.00	0.84	0.45	0.12	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	72.5	11.5	0.6	14.1	0.4	0.2	30.5	1.9	16.0	14.1	18.4	0.1
Delay (s)	107.8	47.5	25.0	56.0	7.9	1.7	85.0	42.7	58.6	51.2	65.1	37.9
Level of Service	F	D	C	E	A	A	F	D	E	D	E	D
Approach Delay (s)		48.0			17.6			54.2			61.5	
Approach LOS		D			B			D			E	

Intersection Summary

HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> Sat Peak Hour

6/9/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	593	1722	56	3	1706	28	56	787	2	23	785	602
v/c Ratio	1.06	0.52	0.05	0.04	0.97	0.05	0.93	0.98	0.00	0.38	0.98	0.88
Control Delay	59.4	6.0	0.7	14.7	32.2	0.2	146.7	74.6	0.0	59.9	74.1	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	6.0	0.7	14.7	32.2	0.2	146.7	74.6	0.0	59.9	74.1	27.6
Queue Length 50th (m)	~134.5	58.3	0.6	0.1	38.9	0.0	13.0	97.7	0.0	4.6	97.3	42.3
Queue Length 95th (m)	m#154.5	m66.0	m0.7	m0.3	#169.5	m0.1	#39.5	#138.3	0.0	13.8	#137.5	#110.9
Internal Link Dist (m)		401.2			445.4			387.7			242.7	
Turn Bay Length (m)	170.0		80.0	85.0		110.0	50.0		50.0			50.0
Base Capacity (vph)	557	3296	1037	82	1756	585	60	799	403	60	799	688
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.52	0.05	0.04	0.97	0.05	0.93	0.98	0.00	0.38	0.98	0.88

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: James Potter Road & Bovaird Drive

<2031 Bovaird EA LC> Sat Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	593	1722	56	3	1706	28	56	787	2	23	785	602
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	1738	4995	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.09	1.00	1.00	0.13	1.00	1.00	0.14	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	162	4995	1555	234	4995	1555	265	3476	1555	265	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	593	1722	56	3	1706	28	56	787	2	23	785	602
RTOR Reduction (vph)	0	0	11	0	0	18	0	0	2	0	0	331
Lane Group Flow (vph)	593	1722	45	3	1706	10	56	787	0	23	785	271
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)	79.2	79.2	79.2	42.2	42.2	42.2	27.6	27.6	27.6	27.6	27.6	27.6
Effective Green, g (s)	79.2	79.2	79.2	42.2	42.2	42.2	27.6	27.6	27.6	27.6	27.6	27.6
Actuated g/C Ratio	0.66	0.66	0.66	0.35	0.35	0.35	0.23	0.23	0.23	0.23	0.23	0.23
Clearance Time (s)	3.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	553	3296	1026	82	1756	546	60	799	357	60	799	357
v/s Ratio Prot	c0.30	0.34			0.34			c0.23			0.23	
v/s Ratio Perm	c0.40		0.03	0.01		0.01	0.21		0.00	0.09		0.17
v/c Ratio	1.07	0.52	0.04	0.04	0.97	0.02	0.93	0.98	0.00	0.38	0.98	0.76
Uniform Delay, d1	36.2	10.6	7.1	25.5	38.3	25.4	45.3	46.0	35.6	39.0	46.0	43.1
Progression Factor	0.38	0.54	0.17	0.53	0.44	0.06	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	45.3	0.2	0.0	0.7	13.8	0.0	98.2	28.4	0.0	17.5	27.9	14.0
Delay (s)	59.1	5.9	1.2	14.1	30.8	1.7	143.5	74.4	35.6	56.6	73.8	57.1
Level of Service	E	A	A	B	C	A	F	E	D	E	E	E
Approach Delay (s)		19.1			30.3			78.9			66.4	
Approach LOS		B			C			E			E	

Intersection Summary

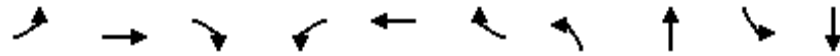
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; Sat Peak Hour

## 4: Station Road &amp; Bovaird Drive

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	1440	75	102	1437	104	69	158	136	172
v/c Ratio	0.54	0.66	0.10	0.49	0.66	0.14	0.24	0.35	0.56	0.23
Control Delay	39.9	9.9	0.2	20.8	29.1	4.3	39.0	32.3	63.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	9.9	0.2	20.8	29.1	4.3	39.0	32.3	63.0	10.1
Queue Length 50th (m)	9.8	22.3	0.0	10.8	97.3	0.0	13.1	24.4	16.1	8.3
Queue Length 95th (m)	28.9	25.8	0.0	19.2	115.2	9.8	26.1	43.8	26.4	23.2
Internal Link Dist (m)		445.4			528.3			204.6		104.7
Turn Bay Length (m)	130.0		110.0	95.0		110.0	50.0			
Base Capacity (vph)	229	2174	736	230	2164	724	292	446	252	736
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	0.50	0.66	0.10	0.44	0.66	0.14	0.24	0.35	0.54	0.23

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> Sat Peak Hour

## 4: Station Road & Bovaird Drive

6/9/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1440	75	102	1437	104	69	88	70	136	49	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	4995	1555	1738	4995	1534	1738	1708		3372	1831	
Flt Permitted	0.10	1.00	1.00	0.10	1.00	1.00	0.65	1.00		0.95	1.00	
Satd. Flow (perm)	183	4995	1555	184	4995	1534	1187	1708		3372	1831	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1440	75	102	1437	104	69	88	70	136	49	123
RTOR Reduction (vph)	0	0	42	0	0	59	0	24	0	0	75	0
Lane Group Flow (vph)	115	1440	33	102	1437	45	69	134	0	136	97	0
Confl. Peds. (#/hr)	1					1						
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4					
Actuated Green, G (s)	61.0	52.2	52.2	60.6	52.0	52.0	29.6	29.6		8.7	43.3	
Effective Green, g (s)	61.0	52.2	52.2	60.6	52.0	52.0	29.6	29.6		8.7	43.3	
Actuated g/C Ratio	0.51	0.44	0.44	0.51	0.43	0.43	0.25	0.25		0.07	0.36	
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	207	2172	676	204	2164	664	292	421		244	660	
v/s Ratio Prot	c0.04	c0.29		0.04	0.29			c0.08		c0.04	0.05	
v/s Ratio Perm	0.24		0.02	0.22		0.03	0.06					
v/c Ratio	0.56	0.66	0.05	0.50	0.66	0.07	0.24	0.32		0.56	0.15	
Uniform Delay, d1	18.7	26.9	19.6	18.5	27.1	19.9	36.2	36.9		53.8	25.9	
Progression Factor	2.22	0.31	0.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	1.4	0.1	1.9	1.6	0.2	1.9	2.0		2.7	0.5	
Delay (s)	44.3	9.8	0.1	20.4	28.7	20.0	38.1	38.9		56.5	26.3	
Level of Service	D	A	A	C	C	C	D	D		E	C	
Approach Delay (s)		11.7			27.6			38.7			39.7	
Approach LOS		B			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			22.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			20.9		
Intersection Capacity Utilization			70.6%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> Sat Peak Hour

6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	28	118	338	399	32	386	141	500	223
v/c Ratio	0.25	0.32	0.80	0.37	0.10	0.37	0.25	0.71	0.11
Control Delay	39.8	29.3	38.6	6.4	27.2	26.7	6.9	16.1	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	29.3	38.6	6.4	27.2	26.7	6.9	16.1	8.4
Queue Length 50th (m)	4.1	7.1	42.6	5.0	3.7	25.8	0.0	41.2	7.3
Queue Length 95th (m)	11.7	14.7	#71.7	14.6	11.9	44.1	14.2	72.0	13.7
Internal Link Dist (m)		469.7		1138.2		701.6			832.8
Turn Bay Length (m)									
Base Capacity (vph)	218	702	432	1466	334	1037	562	785	1961
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.17	0.78	0.27	0.10	0.37	0.25	0.64	0.11

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031 Bovaird EA LC> Sat Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	92	26	338	87	312	32	386	141	500	199	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		3.0	6.0		6.0	6.0	6.0	3.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.97		1.00	0.88		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3361		1738	3069		1738	3476	1555	1738	3420	
Flt Permitted	0.59	1.00		0.47	1.00		0.61	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1076	3361		860	3069		1121	3476	1555	806	3420	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	28	92	26	338	87	312	32	386	141	500	199	24
RTOR Reduction (vph)	0	24	0	0	222	0	0	0	99	0	9	0
Lane Group Flow (vph)	28	94	0	338	177	0	32	386	42	500	214	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	6.8	6.8		23.4	23.4		23.8	23.8	23.8	45.4	45.4	
Effective Green, g (s)	6.8	6.8		23.4	23.4		23.8	23.8	23.8	45.4	45.4	
Actuated g/C Ratio	0.08	0.08		0.29	0.29		0.29	0.29	0.29	0.56	0.56	
Clearance Time (s)	6.0	6.0		3.0	6.0		6.0	6.0	6.0	3.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	90	282		396	888		330	1023	458	667	1921	
v/s Ratio Prot		0.03		c0.14	0.06			0.11		c0.17	0.06	
v/s Ratio Perm	0.03			c0.10			0.03		0.03	c0.25		
v/c Ratio	0.31	0.33		0.85	0.20		0.10	0.38	0.09	0.75	0.11	
Uniform Delay, d1	34.8	34.9		25.4	21.6		20.7	22.6	20.7	11.1	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.7		16.2	0.1		0.6	1.1	0.4	4.6	0.1	
Delay (s)	36.8	35.6		41.6	21.8		21.3	23.7	21.0	15.7	8.4	
Level of Service	D	D		D	C		C	C	C	B	A	
Approach Delay (s)		35.8			30.9			22.9			13.5	
Approach LOS		D			C			C			B	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



## Queues

&lt;2031 Bovaird EA LC&gt; Sat Peak Hour

## 6: Mississauga Road &amp; Station Road

6/9/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	22	739	77	712	29	759	57	70	755
v/c Ratio	0.15	0.70	0.57	0.67	0.09	0.29	0.07	0.21	0.29
Control Delay	20.3	25.4	39.0	24.8	11.2	10.6	3.6	12.9	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	25.4	39.0	24.8	11.2	10.6	3.6	12.9	10.5
Queue Length 50th (m)	2.2	45.3	8.7	43.3	1.8	19.1	0.0	4.6	18.6
Queue Length 95th (m)	7.3	62.0	22.7	59.3	7.0	33.3	5.6	14.6	32.8
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)									
Base Capacity (vph)	260	1915	243	1915	339	2633	847	337	2619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.39	0.32	0.37	0.09	0.29	0.07	0.21	0.29

