City of Belleville

Sidney St. Corridor Improvements Class EA Study

Traffic Analysis Report

FINAL

February 2015

C14-0026

CIMA
Partners in excellence

City of Belleville

Sidney St. Corridor Improvements Class EA Study

FINAL

February 2015

C14-0026

PREPARED BY:

Jaime Garcia, P.Eng., Ph.D.
Project Manager, Transportation

VERIFIED BY:

Stephen Keen, P.Eng.
Project Director, Transportation

Table of Contents

1. Introduction 1

2. Background 1

2.1 Study Area 1

3. Existing Transportation Network 2

3.1 Road Network 2

3.1.1 Sidney Street 2

3.1.2 Bell Boulevard Intersection 2

3.1.3 Tracey Street/Tracey Park Drive Intersection 3

3.2 Active Transportation Network 3

4. Existing (2014) Traffic Operational Analysis 4

4.1 Existing Intersection Operations 5

5. Future (2031) Traffic Operational Analysis – Do Nothing Scenario 8

5.1 Future Road Network Improvements Included in Do Nothing Scenario 8

5.2 Future Intersection Operation Scenarios 9

5.2.1 Scenario 1 - Commercial Development Traffic Included in EMME Model 9

5.2.2 Scenario 2 - Commercial Development Traffic Added to EMME Model 11

6. Future (2031) Traffic Operational Analysis – Proposed Improvements 15

6.1 Future (2031) Traffic Operational Analysis – Weekend Peak Hour 18

7. Summary of Findings 26

7.1 Active Transportation Network 26

7.2 2014 Existing Traffic Operations 26

7.3 2031 Future Traffic Operations – Do Nothing Scenario 26

7.4 The northbound and southbound directions.2031 Future Traffic Operational Analysis – Proposed Improvements 27

8. Proposed Intersection Configuration 28

List of Appendices

Appendix A: Received Data

Appendix B: Synchro Outputs

Appendix C: 2031 Calculated Volumes

C14-0026

1. Introduction

CIMA, in partnership with Golder Associates, was retained to complete a Municipal Class Environmental Assessment (EA) for intersection improvements at Sidney Street and Bell Boulevard, and Sidney Street and Tracey Street/Tracey Park Drive, as well as corridor improvements along Sidney Street between the two identified intersections. These improvements are necessary to accommodate current and future traffic needs, including the City's plan to increase capacity for more industrial, residential and commercial development in Belleville, and the potential development of a large commercial development on the east side of Sidney Street between Bell Boulevard and Tracy Street.

The purpose of this traffic analysis report is to document the existing roadway geometry, traffic volumes and intersection operations, review the current connectivity of walkways and cycling facilities and develop a plan for the connectivity of active transportation modes along and crossing the corridor, and to calculate and analyse the expected future traffic volumes and operations in the study area. These items will be used to support the need and justification for the Class EA.

2. Background

The City has prepared a Transportation Master Plan to guide development of the transportation network over the next 20 years. This plan will guide the provision of transportation infrastructure and services for a more balanced transportation system that offers a range of travel choices to meet existing and future needs.

Volume and turning movements at the Sidney Street/Bell Boulevard intersection have increased significantly since Bell Boulevard was extended west to Wallbridge Loyalist Road. Both Bell Boulevard and Sidney Street are arterial roads that carry high volumes of traffic and are in place to link different areas of the City. Therefore, intersection improvements are necessary and supported by the City's Official Plan, which states that the carrying capacity of adjacent roads (i.e., Sidney Street) should be sufficient to accommodate the anticipated traffic generated by a proposed development (i.e., Bell Boulevard extension) and anticipated background traffic growth. Also, this intersection lacks dedicated left and right turn lanes for some movements and has insufficient capacity to maintain traffic flow. Thus, intersection improvements are imperative to minimize traffic congestion and improve vehicular/pedestrian safety.

2.1 Study Area

The study area for this assignment includes Sidney Street from its intersection with Bell Boulevard in the north to its intersection with Tracey Street in the south. The study area is highlighted in **Figure 1**.

Figure 1 - Study Area

3. Existing Transportation Network

The existing transportation network in the study area is made up of two separate yet equally important components; the roadway network and the active transportation network. Details on the existing networks are provided in this section.

3.1 Road Network

3.1.1 Sidney Street

Sidney Street is an undivided two-way four-lane arterial roadway running north/south through the west end of the city. Between Bell Boulevard and Tracey Street, Sidney Street consists of two lanes for vehicular traffic in each direction. There are numerous residential driveways with direct access to Sidney Street in the southern portion of the study area, two substantial commercial accesses on the west side near Bell Boulevard and open space along the majority of the eastern side of Sidney Street. North of the study area, there are several commercial entrances that provide direct access to Sidney Street.

3.1.2 Bell Boulevard Intersection

The intersection of Sidney Street and Bell Boulevard operates under traffic signal control and consists of the following lane arrangement:

- Northbound shared left/through lane and a dedicated right-turn lane;
- Southbound dedicated left-turn lane and shared through/right lane;

- Eastbound dedicated left-turn lane, a through lane and a shared through/right-turn lane; and
- Westbound dedicated dual left-turn lanes, a through lane and a dedicated right-turn lane.

The intersection provides painted crosswalks on the south and east legs with pedestrian signals and pushbuttons for these crossings. There are sidewalk connections provided:

- On the southwest corner of the intersection heading south, which terminates just south of the intersection
- On the southeast corner of the intersection heading south and east; and
- On the northeast corner of the intersection heading east.

Traffic signal timings plans received from the City and turning movement counts