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031 Bovaird EA LC> Sat Peak Hour  
6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	697	42	77	670	42	29	759	57	70	720	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3447		1738	3446		1738	4995	1555	1738	4960	
Flt Permitted	0.26	1.00		0.24	1.00		0.35	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	471	3447		439	3446		643	4995	1555	640	4960	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	697	42	77	670	42	29	759	57	70	720	35
RTOR Reduction (vph)	0	6	0	0	6	0	0	0	27	0	5	0
Lane Group Flow (vph)	22	733	0	77	706	0	29	759	30	70	750	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.2	22.2		22.2	22.2		38.2	38.2	38.2	38.2	38.2	
Effective Green, g (s)	22.2	22.2		22.2	22.2		38.2	38.2	38.2	38.2	38.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53	0.53	0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	144	1056		134	1056		339	2635	820	337	2617	
v/s Ratio Prot		c0.21			0.20			c0.15			0.15	
v/s Ratio Perm	0.05			0.18			0.05		0.02	0.11		
v/c Ratio	0.15	0.69		0.57	0.67		0.09	0.29	0.04	0.21	0.29	
Uniform Delay, d1	18.3	22.1		21.1	21.9		8.5	9.5	8.2	9.1	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.0		5.8	1.6		0.5	0.3	0.1	1.4	0.3	
Delay (s)	18.8	24.1		27.0	23.5		9.0	9.8	8.3	10.5	9.8	
Level of Service	B	C		C	C		A	A	A	B	A	
Approach Delay (s)		23.9			23.8			9.7			9.9	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031 Bovaird EA LC&gt; Sat Peak Hour

## 7: James Potter Road &amp; Station Road

6/9/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	123	449	318	123	157	450	576	318	157	575	223
v/c Ratio	0.56	0.49	0.79	0.77	0.45	0.43	0.79	0.29	0.31	0.55	0.46	0.32
Control Delay	29.2	40.9	16.3	38.8	38.6	9.5	22.3	10.4	2.1	32.3	23.4	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	40.9	16.3	38.8	38.6	9.5	22.3	10.4	2.1	32.3	23.4	4.5
Queue Length 50th (m)	28.1	18.9	5.3	42.7	18.7	0.0	35.9	23.7	0.0	20.7	38.2	0.0
Queue Length 95th (m)	46.5	34.8	35.7	#69.1	34.3	15.3	#75.6	36.7	11.0	43.6	56.5	14.5
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)												
Base Capacity (vph)	395	341	626	412	362	434	578	1986	1024	286	1251	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.36	0.72	0.77	0.34	0.36	0.78	0.29	0.31	0.55	0.46	0.32

## Intersection Summary

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

























Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

<2031 Bovaird EA LC> Sat Peak Hour

## 7: James Potter Road & Station Road

6/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	123	449	318	123	157	450	576	318	157	575	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.68	1.00	1.00	0.63	1.00	1.00	0.33	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1241	1830	1555	1144	1830	1555	606	3476	1555	796	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	223	123	449	318	123	157	450	576	318	157	575	223
RTOR Reduction (vph)	0	0	356	0	0	134	0	0	136	0	0	143
Lane Group Flow (vph)	223	123	93	318	123	23	450	576	182	157	575	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.8	11.8	11.8	22.8	12.8	12.8	49.1	49.1	49.1	30.9	30.9	30.9
Effective Green, g (s)	20.8	11.8	11.8	22.8	12.8	12.8	49.1	49.1	49.1	30.9	30.9	30.9
Actuated g/C Ratio	0.24	0.14	0.14	0.27	0.15	0.15	0.57	0.57	0.57	0.36	0.36	0.36
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	251	213	372	272	231	546	1986	888	286	1250	559
v/s Ratio Prot	0.07	0.07		c0.10	0.07		c0.15	0.17			0.17	
v/s Ratio Perm	0.09		0.06	c0.13		0.02	c0.32		0.12	0.20		0.05
v/c Ratio	0.63	0.49	0.44	0.85	0.45	0.10	0.82	0.29	0.20	0.55	0.46	0.14
Uniform Delay, d1	28.3	34.3	34.0	28.9	33.4	31.6	11.5	9.4	8.9	21.9	21.1	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	1.5	1.4	17.2	1.2	0.2	9.8	0.4	0.5	7.4	1.2	0.5
Delay (s)	32.0	35.8	35.4	46.1	34.5	31.8	21.3	9.8	9.4	29.3	22.3	19.1
Level of Service	C	D	D	D	C	C	C	A	A	C	C	B
Approach Delay (s)		34.5			39.9			13.6			22.7	
Approach LOS		C			D			B			C	

### Intersection Summary

HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	11:50	11:50	11:50	11:50	11:50	11:50
End Time	1:00	1:00	1:00	1:00	1:00	1:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded mScheduledIntervals	1	1	1	1	1	1
Vehs Entered	9326	9196	9280	9188	9196	9238
Vehs Exited	9290	9179	9295	9149	9169	9216
Starting Vehs	311	291	357	298	308	309
Ending Vehs	347	308	342	337	335	333
Denied Entry Before	0	0	0	1	0	0
Travel Distance (km)	13525	13394	13463	13460	13389	13447
Travel Time (hr)	331.2	330.2	333.1	344.2	327.4	333.2
Total Delay (hr)	106.1	107.4	109.5	119.0	104.6	109.3
Total Stops	8858	8829	8859	8651	8614	8760
Fuel Used (l)	1119.7	1114.3	1117.5	1122.3	1105.9	1116.0

Interval #0 Information Seeding

Start Time	11:50
End Time	12:00
Total Time (min)	10
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	12:00
End Time	1:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	9326	9196	9280	9188	9196	9238
Vehs Exited	9290	9179	9295	9149	9169	9216
Starting Vehs	311	291	357	298	308	309
Ending Vehs	347	308	342	337	335	333
Denied Entry Before	0	0	0	1	0	0
Travel Distance (km)	13525	13394	13463	13460	13389	13447
Travel Time (hr)	331.2	330.2	333.1	344.2	327.4	333.2
Total Delay (hr)	106.1	107.4	109.5	119.0	104.6	109.3
Total Stops	8858	8829	8859	8651	8614	8760
Fuel Used (l)	1119.7	1114.3	1117.5	1122.3	1105.9	1116.0

Intersection: 4: Station Road & Bovaird Drive

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	T	L	T	T	T	L	TR	L	L
Maximum Queue (m)	39.8	183.6	121.8	95.6	43.2	109.6	104.0	89.8	33.2	49.8	33.5	38.8
Average Queue (m)	19.0	92.0	79.1	53.5	16.7	71.5	69.1	56.7	12.5	24.3	15.1	18.0
95th Queue (m)	35.0	136.4	110.8	82.8	34.8	96.7	93.8	83.9	26.3	44.5	28.8	32.1
Link Distance (m)		222.4	222.4	222.4		537.1	537.1	537.1		211.7	103.1	103.1
Upstream Blk Time (%)		0										
Queuing Penalty (veh)		0										
Storage Bay Dist (m)	130.0				95.0				50.0			
Storage Blk Time (%)		0		0		1				1		
Queuing Penalty (veh)		0		0		1				0		

Intersection: 4: Station Road & Bovaird Drive

Movement	SB
Directions Served	TR
Maximum Queue (m)	52.5
Average Queue (m)	22.0
95th Queue (m)	41.7
Link Distance (m)	103.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Heritage Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	R	L	T
Maximum Queue (m)	20.7	27.8	21.6	112.0	28.6	57.4	22.8	54.4	54.1	23.3	134.1	21.6
Average Queue (m)	5.9	9.6	5.0	56.0	5.7	26.3	5.4	30.2	26.2	11.0	65.9	9.1
95th Queue (m)	15.7	20.0	14.5	100.9	17.6	50.7	15.3	47.2	46.6	20.6	113.0	17.6
Link Distance (m)	478.3	478.3	478.3	1137.7	1137.7	1137.7	706.3	706.3	706.3	706.3	841.4	841.4
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Heritage Road & Station Road

Movement	SB
Directions Served	TR
Maximum Queue (m)	31.9
Average Queue (m)	9.0
95th Queue (m)	21.5
Link Distance (m)	841.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Mississauga Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	L	T	T	T	R	L
Maximum Queue (m)	11.8	62.0	66.1	33.1	57.5	58.9	13.0	64.0	53.6	32.4	16.6	34.9
Average Queue (m)	3.4	32.9	40.9	13.2	29.7	34.8	2.1	37.1	25.2	5.4	4.9	13.7
95th Queue (m)	10.3	55.8	63.0	27.8	48.6	53.5	7.4	56.6	46.5	18.3	12.2	29.0
Link Distance (m)	196.9	196.9	196.9	539.6	539.6	539.6	362.2	362.2	362.2	362.2	362.2	1578.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 6: Mississauga Road & Station Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (m)	45.9	47.2	41.5
Average Queue (m)	24.4	28.8	14.1
95th Queue (m)	38.9	44.7	33.0
Link Distance (m)	1578.9	1578.9	1578.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



Intersection: 7: James Potter Road & Station Road

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (m)	78.9	72.3	105.9	157.0	83.0	61.4	169.2	55.0	46.0	33.5	58.6	64.6
Average Queue (m)	38.3	24.0	59.6	88.9	27.1	16.2	81.8	31.3	14.3	12.8	25.4	37.4
95th Queue (m)	68.4	49.0	94.5	168.5	79.3	40.5	148.3	49.5	34.9	24.9	45.9	55.8
Link Distance (m)	539.6	539.6	539.6	344.7	344.7	344.7	240.9	240.9	240.9	240.9	619.6	619.6
Upstream Blk Time (%)	0											
Queuing Penalty (veh)	0											
Storage Bay Dist (m)												
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 7: James Potter Road & Station Road

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	62.8	28.0
Average Queue (m)	35.7	12.4
95th Queue (m)	56.4	23.4
Link Distance (m)	619.6	619.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1



## APPENDIX G-2

### **ALTERNATIVE BOVAIRD DRIVE LANE CONFIGURATION**

---



Queues  
1: Heritage Road & Bovaird Drive

<2031> AM Peak Hour  
1/2/2015


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	108	652	404	663	209	7	320	16	35	968
v/c Ratio	0.34	0.79	0.86	0.51	0.29	0.06	0.23	0.02	0.09	0.71
Control Delay	17.7	45.0	39.1	25.8	3.7	26.7	23.5	0.1	24.7	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	45.0	39.1	25.8	3.7	26.7	23.5	0.1	24.7	31.7
Queue Length 50th (m)	10.7	64.0	52.5	53.1	0.0	0.9	22.0	0.0	4.3	83.9
Queue Length 95th (m)	18.9	92.9	90.0	68.1	12.6	4.8	40.2	0.0	13.3	135.0
Internal Link Dist (m)		326.4		946.6			240.2			235.2
Turn Bay Length (m)	50.0		50.0		50.0	50.0			50.0	
Base Capacity (vph)	324	1095	587	1874	934	117	1375	672	401	1372
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	0.60	0.69	0.35	0.22	0.06	0.23	0.02	0.09	0.71

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

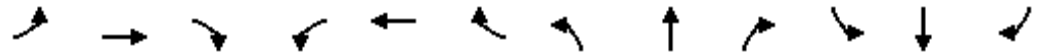
<2031> AM Peak Hour  
1/2/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	108	636	16	404	663	209	7	320	16	35	948	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1738	3462		1738	3476	1555	1738	3476	1555	1738	3465		
Flt Permitted	0.40	1.00		0.20	1.00	1.00	0.16	1.00	1.00	0.55	1.00		
Satd. Flow (perm)	731	3462		363	3476	1555	297	3476	1555	1013	3465		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	108	636	16	404	663	209	7	320	16	35	948	20	
RTOR Reduction (vph)	0	2	0	0	0	130	0	0	10	0	1	0	
Lane Group Flow (vph)	108	650	0	404	663	79	7	320	6	35	967	0	
Confl. Bikes (#/hr)			5									3	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases	5	2		1	6			8				4	
Permitted Phases	2			6		6	8		8	4			
Actuated Green, G (s)	32.0	25.0		49.3	39.3	39.3	41.2	41.2	41.2	41.2	41.2		
Effective Green, g (s)	32.0	25.0		49.3	39.3	39.3	41.2	41.2	41.2	41.2	41.2		
Actuated g/C Ratio	0.31	0.24		0.47	0.38	0.38	0.40	0.40	0.40	0.40	0.40		
Clearance Time (s)	3.0	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	292	831		453	1312	587	117	1375	615	400	1371		
v/s Ratio Prot	0.02	0.19		c0.18	0.19			0.09			c0.28		
v/s Ratio Perm	0.09			c0.24		0.05	0.02		0.00	0.03			
v/c Ratio	0.37	0.78		0.89	0.51	0.13	0.06	0.23	0.01	0.09	0.71		
Uniform Delay, d1	26.6	37.0		22.8	24.9	21.2	19.5	20.9	19.1	19.7	26.4		
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	0.8	4.8		19.3	0.3	0.1	1.0	0.4	0.0	0.4	3.1		
Delay (s)	27.4	41.9		42.2	25.2	21.4	20.4	21.3	19.1	20.1	29.4		
Level of Service	C	D		D	C	C	C	C	B	C	C		
Approach Delay (s)		39.8			30.0			21.2			29.1		
Approach LOS		D			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			31.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.83										
Actuated Cycle Length (s)			104.1									Sum of lost time (s)	16.6
Intersection Capacity Utilization			84.2%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

Queues  
2: Mississauga Road & Bovaird Drive

<2031> AM Peak Hour  
1/2/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104
v/c Ratio	0.58	1.08	0.56	1.18	0.63	0.07	1.26	0.28	0.61	0.61	1.17	0.22
Control Delay	70.2	90.6	27.8	122.4	18.1	2.1	206.6	41.3	9.4	67.8	126.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	90.6	27.8	122.4	18.1	2.1	206.6	41.3	9.4	67.8	126.1	12.5
Queue Length 50th (m)	9.1	~185.6	45.3	~134.0	132.7	1.9	~32.1	26.0	4.0	21.0	~177.1	4.4
Queue Length 95th (m)	#28.0	#215.1	75.1m	#146.5	m142.8	m2.5	#56.5	35.2	33.5	32.7	#206.8	18.3
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	50.0		100.0	50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	74	1629	578	700	2781	901	155	1193	667	285	1360	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	1.08	0.56	1.18	0.63	0.07	1.26	0.28	0.61	0.57	1.17	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031> AM Peak Hour  
1/2/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555	
Flt Permitted	0.12	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	228	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	43	1767	322	826	1746	67	195	335	409	163	1589	104	
RTOR Reduction (vph)	0	0	71	0	0	30	0	0	296	0	0	59	
Lane Group Flow (vph)	43	1767	251	826	1746	37	195	335	113	163	1589	45	
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases		2		1	6		3	8		7	4		
Permitted Phases	2		2			6			8			4	
Actuated Green, G (s)	42.4	42.4	42.4	27.0	72.4	72.4	6.0	31.1	31.1	10.3	35.4	35.4	
Effective Green, g (s)	42.4	42.4	42.4	27.0	72.4	72.4	6.0	31.1	31.1	10.3	35.4	35.4	
Actuated g/C Ratio	0.33	0.33	0.33	0.21	0.56	0.56	0.05	0.24	0.24	0.08	0.27	0.27	
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	74	1629	507	700	2781	866	155	1194	372	267	1360	423	
v/s Ratio Prot		c0.35		c0.24	0.35		c0.06	0.07		c0.05	c0.32		
v/s Ratio Perm	0.19		0.16			0.02			0.07			0.03	
v/c Ratio	0.58	1.08	0.49	1.18	0.63	0.04	1.26	0.28	0.30	0.61	1.17	0.11	
Uniform Delay, d1	36.4	43.8	35.2	51.5	19.6	13.1	62.0	40.3	40.6	57.9	47.3	35.4	
Progression Factor	1.00	1.00	1.00	0.72	0.89	1.06	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.2	49.1	3.4	87.8	0.5	0.0	157.8	0.1	0.5	4.1	84.1	0.1	
Delay (s)	65.6	92.9	38.6	124.9	17.9	14.0	219.8	40.5	41.0	62.0	131.4	35.6	
Level of Service	E	F	D	F	B	B	F	D	D	E	F	D	
Approach Delay (s)		84.2			51.3			78.0			119.9		
Approach LOS		F			D			E			F		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			80.7									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.15										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	19.2
Intersection Capacity Utilization			111.6%									ICU Level of Service	H
Analysis Period (min)			15										
c	Critical Lane Group												



Queues  
3: James Potter Road & Bovaird Drive

<2031> AM Peak Hour  
1/2/2015



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	334	2017	2	1658	80	794	48	837	744
v/c Ratio	0.87	0.86	0.04	0.99	0.45	0.54	0.25	0.57	0.90
Control Delay	53.0	21.8	30.5	43.6	36.4	29.4	28.3	30.0	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	21.8	30.5	43.6	36.4	29.4	28.3	30.0	37.2
Queue Length 50th (m)	37.5	196.9	0.1	43.2	14.3	78.3	7.8	84.0	121.9
Queue Length 95th (m)	m38.8	m180.0	m0.4	#182.3	30.7	97.3	17.8	103.8	#206.4
Internal Link Dist (m)		401.2		125.0		387.7		242.7	
Turn Bay Length (m)	50.0		50.0		50.0		50.0		50.0
Base Capacity (vph)	389	2353	56	1672	179	1480	194	1481	823
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.86	0.04	0.99	0.45	0.54	0.25	0.57	0.90

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
 3: James Potter Road & Bovaird Drive

<2031> AM Peak Hour  
 1/2/2015

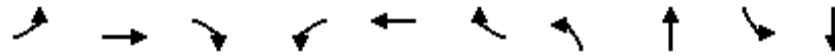
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	334	1979	38	2	1642	16	80	789	5	48	837	744
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3372	4981		1738	4988		1738	3473		1738	3476	1555
Flt Permitted	0.95	1.00		0.09	1.00		0.23	1.00		0.25	1.00	1.00
Satd. Flow (perm)	3372	4981		168	4988		421	3473		458	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	334	1979	38	2	1642	16	80	789	5	48	837	744
RTOR Reduction (vph)	0	2	0	0	1	0	0	1	0	0	0	161
Lane Group Flow (vph)	334	2015	0	2	1657	0	80	793	0	48	837	583
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases				6			8			4		4
Actuated Green, G (s)	14.8	61.4		43.6	43.6		55.4	55.4		55.4	55.4	55.4
Effective Green, g (s)	14.8	61.4		43.6	43.6		55.4	55.4		55.4	55.4	55.4
Actuated g/C Ratio	0.11	0.47		0.34	0.34		0.43	0.43		0.43	0.43	0.43
Clearance Time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	383	2352		56	1672		179	1480		195	1481	662
v/s Ratio Prot	0.10	c0.40			c0.33			0.23			0.24	
v/s Ratio Perm				0.01			0.19			0.10		c0.37
v/c Ratio	0.87	0.86		0.04	0.99		0.45	0.54		0.25	0.57	0.88
Uniform Delay, d1	56.7	30.4		29.1	43.0		26.4	27.7		23.9	28.2	34.3
Progression Factor	0.78	0.67		0.97	0.59		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.8	1.4		0.9	17.1		7.9	1.4		3.0	1.6	15.5
Delay (s)	51.1	21.6		29.1	42.4		34.3	29.1		26.9	29.8	49.8
Level of Service	D	C		C	D		C	C		C	C	D
Approach Delay (s)		25.8			42.4			29.6			38.8	
Approach LOS		C			D			C			D	

Intersection Summary

HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
4: Station Road & Bovaird Drive

<2031> AM Peak Hour  
1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	1600	45	58	1590	190	88	221	107	60
v/c Ratio	0.71	0.60	0.05	0.33	0.68	0.23	0.29	0.53	0.83	0.10
Control Delay	58.4	14.8	1.6	16.0	29.4	3.7	44.1	44.8	105.2	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	14.8	1.6	16.0	29.4	3.7	44.1	44.8	105.2	25.1
Queue Length 50th (m)	34.7	39.9	0.2	5.6	114.5	0.0	18.7	45.3	14.3	8.2
Queue Length 95th (m)	m43.5	61.1	m0.4	11.1	138.9	13.3	34.0	71.0	#30.7	18.4
Internal Link Dist (m)		300.4			528.3			204.6		104.7
Turn Bay Length (m)	50.0		100.0	50.0		100.0	50.0		50.0	
Base Capacity (vph)	296	2674	877	179	2335	818	306	418	129	620
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	0.59	0.60	0.05	0.32	0.68	0.23	0.29	0.53	0.83	0.10

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
4: Station Road & Bovard Drive

<2031> AM Peak Hour  
1/2/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	176	1600	45	58	1590	190	88	142	79	107	44	16	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7	
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00		
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1738	4995	1555	1738	4995	1520	1738	1732		3372	1969		
Flt Permitted	0.08	1.00	1.00	0.11	1.00	1.00	0.72	1.00		0.95	1.00		
Satd. Flow (perm)	143	4995	1555	201	4995	1520	1313	1732		3372	1969		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	176	1600	45	58	1590	190	88	142	79	107	44	16	
RTOR Reduction (vph)	0	0	21	0	0	101	0	15	0	0	10	0	
Lane Group Flow (vph)	176	1600	24	58	1590	89	88	206	0	107	50	0	
Confl. Peds. (#/hr)	1					1							
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA		
Protected Phases	5	2		1	6			4		3	8		
Permitted Phases	2		2	6		6	4						
Actuated Green, G (s)	76.8	69.0	69.0	65.6	60.8	60.8	30.3	30.3		5.0	40.3		
Effective Green, g (s)	76.8	69.0	69.0	65.6	60.8	60.8	30.3	30.3		5.0	40.3		
Actuated g/C Ratio	0.59	0.53	0.53	0.50	0.47	0.47	0.23	0.23		0.04	0.31		
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	243	2651	825	158	2336	710	306	403		129	610		
v/s Ratio Prot	c0.07	0.32		0.01	0.32			c0.12		c0.03	0.03		
v/s Ratio Perm	c0.35		0.02	0.17		0.06	0.07						
v/c Ratio	0.72	0.60	0.03	0.37	0.68	0.13	0.29	0.51		0.83	0.08		
Uniform Delay, d1	26.5	21.1	14.5	17.6	27.0	19.6	41.0	43.4		62.1	31.7		
Progression Factor	2.22	0.67	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	5.4	0.5	0.0	1.4	1.6	0.4	2.4	4.6		33.6	0.3		
Delay (s)	64.2	14.7	14.6	19.1	28.6	19.9	43.3	48.0		95.7	32.0		
Level of Service	E	B	B	B	C	B	D	D		F	C		
Approach Delay (s)		19.5			27.4			46.6			72.8		
Approach LOS		B			C			D			E		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			27.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.68										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			75.2%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Queues  
5: Heritage Road & Station Road

<2031> AM Peak Hour  
1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	191	259	483	6	159	241	387	721
v/c Ratio	0.21	0.18	0.78	0.41	0.02	0.08	0.25	0.58	0.37
Control Delay	22.0	14.2	43.2	4.1	10.7	9.8	2.3	17.7	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.0	14.2	43.2	4.1	10.7	9.8	2.3	17.7	11.6
Queue Length 50th (m)	5.4	8.0	36.7	2.1	0.4	5.7	0.0	37.5	31.2
Queue Length 95th (m)	13.3	14.9	63.0	12.0	2.4	11.8	10.6	77.5	51.1
Internal Link Dist (m)		463.8		1138.2		701.6			832.8
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	312	1421	454	1447	361	1963	983	672	1960
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.57	0.33	0.02	0.08	0.25	0.58	0.37

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031> AM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	138	53	259	36	447	6	159	241	387	711	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.96		1.00	0.86		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3332		1738	2994		1738	3476	1555	1738	3469	
Flt Permitted	0.41	1.00		0.63	1.00		0.35	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	749	3332		1156	2994		639	3476	1555	1192	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	138	53	259	36	447	6	159	241	387	711	10
RTOR Reduction (vph)	0	36	0	0	318	0	0	0	105	0	1	0
Lane Group Flow (vph)	48	155	0	259	165	0	6	159	136	387	720	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	25.6	25.6		23.6	23.6		46.4	46.4	46.4	46.4	46.4	
Effective Green, g (s)	25.6	25.6		23.6	23.6		46.4	46.4	46.4	46.4	46.4	
Actuated g/C Ratio	0.31	0.31		0.29	0.29		0.57	0.57	0.57	0.57	0.57	
Clearance Time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	233	1040		332	861		361	1966	879	674	1962	
v/s Ratio Prot		0.05			0.05			0.05			0.21	
v/s Ratio Perm	0.06			c0.22			0.01		0.09	c0.32		
v/c Ratio	0.21	0.15		0.78	0.19		0.02	0.08	0.16	0.57	0.37	
Uniform Delay, d1	20.7	20.3		26.8	22.0		7.8	8.1	8.5	11.4	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.1		11.3	0.1		0.1	0.1	0.4	3.5	0.5	
Delay (s)	21.2	20.4		38.1	22.1		7.9	8.2	8.8	15.0	10.3	
Level of Service	C	C		D	C		A	A	A	B	B	
Approach Delay (s)		20.6			27.7			8.6			11.9	
Approach LOS		C			C			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.9				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			82.0				Sum of lost time (s)				12.0	
Intersection Capacity Utilization			64.0%				ICU Level of Service				C	
Analysis Period (min)			15									
c	Critical Lane Group											

## 6: Mississauga Road &amp; Station Road

1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	784	72	714	32	293	64	59	1208
v/c Ratio	0.15	0.71	0.57	0.65	0.18	0.11	0.08	0.11	0.47
Control Delay	20.1	26.0	39.8	24.4	14.9	10.3	3.6	11.7	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	26.0	39.8	24.4	14.9	10.3	3.6	11.7	12.9
Queue Length 50th (m)	2.3	50.2	8.4	44.4	2.3	7.2	0.0	4.0	36.8
Queue Length 95th (m)	7.5	67.5	22.4	60.6	9.1	14.0	6.1	11.9	59.2
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	249	1800	208	1800	179	2601	840	539	2594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.44	0.35	0.40	0.18	0.11	0.08	0.11	0.47

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031> AM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	743	41	72	674	40	32	293	64	59	1178	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3449		1738	3447		1738	4995	1555	1738	4976	
Flt Permitted	0.26	1.00		0.22	1.00		0.19	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	478	3449		400	3447		345	4995	1555	1035	4976	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	743	41	72	674	40	32	293	64	59	1178	30
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	31	0	2	0
Lane Group Flow (vph)	23	779	0	72	709	0	32	293	33	59	1206	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	24.0	24.0		24.0	24.0		39.2	39.2	39.2	39.2	39.2	
Effective Green, g (s)	24.0	24.0		24.0	24.0		39.2	39.2	39.2	39.2	39.2	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.52	0.52	0.52	0.52	0.52	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	152	1100		127	1100		179	2603	810	539	2593	
v/s Ratio Prot		c0.23			0.21			0.06			c0.24	
v/s Ratio Perm	0.05			0.18			0.09		0.02	0.06		
v/c Ratio	0.15	0.71		0.57	0.64		0.18	0.11	0.04	0.11	0.46	
Uniform Delay, d1	18.3	22.5		21.3	21.9		9.5	9.2	8.8	9.1	11.4	
Progression Factor	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		5.7	1.3		2.2	0.1	0.1	0.4	0.6	
Delay (s)	18.8	24.6		27.0	23.2		11.7	9.2	8.9	9.5	12.0	
Level of Service	B	C		C	C		B	A	A	A	B	
Approach Delay (s)		24.5			23.6			9.4			11.9	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



## Queues

&lt;2031&gt; AM Peak Hour

## 7: James Potter Road &amp; Station Road

1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	142	554	352	116	110	363	342	282	215	838	277
v/c Ratio	0.38	0.36	0.94	0.76	0.28	0.24	0.90	0.25	0.36	0.41	0.75	0.40
Control Delay	22.2	32.0	39.9	35.5	29.7	3.7	44.7	19.4	3.9	13.7	32.4	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	32.0	39.9	35.5	29.7	3.7	44.7	19.4	3.9	13.7	32.4	5.1
Queue Length 50th (m)	19.8	20.5	40.8	45.7	16.2	0.0	40.5	21.1	0.0	18.1	68.6	0.1
Queue Length 95th (m)	34.1	36.6	#103.3	#74.7	30.2	7.0	#90.9	31.0	14.9	30.3	90.4	16.6
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)	50.0			50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	449	439	620	461	460	499	409	1353	777	532	1111	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.32	0.89	0.76	0.25	0.22	0.89	0.25	0.36	0.40	0.75	0.40

## Intersection Summary

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

























Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

<2031> AM Peak Hour

## 7: James Potter Road & Station Road

1/2/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	172	142	554	352	116	110	363	342	282	215	838	277	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555	
Flt Permitted	0.68	1.00	1.00	0.63	1.00	1.00	0.16	1.00	1.00	0.55	1.00	1.00	
Satd. Flow (perm)	1248	1830	1555	1158	1830	1555	291	3476	1555	999	3476	1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	172	142	554	352	116	110	363	342	282	215	838	277	
RTOR Reduction (vph)	0	0	256	0	0	85	0	0	172	0	0	188	
Lane Group Flow (vph)	172	142	298	352	116	25	363	342	110	215	838	89	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4		4	8		8	2		2	6		6	
Actuated Green, G (s)	25.9	18.9	18.9	27.9	19.9	19.9	45.9	34.3	34.3	36.7	28.1	28.1	
Effective Green, g (s)	25.9	18.9	18.9	27.9	19.9	19.9	45.9	34.3	34.3	36.7	28.1	28.1	
Actuated g/C Ratio	0.29	0.22	0.22	0.32	0.23	0.23	0.52	0.39	0.39	0.42	0.32	0.32	
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	407	393	334	420	414	352	396	1357	607	489	1112	497	
v/s Ratio Prot	0.03	0.08		c0.08	0.06		c0.15	0.10		0.04	0.24		
v/s Ratio Perm	0.09		c0.19	0.19		0.02	c0.32		0.07	0.14		0.06	
v/c Ratio	0.42	0.36	0.89	0.84	0.28	0.07	0.92	0.25	0.18	0.44	0.75	0.18	
Uniform Delay, d1	24.2	29.3	33.5	26.8	28.0	26.7	19.8	18.1	17.5	17.0	26.7	21.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.6	24.5	13.6	0.4	0.1	25.5	0.4	0.7	0.6	4.7	0.8	
Delay (s)	24.9	29.9	58.0	40.4	28.4	26.8	45.3	18.5	18.2	17.6	31.5	22.3	
Level of Service	C	C	E	D	C	C	D	B	B	B	C	C	
Approach Delay (s)		46.8			35.4			28.3			27.3		
Approach LOS		D			D			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			33.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.93										
Actuated Cycle Length (s)			87.8									Sum of lost time (s)	18.0
Intersection Capacity Utilization			90.3%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Queues  
1: Heritage Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	854	139	817	173	22	637	320	89	419
v/c Ratio	0.08	0.79	0.49	0.57	0.23	0.06	0.43	0.39	0.34	0.29
Control Delay	13.8	37.9	20.3	25.1	4.0	21.2	23.0	6.3	27.2	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	37.9	20.3	25.1	4.0	21.2	23.0	6.3	27.2	20.3
Queue Length 50th (m)	2.3	79.8	14.7	59.8	0.3	2.5	44.6	5.6	11.3	26.1
Queue Length 95th (m)	6.1	105.4	24.8	87.5	12.5	8.8	74.1	27.7	29.6	46.1
Internal Link Dist (m)		326.4		946.6			240.2			235.2
Turn Bay Length (m)	50.0		50.0		50.0	50.0			50.0	
Base Capacity (vph)	284	1576	356	1924	936	375	1481	817	264	1457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.54	0.39	0.42	0.18	0.06	0.43	0.39	0.34	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
1: Heritage Road & Bovaird Drive

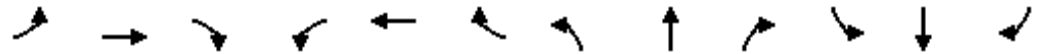
<2031> PM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	851	3	139	817	173	22	637	320	89	361	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frft	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3474		1738	3476	1555	1738	3476	1555	1738	3398	
Flt Permitted	0.31	1.00		0.16	1.00	1.00	0.48	1.00	1.00	0.34	1.00	
Satd. Flow (perm)	558	3474		291	3476	1555	881	3476	1555	620	3398	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	851	3	139	817	173	22	637	320	89	361	58
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	157	0	10	0
Lane Group Flow (vph)	23	854	0	139	817	71	22	637	163	89	409	0
Confl. Bikes (#/hr)			5									3
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	35.0	33.2		46.2	41.4	41.4	43.1	43.1	43.1	43.1	43.1	
Effective Green, g (s)	35.0	33.2		46.2	41.4	41.4	43.1	43.1	43.1	43.1	43.1	
Actuated g/C Ratio	0.34	0.32		0.45	0.40	0.40	0.42	0.42	0.42	0.42	0.42	
Clearance Time (s)	3.0	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	210	1120		271	1398	625	369	1455	651	259	1423	
v/s Ratio Prot	0.00	c0.25		c0.05	0.24			c0.18			0.12	
v/s Ratio Perm	0.04			0.18		0.05	0.02		0.10	0.14		
v/c Ratio	0.11	0.76		0.51	0.58	0.11	0.06	0.44	0.25	0.34	0.29	
Uniform Delay, d1	22.8	31.3		19.2	24.0	19.3	17.8	21.3	19.4	20.3	19.8	
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	0.2	3.1		1.6	0.6	0.1	0.3	1.0	0.9	3.6	0.5	
Delay (s)	23.0	34.4		20.8	24.7	19.3	18.1	22.2	20.3	23.9	20.3	
Level of Service	C	C		C	C	B	B	C	C	C	C	
Approach Delay (s)		34.1			23.4			21.5			20.9	
Approach LOS		C			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			25.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			102.9			Sum of lost time (s)				16.6		
Intersection Capacity Utilization			75.4%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

Queues  
2: Mississauga Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
v/c Ratio	1.13	0.82	0.27	1.17	0.53	0.32	0.81	1.07	0.93	0.43	0.73	0.18
Control Delay	156.5	35.2	4.3	129.5	11.6	3.6	78.3	94.4	49.4	71.8	56.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.5	35.2	4.3	129.5	11.6	3.6	78.3	94.4	49.4	71.8	56.6	2.8
Queue Length 50th (m)	~39.4	148.7	1.7	~83.5	118.6	18.7	32.7	~138.6	76.6	7.3	56.9	0.0
Queue Length 95th (m)	#80.3	168.7	15.6	m#98.1	m115.7	m21.0	#52.5	#168.0	#147.0	14.5	71.0	3.0
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	50.0		100.0	50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	118	2243	810	466	3050	1017	311	1191	564	129	865	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.82	0.27	1.17	0.53	0.32	0.80	1.07	0.93	0.43	0.73	0.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555
Flt Permitted	0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	263	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1847	215	546	1614	329	249	1276	524	56	633	64
RTOR Reduction (vph)	0	0	113	0	0	69	0	0	193	0	0	53
Lane Group Flow (vph)	133	1847	102	546	1614	260	249	1276	331	56	633	11
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2			6			8			4
Actuated Green, G (s)	57.8	57.8	57.8	18.0	78.8	78.8	11.9	31.0	31.0	4.0	23.1	23.1
Effective Green, g (s)	57.8	57.8	57.8	18.0	78.8	78.8	11.9	31.0	31.0	4.0	23.1	23.1
Actuated g/C Ratio	0.44	0.44	0.44	0.14	0.61	0.61	0.09	0.24	0.24	0.03	0.18	0.18
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	2220	691	466	3027	942	308	1191	370	103	887	276
v/s Ratio Prot		0.37		c0.16	0.32		c0.07	c0.26		0.02	0.13	
v/s Ratio Perm	c0.51		0.07			0.17			0.21			0.01
v/c Ratio	1.15	0.83	0.15	1.17	0.53	0.28	0.81	1.07	0.89	0.54	0.71	0.04
Uniform Delay, d1	36.1	31.8	21.5	56.0	14.9	12.1	57.9	49.5	47.9	62.1	50.3	44.3
Progression Factor	1.00	1.00	1.00	0.80	0.77	0.58	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	128.3	3.8	0.5	89.2	0.4	0.4	14.4	47.5	22.8	5.8	2.7	0.1
Delay (s)	164.4	35.6	21.9	133.9	11.8	7.4	72.3	97.0	70.7	67.9	53.1	44.3
Level of Service	F	D	C	F	B	A	E	F	E	E	D	D
Approach Delay (s)		42.1			38.0			87.2			53.4	
Approach LOS		D			D			F			D	

Intersection Summary

HCM 2000 Control Delay	54.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
3: James Potter Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015































Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	688	1692	5	1946	42	835	16	763	377
v/c Ratio	0.98	0.53	0.05	0.95	0.68	0.94	0.29	0.85	0.63
Control Delay	54.9	11.1	16.0	32.7	93.7	65.4	54.4	56.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	11.1	16.0	32.7	93.7	65.4	54.4	56.6	17.9
Queue Length 50th (m)	84.1	125.8	0.4	177.3	9.7	110.6	3.3	98.3	23.9
Queue Length 95th (m)	m#122.5	m120.9	m0.9	#209.7	#30.2	#148.5	11.1	#124.3	58.4
Internal Link Dist (m)		401.2		125.0		387.7		242.7	
Turn Bay Length (m)	50.0		50.0		50.0		50.0		50.0
Base Capacity (vph)	700	3188	99	2047	62	893	56	893	596
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.53	0.05	0.95	0.68	0.94	0.29	0.85	0.63

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: James Potter Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Volume (vph)	688	1620	72	5	1901	45	42	833	2	16	763	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3372	4963		1738	4978		1738	3475		1738	3476	1555
Flt Permitted	0.95	1.00		0.13	1.00		0.13	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3372	4963		242	4978		243	3475		219	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	688	1620	72	5	1901	45	42	833	2	16	763	377
RTOR Reduction (vph)	0	4	0	0	2	0	0	0	0	0	0	197
Lane Group Flow (vph)	688	1688	0	5	1944	0	42	835	0	16	763	180
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8				4
Permitted Phases				6			8			4		4
Actuated Green, G (s)	27.0	83.4		53.4	53.4		33.4	33.4		33.4	33.4	33.4
Effective Green, g (s)	27.0	83.4		53.4	53.4		33.4	33.4		33.4	33.4	33.4
Actuated g/C Ratio	0.21	0.64		0.41	0.41		0.26	0.26		0.26	0.26	0.26
Clearance Time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	700	3183		99	2044		62	892		56	893	399
v/s Ratio Prot	c0.20	0.34			c0.39			c0.24				0.22
v/s Ratio Perm				0.02			0.17			0.07		0.12
v/c Ratio	0.98	0.53		0.05	0.95		0.68	0.94		0.29	0.85	0.45
Uniform Delay, d1	51.3	12.7		23.0	37.0		43.5	47.3		38.7	46.0	40.6
Progression Factor	0.64	0.85		0.63	0.58		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.3	0.3		0.9	10.6		46.2	18.1		12.4	10.2	3.7
Delay (s)	53.2	11.0		15.3	32.1		89.7	65.4		51.1	56.2	44.3
Level of Service	D	B		B	C		F	E		D	E	D
Approach Delay (s)		23.2			32.1			66.6			52.2	
Approach LOS		C			C			E			D	

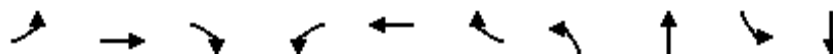
Intersection Summary

HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Queues  
4: Station Road & Bovaird Drive

<2031> PM Peak Hour  
1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	44	1495	91	129	1373	41	55	91	220	268
v/c Ratio	0.23	0.70	0.12	0.63	0.58	0.05	0.22	0.21	0.66	0.36
Control Delay	8.4	10.0	0.3	32.4	26.4	0.1	43.6	17.2	66.6	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.4	10.0	0.3	32.4	26.4	0.1	43.6	17.2	66.6	21.5
Queue Length 50th (m)	1.6	21.6	0.0	15.3	94.1	0.0	11.6	5.9	28.2	33.2
Queue Length 95th (m)	m3.1	24.4	0.0	33.1	109.0	0.0	23.7	20.2	41.2	55.6
Internal Link Dist (m)		300.4			528.3			204.6		104.7
Turn Bay Length (m)	50.0		100.0	50.0		100.0	50.0		50.0	
Base Capacity (vph)	191	2142	737	229	2366	778	255	433	363	739
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	0.70	0.12	0.56	0.58	0.05	0.22	0.21	0.61	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
4: Station Road & Bovard Drive

<2031> PM Peak Hour  
1/2/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	44	1495	91	129	1373	41	55	29	62	220	92	176	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7	
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00		
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00		1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.90		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1738	4995	1555	1738	4995	1520	1738	1643		3372	1849		
Flt Permitted	0.13	1.00	1.00	0.08	1.00	1.00	0.59	1.00		0.95	1.00		
Satd. Flow (perm)	246	4995	1555	150	4995	1520	1087	1643		3372	1849		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	44	1495	91	129	1373	41	55	29	62	220	92	176	
RTOR Reduction (vph)	0	0	52	0	0	22	0	47	0	0	53	0	
Lane Group Flow (vph)	44	1495	39	129	1373	19	55	44	0	220	215	0	
Confl. Peds. (#/hr)	1					1							
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA		
Protected Phases	5	2		1	6			4		3	8		
Permitted Phases	2		2	6		6	4						
Actuated Green, G (s)	60.6	55.8	55.8	68.8	61.0	61.0	30.5	30.5		12.8	48.3		
Effective Green, g (s)	60.6	55.8	55.8	68.8	61.0	61.0	30.5	30.5		12.8	48.3		
Actuated g/C Ratio	0.47	0.43	0.43	0.53	0.47	0.47	0.23	0.23		0.10	0.37		
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	169	2144	667	201	2343	713	255	385		332	686		
v/s Ratio Prot	0.01	c0.30		c0.05	0.27			0.03		c0.07	c0.12		
v/s Ratio Perm	0.11		0.03	0.29		0.01	0.05						
v/c Ratio	0.26	0.70	0.06	0.64	0.59	0.03	0.22	0.11		0.66	0.31		
Uniform Delay, d1	20.0	30.2	21.7	21.4	25.3	18.5	40.1	39.1		56.5	29.1		
Progression Factor	0.43	0.27	0.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.7	1.6	0.1	6.8	1.1	0.1	1.9	0.6		4.9	1.2		
Delay (s)	9.4	9.8	0.1	28.2	26.3	18.6	42.0	39.7		61.4	30.3		
Level of Service	A	A	A	C	C	B	D	D		E	C		
Approach Delay (s)		9.3			26.3			40.6			44.3		
Approach LOS		A			C			D			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			21.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	20.9
Intersection Capacity Utilization			78.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

Queues  
5: Heritage Road & Station Road

<2031> PM Peak Hour  
1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	47	236	509	64	502	219	456	124
v/c Ratio	0.06	0.06	0.85	0.54	0.08	0.22	0.20	0.81	0.06
Control Delay	27.6	23.8	61.5	10.9	6.3	6.7	1.4	26.6	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	23.8	61.5	10.9	6.3	6.7	1.4	26.6	4.4
Queue Length 50th (m)	1.1	2.8	38.8	10.3	3.7	17.0	0.0	53.6	2.6
Queue Length 95th (m)	4.6	7.1	#75.8	24.1	8.1	23.6	7.0	#121.4	5.5
Internal Link Dist (m)		459.1		1138.2		701.6			832.8
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	147	851	299	985	806	2275	1093	560	2194
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.79	0.52	0.08	0.22	0.20	0.81	0.06

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031> PM Peak Hour  
1/2/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	8	41	6	236	139	370	64	502	219	456	90	34	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95		
Frt	1.00	0.98		1.00	0.89		1.00	1.00	0.85	1.00	0.96		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1738	3410		1738	3097		1738	3476	1555	1738	3333		
Flt Permitted	0.32	1.00		0.72	1.00		0.67	1.00	1.00	0.47	1.00		
Satd. Flow (perm)	593	3410		1326	3097		1232	3476	1555	856	3333		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	8	41	6	236	139	370	64	502	219	456	90	34	
RTOR Reduction (vph)	0	5	0	0	292	0	0	0	76	0	12	0	
Lane Group Flow (vph)	8	42	0	236	217	0	64	502	143	456	112	0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2		2	6			
Actuated Green, G (s)	20.6	20.6		18.6	18.6		58.0	58.0	58.0	58.0	58.0		
Effective Green, g (s)	20.6	20.6		18.6	18.6		58.0	58.0	58.0	58.0	58.0		
Actuated g/C Ratio	0.23	0.23		0.21	0.21		0.65	0.65	0.65	0.65	0.65		
Clearance Time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	137	792		278	650		806	2275	1017	560	2181		
v/s Ratio Prot		0.01			0.07			0.14			0.03		
v/s Ratio Perm	0.01			c0.18			0.05		0.09	c0.53			
v/c Ratio	0.06	0.05		0.85	0.33		0.08	0.22	0.14	0.81	0.05		
Uniform Delay, d1	26.5	26.4		33.6	29.7		5.6	6.2	5.8	11.3	5.5		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.2	0.0		20.7	0.3		0.2	0.2	0.3	12.3	0.0		
Delay (s)	26.6	26.5		54.4	30.0		5.8	6.4	6.1	23.6	5.5		
Level of Service	C	C		D	C		A	A	A	C	A		
Approach Delay (s)		26.5			37.8			6.3			19.7		
Approach LOS		C			D			A			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			21.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.82										
Actuated Cycle Length (s)			88.6									Sum of lost time (s)	12.0
Intersection Capacity Utilization			73.9%									ICU Level of Service	D
Analysis Period (min)			15										
c	Critical Lane Group												

## 6: Mississauga Road &amp; Station Road

1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	39	717	58	747	31	1077	45	42	447
v/c Ratio	0.29	0.67	0.40	0.70	0.07	0.41	0.05	0.19	0.17
Control Delay	25.2	25.1	28.9	25.7	11.0	11.9	4.0	14.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	25.1	28.9	25.7	11.0	11.9	4.0	14.0	9.8
Queue Length 50th (m)	4.1	44.6	6.3	46.9	2.0	30.9	0.0	2.9	10.6
Queue Length 95th (m)	11.8	61.0	16.6	63.8	7.2	50.0	5.0	10.6	19.4
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	226	1822	245	1817	467	2634	841	219	2618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.39	0.24	0.41	0.07	0.41	0.05	0.19	0.17

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031> PM Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	678	39	58	688	59	31	1077	45	42	419	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Flt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3448		1738	3435		1738	4995	1555	1738	4948	
Flt Permitted	0.24	1.00		0.25	1.00		0.48	1.00	1.00	0.23	1.00	
Satd. Flow (perm)	430	3448		465	3435		886	4995	1555	418	4948	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	39	678	39	58	688	59	31	1077	45	42	419	28
RTOR Reduction (vph)	0	6	0	0	8	0	0	0	21	0	7	0
Lane Group Flow (vph)	39	711	0	58	739	0	31	1077	24	42	440	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2		6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.0	23.0		23.0	23.0		39.2	39.2	39.2	39.2	39.2	
Effective Green, g (s)	23.0	23.0		23.0	23.0		39.2	39.2	39.2	39.2	39.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53	0.53	0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	133	1068		144	1064		468	2638	821	220	2614	
v/s Ratio Prot		0.21			c0.22			c0.22			0.09	
v/s Ratio Perm	0.09			0.12			0.04		0.02	0.10		
v/c Ratio	0.29	0.67		0.40	0.69		0.07	0.41	0.03	0.19	0.17	
Uniform Delay, d1	19.4	22.3		20.2	22.5		8.6	10.5	8.4	9.2	9.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.6		1.8	2.0		0.3	0.5	0.1	1.9	0.1	
Delay (s)	20.7	23.8		22.0	24.5		8.8	11.0	8.4	11.1	9.2	
Level of Service	C	C		C	C		A	B	A	B	A	
Approach Delay (s)		23.7			24.3			10.8			9.4	
Approach LOS		C			C			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			17.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			74.2				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			68.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

## Queues

&lt;2031&gt; PM Peak Hour

## 7: James Potter Road &amp; Station Road

1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	271	114	356	277	139	210	543	822	346	107	336	169
v/c Ratio	0.78	0.46	0.69	0.78	0.56	0.58	0.73	0.39	0.32	0.45	0.25	0.24
Control Delay	44.2	40.1	11.4	43.8	43.6	15.4	15.4	9.7	1.9	29.5	19.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	40.1	11.4	43.8	43.6	15.4	15.4	9.7	1.9	29.5	19.9	4.4
Queue Length 50th (m)	37.3	17.5	0.0	38.3	21.6	5.1	41.2	33.2	0.0	13.3	20.1	0.0
Queue Length 95th (m)	#62.0	32.8	23.1	#62.7	38.9	24.4	73.1	50.5	10.4	31.5	32.3	12.6
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)	50.0			50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	347	341	579	355	341	432	762	2111	1080	237	1320	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.33	0.61	0.78	0.41	0.49	0.71	0.39	0.32	0.45	0.25	0.24

## Intersection Summary

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

























Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

<2031> PM Peak Hour

## 7: James Potter Road & Station Road

1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	271	114	356	277	139	210	543	822	346	107	336	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.66	1.00	1.00	0.68	1.00	1.00	0.50	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	1201	1830	1555	1251	1830	1555	920	3476	1555	625	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	271	114	356	277	139	210	543	822	346	107	336	169
RTOR Reduction (vph)	0	0	308	0	0	151	0	0	136	0	0	105
Lane Group Flow (vph)	271	114	48	277	139	59	543	822	210	107	336	64
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	18.6	11.6	11.6	18.6	11.6	11.6	52.1	52.1	52.1	32.6	32.6	32.6
Effective Green, g (s)	18.6	11.6	11.6	18.6	11.6	11.6	52.1	52.1	52.1	32.6	32.6	32.6
Actuated g/C Ratio	0.22	0.14	0.14	0.22	0.14	0.14	0.61	0.61	0.61	0.38	0.38	0.38
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	304	247	210	311	247	210	716	2113	945	237	1322	591
v/s Ratio Prot	c0.07	0.06		0.07	0.08		c0.15	0.24			0.10	
v/s Ratio Perm	c0.12		0.03	0.12		0.04	c0.31		0.14	0.17		0.04
v/c Ratio	0.89	0.46	0.23	0.89	0.56	0.28	0.76	0.39	0.22	0.45	0.25	0.11
Uniform Delay, d1	31.7	34.2	33.1	31.8	34.7	33.3	9.7	8.6	7.6	19.9	18.2	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.1	1.4	0.6	25.6	2.9	0.7	4.6	0.5	0.5	6.1	0.5	0.4
Delay (s)	57.8	35.5	33.6	57.3	37.6	34.0	14.3	9.2	8.2	26.0	18.7	17.5
Level of Service	E	D	C	E	D	C	B	A	A	C	B	B
Approach Delay (s)		42.8			45.1			10.6			19.6	
Approach LOS		D			D			B			B	

### Intersection Summary

HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Queues  
1: Heritage Road & Bovaird Drive

<2031> Sat Peak Hour  
1/2/2015


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	876	228	815	168	17	488	224	68	586
v/c Ratio	0.13	0.78	0.67	0.48	0.21	0.07	0.38	0.31	0.24	0.46
Control Delay	23.7	33.7	23.3	16.7	5.4	24.2	24.3	4.9	26.6	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	33.7	23.3	16.7	5.4	24.2	24.3	4.9	26.6	25.1
Queue Length 50th (m)	3.2	73.1	20.5	49.0	5.3	2.0	33.3	0.0	8.3	40.8
Queue Length 95th (m)	9.7	99.5	38.7	62.7	14.8	7.6	57.0	16.0	22.4	68.6
Internal Link Dist (m)		326.4		946.6			240.2			235.2
Turn Bay Length (m)	50.0		50.0		50.0	50.0			50.0	
Base Capacity (vph)	339	1873	467	2743	1250	239	1277	712	285	1264
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.47	0.49	0.30	0.13	0.07	0.38	0.31	0.24	0.46

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
 1: Heritage Road & Bovaird Drive

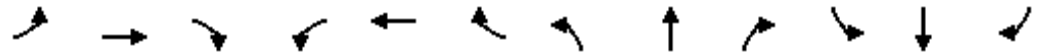
<2031> Sat Peak Hour  
 1/2/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	26	871	5	228	815	168	17	488	224	68	534	52	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.4	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1738	3473		1738	3476	1555	1738	3476	1555	1738	3426		
Flt Permitted	0.34	1.00		0.16	1.00	1.00	0.36	1.00	1.00	0.42	1.00		
Satd. Flow (perm)	630	3473		286	3476	1555	652	3476	1555	777	3426		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	26	871	5	228	815	168	17	488	224	68	534	52	
RTOR Reduction (vph)	0	1	0	0	0	57	0	0	142	0	5	0	
Lane Group Flow (vph)	26	875	0	228	815	111	17	488	82	68	581	0	
Confl. Bikes (#/hr)			5									3	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases		2		1	6			8			4		
Permitted Phases	2			6		6	8		8	4			
Actuated Green, G (s)	30.1	30.1		45.0	45.0	45.0	34.1	34.1	34.1	34.1	34.1		
Effective Green, g (s)	30.1	30.1		45.0	45.0	45.0	34.1	34.1	34.1	34.1	34.1		
Actuated g/C Ratio	0.32	0.32		0.49	0.49	0.49	0.37	0.37	0.37	0.37	0.37		
Clearance Time (s)	7.4	7.4		3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	204	1127		325	1687	754	239	1278	572	285	1260		
v/s Ratio Prot		c0.25		c0.09	0.23			0.14			c0.17		
v/s Ratio Perm	0.04			0.25		0.07	0.03		0.05	0.09			
v/c Ratio	0.13	0.78		0.70	0.48	0.15	0.07	0.38	0.14	0.24	0.46		
Uniform Delay, d1	22.0	28.3		16.7	16.0	13.2	19.0	21.5	19.6	20.3	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	0.3	3.4		6.7	0.2	0.1	0.6	0.9	0.5	2.0	1.2		
Delay (s)	22.3	31.7		23.4	16.3	13.3	19.6	22.4	20.1	22.3	23.5		
Level of Service	C	C		C	B	B	B	C	C	C	C		
Approach Delay (s)		31.4			17.2			21.6			23.4		
Approach LOS		C			B			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			22.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			92.7									Sum of lost time (s)	16.6
Intersection Capacity Utilization			79.8%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

Queues  
2: Mississauga Road & Bovaird Drive

<2031> Sat Peak Hour  
1/2/2015



























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
v/c Ratio	0.91	0.95	0.26	0.95	0.59	0.25	0.91	0.71	0.92	0.76	0.96	0.26
Control Delay	111.7	47.8	6.9	59.2	8.6	0.8	89.2	44.4	42.3	88.4	66.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.7	47.8	6.9	59.2	8.6	0.8	89.2	44.4	42.3	88.4	66.4	8.2
Queue Length 50th (m)	18.3	148.5	4.1	55.2	66.1	1.4	31.1	71.2	69.3	12.9	87.5	0.0
Queue Length 95th (m)	#50.5	#181.7	18.6	m#68.3	m85.3	m1.6	#55.2	86.5	#139.9	#27.4	#115.6	13.7
Internal Link Dist (m)		380.9			401.2			364.1			405.4	
Turn Bay Length (m)	50.0		100.0	50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	91	1898	685	553	2842	960	281	1269	625	140	1061	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.95	0.26	0.95	0.59	0.25	0.91	0.71	0.92	0.76	0.96	0.26

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: Mississauga Road & Bovaird Drive

<2031> Sat Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555
Flt Permitted	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	242	4995	1555	3372	4995	1555	3372	4995	1555	3372	4995	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	83	1798	180	526	1690	238	255	903	578	106	1018	111
RTOR Reduction (vph)	0	0	94	0	0	75	0	0	230	0	0	87
Lane Group Flow (vph)	83	1798	86	526	1690	163	255	903	348	106	1018	24
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2			6			8			4
Actuated Green, G (s)	45.6	45.6	45.6	19.7	68.3	68.3	10.0	30.5	30.5	5.0	25.5	25.5
Effective Green, g (s)	45.6	45.6	45.6	19.7	68.3	68.3	10.0	30.5	30.5	5.0	25.5	25.5
Actuated g/C Ratio	0.38	0.38	0.38	0.16	0.57	0.57	0.08	0.25	0.25	0.04	0.21	0.21
Clearance Time (s)	6.6	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	91	1898	590	553	2842	885	281	1269	395	140	1061	330
v/s Ratio Prot		c0.36		c0.16	0.34		c0.08	0.18		0.03	0.20	
v/s Ratio Perm	0.34		0.06			0.10			c0.22			0.02
v/c Ratio	0.91	0.95	0.15	0.95	0.59	0.18	0.91	0.71	0.88	0.76	0.96	0.07
Uniform Delay, d1	35.3	36.0	24.4	49.7	16.8	12.4	54.5	40.7	43.0	56.9	46.7	37.8
Progression Factor	1.00	1.00	1.00	0.85	0.48	0.14	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	72.5	11.5	0.5	15.1	0.4	0.2	30.5	1.9	19.4	20.6	18.4	0.1
Delay (s)	107.8	47.5	24.9	57.5	8.6	2.0	85.0	42.7	62.4	77.5	65.1	37.9
Level of Service	F	D	C	E	A	A	F	D	E	E	E	D
Approach Delay (s)		48.0			18.4			55.5			63.7	
Approach LOS		D			B			E			E	

Intersection Summary

HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
3: James Potter Road & Bovaird Drive

<2031> Sat Peak Hour  
1/2/2015































Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	593	1778	3	1734	56	789	23	785	602
v/c Ratio	0.93	0.63	0.04	0.98	0.50	0.71	0.21	0.71	0.79
Control Delay	39.4	15.3	17.0	33.8	51.7	40.1	35.9	40.0	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	15.3	17.0	33.8	51.7	40.1	35.9	40.0	21.8
Queue Length 50th (m)	61.8	133.4	0.1	41.9	10.7	85.7	3.9	85.2	48.8
Queue Length 95th (m)	m68.5	m142.3	m0.4	#173.8	26.0	107.9	11.4	107.1	99.6
Internal Link Dist (m)		401.2		125.0		387.7		242.7	
Turn Bay Length (m)	50.0		50.0		50.0		50.0		50.0
Base Capacity (vph)	646	2835	78	1773	111	1112	110	1112	758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.63	0.04	0.98	0.50	0.71	0.21	0.71	0.79

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
 3: James Potter Road & Bovaird Drive

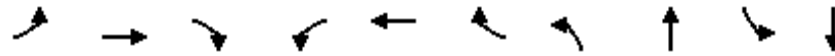
<2031> Sat Peak Hour  
 1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 			 	
Volume (vph)	593	1722	56	3	1706	28	56	787	2	23	785	602
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3372	4971		1738	4983		1738	3475		1738	3476	1555
Flt Permitted	0.95	1.00		0.12	1.00		0.19	1.00		0.19	1.00	1.00
Satd. Flow (perm)	3372	4971		220	4983		350	3475		345	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	593	1722	56	3	1706	28	56	787	2	23	785	602
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	261
Lane Group Flow (vph)	593	1775	0	3	1733	0	56	789	0	23	785	341
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	4
Permitted Phases				6			8			4		4
Actuated Green, G (s)	22.7	68.4		42.7	42.7		38.4	38.4		38.4	38.4	38.4
Effective Green, g (s)	22.7	68.4		42.7	42.7		38.4	38.4		38.4	38.4	38.4
Actuated g/C Ratio	0.19	0.57		0.36	0.36		0.32	0.32		0.32	0.32	0.32
Clearance Time (s)	3.0	6.6		6.6	6.6		6.6	6.6		6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	637	2833		78	1773		112	1112		110	1112	497
v/s Ratio Prot	c0.18	0.36			c0.35			c0.23			0.23	
v/s Ratio Perm				0.01			0.16			0.07		0.22
v/c Ratio	0.93	0.63		0.04	0.98		0.50	0.71		0.21	0.71	0.69
Uniform Delay, d1	47.9	17.3		25.2	38.2		33.0	35.9		29.7	35.8	35.5
Progression Factor	0.59	0.86		0.61	0.46		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.2	0.4		0.8	14.7		15.1	3.8		4.3	3.8	7.5
Delay (s)	37.4	15.2		16.1	32.1		48.1	39.7		34.0	39.6	43.1
Level of Service	D	B		B	C		D	D		C	D	D
Approach Delay (s)		20.7			32.1			40.3			41.0	
Approach LOS		C			C			D			D	

Intersection Summary		
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.87	
Actuated Cycle Length (s)	120.0	Sum of lost time (s) 16.2
Intersection Capacity Utilization	95.5%	ICU Level of Service F
Analysis Period (min)	15	
c Critical Lane Group		

Queues  
4: Station Road & Bovaird Drive

<2031> Sat Peak Hour  
1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	115	1440	75	102	1437	104	69	158	136	172
v/c Ratio	0.54	0.66	0.10	0.49	0.66	0.14	0.24	0.35	0.56	0.23
Control Delay	41.7	11.4	1.0	20.8	29.1	4.3	39.0	32.3	63.0	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	11.4	1.0	20.8	29.1	4.3	39.0	32.3	63.0	10.1
Queue Length 50th (m)	13.3	20.2	0.0	10.8	97.3	0.0	13.1	24.4	16.1	8.3
Queue Length 95th (m)	m30.8	39.1	m0.3	19.2	115.2	9.8	26.1	43.8	26.4	23.2
Internal Link Dist (m)		300.4			528.3			204.6		104.7
Turn Bay Length (m)	50.0		100.0	50.0		100.0	50.0		50.0	
Base Capacity (vph)	229	2174	736	230	2164	724	292	446	252	736
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	0.50	0.66	0.10	0.44	0.66	0.14	0.24	0.35	0.54	0.23

Intersection Summary
























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

# HCM Signalized Intersection Capacity Analysis

<2031> Sat Peak Hour

## 4: Station Road & Bovard Drive

1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1440	75	102	1437	104	69	88	70	136	49	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.8	3.7
Total Lost time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	4995	1555	1738	4995	1521	1738	1708		3372	1831	
Flt Permitted	0.10	1.00	1.00	0.10	1.00	1.00	0.65	1.00		0.95	1.00	
Satd. Flow (perm)	183	4995	1555	184	4995	1521	1187	1708		3372	1831	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1440	75	102	1437	104	69	88	70	136	49	123
RTOR Reduction (vph)	0	0	42	0	0	59	0	24	0	0	75	0
Lane Group Flow (vph)	115	1440	33	102	1437	45	69	134	0	136	97	0
Confl. Peds. (#/hr)	1					1						
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Prot	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4					
Actuated Green, G (s)	61.0	52.2	52.2	60.6	52.0	52.0	29.6	29.6		8.7	43.3	
Effective Green, g (s)	61.0	52.2	52.2	60.6	52.0	52.0	29.6	29.6		8.7	43.3	
Actuated g/C Ratio	0.51	0.44	0.44	0.51	0.43	0.43	0.25	0.25		0.07	0.36	
Clearance Time (s)	3.0	6.2	6.2	3.0	6.2	6.2	6.7	6.7		5.0	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	207	2172	676	204	2164	659	292	421		244	660	
v/s Ratio Prot	c0.04	c0.29		0.04	0.29			c0.08		c0.04	0.05	
v/s Ratio Perm	0.24		0.02	0.22		0.03	0.06					
v/c Ratio	0.56	0.66	0.05	0.50	0.66	0.07	0.24	0.32		0.56	0.15	
Uniform Delay, d1	18.7	26.9	19.6	18.5	27.1	19.9	36.2	36.9		53.8	25.9	
Progression Factor	2.39	0.37	0.49	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	1.3	0.1	1.9	1.6	0.2	1.9	2.0		2.7	0.5	
Delay (s)	47.3	11.3	9.8	20.4	28.7	20.1	38.1	38.9		56.5	26.3	
Level of Service	D	B	A	C	C	C	D	D		E	C	
Approach Delay (s)		13.7			27.6			38.7			39.7	
Approach LOS		B			C			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.3									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			120.0							20.9		
Intersection Capacity Utilization			70.6%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												



Queues  
5: Heritage Road & Station Road

<2031> Sat Peak Hour  
1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	28	118	338	399	32	386	141	500	223
v/c Ratio	0.11	0.11	0.96	0.36	0.05	0.19	0.15	0.90	0.11
Control Delay	23.5	17.5	72.0	7.2	8.6	9.2	2.0	39.6	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	17.5	72.0	7.2	8.6	9.2	2.0	39.6	7.7
Queue Length 50th (m)	3.4	5.8	57.0	5.7	2.2	15.4	0.0	70.8	7.5
Queue Length 95th (m)	9.7	11.9	#107.9	16.3	6.0	22.2	7.1	#139.4	12.3
Internal Link Dist (m)		469.7		1138.2		701.6			832.8
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	269	1068	359	1112	650	2017	961	555	1995
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.11	0.94	0.36	0.05	0.19	0.15	0.90	0.11

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Heritage Road & Station Road

<2031> Sat Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	92	26	338	87	312	32	386	141	500	199	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Flt	1.00	0.97		1.00	0.88		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3361		1738	3069		1738	3476	1555	1738	3420	
Flt Permitted	0.47	1.00		0.68	1.00		0.61	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	862	3361		1239	3069		1121	3476	1555	958	3420	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	28	92	26	338	87	312	32	386	141	500	199	24
RTOR Reduction (vph)	0	18	0	0	223	0	0	0	59	0	10	0
Lane Group Flow (vph)	28	100	0	338	176	0	32	386	82	500	213	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.6	27.6		25.6	25.6		52.0	52.0	52.0	52.0	52.0	
Effective Green, g (s)	27.6	27.6		25.6	25.6		52.0	52.0	52.0	52.0	52.0	
Actuated g/C Ratio	0.31	0.31		0.29	0.29		0.58	0.58	0.58	0.58	0.58	
Clearance Time (s)	4.0	4.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	265	1035		354	876		650	2017	902	555	1984	
v/s Ratio Prot		0.03			0.06			0.11			0.06	
v/s Ratio Perm	0.03			c0.27			0.03		0.05	c0.52		
v/c Ratio	0.11	0.10		0.95	0.20		0.05	0.19	0.09	0.90	0.11	
Uniform Delay, d1	22.2	22.1		31.4	24.3		8.1	8.9	8.3	16.5	8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.0		35.8	0.1		0.1	0.2	0.2	20.3	0.1	
Delay (s)	22.3	22.1		67.2	24.4		8.3	9.1	8.5	36.8	8.5	
Level of Service	C	C		E	C		A	A	A	D	A	
Approach Delay (s)		22.2			44.0			8.9			28.1	
Approach LOS		C			D			A			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			89.6			Sum of lost time (s)		12.0				
Intersection Capacity Utilization			78.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

## 6: Mississauga Road &amp; Station Road

1/2/2015

























Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	22	739	77	712	29	759	57	70	755
v/c Ratio	0.15	0.70	0.57	0.67	0.09	0.29	0.07	0.21	0.29
Control Delay	20.3	25.4	39.0	24.8	11.2	10.6	3.6	12.9	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	25.4	39.0	24.8	11.2	10.6	3.6	12.9	10.5
Queue Length 50th (m)	2.2	45.3	8.7	43.3	1.8	19.1	0.0	4.6	18.6
Queue Length 95th (m)	7.3	62.0	22.7	59.3	7.0	33.3	5.6	14.6	32.8
Internal Link Dist (m)		197.6		554.8		405.4			1574.4
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0	
Base Capacity (vph)	260	1915	243	1915	339	2633	847	337	2619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.39	0.32	0.37	0.09	0.29	0.07	0.21	0.29

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
6: Mississauga Road & Station Road

<2031> Sat Peak Hour  
1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	697	42	77	670	42	29	759	57	70	720	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1738	3447		1738	3446		1738	4995	1555	1738	4960	
Flt Permitted	0.26	1.00		0.24	1.00		0.35	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	471	3447		439	3446		643	4995	1555	640	4960	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	697	42	77	670	42	29	759	57	70	720	35
RTOR Reduction (vph)	0	6	0	0	6	0	0	0	27	0	5	0
Lane Group Flow (vph)	22	733	0	77	706	0	29	759	30	70	750	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		2	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.2	22.2		22.2	22.2		38.2	38.2	38.2	38.2	38.2	
Effective Green, g (s)	22.2	22.2		22.2	22.2		38.2	38.2	38.2	38.2	38.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53	0.53	0.53	0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	144	1056		134	1056		339	2635	820	337	2617	
v/s Ratio Prot		c0.21			0.20			c0.15			0.15	
v/s Ratio Perm	0.05			0.18			0.05		0.02	0.11		
v/c Ratio	0.15	0.69		0.57	0.67		0.09	0.29	0.04	0.21	0.29	
Uniform Delay, d1	18.3	22.1		21.1	21.9		8.5	9.5	8.2	9.1	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.0		5.8	1.6		0.5	0.3	0.1	1.4	0.3	
Delay (s)	18.8	24.1		27.0	23.5		9.0	9.8	8.3	10.5	9.8	
Level of Service	B	C		C	C		A	A	A	B	A	
Approach Delay (s)		23.9			23.8			9.7			9.9	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

## Queues

&lt;2031&gt; Sat Peak Hour

## 7: James Potter Road &amp; Station Road

1/2/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	123	449	318	123	157	450	576	318	157	575	223
v/c Ratio	0.56	0.49	0.79	0.77	0.45	0.43	0.79	0.29	0.31	0.55	0.46	0.32
Control Delay	29.2	40.9	16.3	38.8	38.6	9.5	22.3	10.4	2.1	32.3	23.4	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	40.9	16.3	38.8	38.6	9.5	22.3	10.4	2.1	32.3	23.4	4.5
Queue Length 50th (m)	28.1	18.9	5.3	42.7	18.7	0.0	35.9	23.7	0.0	20.7	38.2	0.0
Queue Length 95th (m)	46.5	34.8	35.7	#69.1	34.3	15.3	#75.6	36.7	11.0	43.6	56.5	14.5
Internal Link Dist (m)		554.8			349.9			242.7			611.2	
Turn Bay Length (m)	50.0			50.0		50.0	50.0		50.0	50.0		50.0
Base Capacity (vph)	395	341	626	412	362	434	578	1986	1024	286	1251	702
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.36	0.72	0.77	0.34	0.36	0.78	0.29	0.31	0.55	0.46	0.32

## Intersection Summary

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

























Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

<2031> Sat Peak Hour

## 7: James Potter Road & Station Road

1/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	223	123	449	318	123	157	450	576	318	157	575	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	1830	1555	1738	1830	1555	1738	3476	1555	1738	3476	1555
Flt Permitted	0.68	1.00	1.00	0.63	1.00	1.00	0.33	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1241	1830	1555	1144	1830	1555	606	3476	1555	796	3476	1555
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	223	123	449	318	123	157	450	576	318	157	575	223
RTOR Reduction (vph)	0	0	356	0	0	134	0	0	136	0	0	143
Lane Group Flow (vph)	223	123	93	318	123	23	450	576	182	157	575	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	20.8	11.8	11.8	22.8	12.8	12.8	49.1	49.1	49.1	30.9	30.9	30.9
Effective Green, g (s)	20.8	11.8	11.8	22.8	12.8	12.8	49.1	49.1	49.1	30.9	30.9	30.9
Actuated g/C Ratio	0.24	0.14	0.14	0.27	0.15	0.15	0.57	0.57	0.57	0.36	0.36	0.36
Clearance Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	251	213	372	272	231	546	1986	888	286	1250	559
v/s Ratio Prot	0.07	0.07		c0.10	0.07		c0.15	0.17			0.17	
v/s Ratio Perm	0.09		0.06	c0.13		0.02	c0.32		0.12	0.20		0.05
v/c Ratio	0.63	0.49	0.44	0.85	0.45	0.10	0.82	0.29	0.20	0.55	0.46	0.14
Uniform Delay, d1	28.3	34.3	34.0	28.9	33.4	31.6	11.5	9.4	8.9	21.9	21.1	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	1.5	1.4	17.2	1.2	0.2	9.8	0.4	0.5	7.4	1.2	0.5
Delay (s)	32.0	35.8	35.4	46.1	34.5	31.8	21.3	9.8	9.4	29.3	22.3	19.1
Level of Service	C	D	D	D	C	C	C	A	A	C	C	B
Approach Delay (s)		34.5			39.9			13.6			22.7	
Approach LOS		C			D			B			C	

### Intersection Summary

HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			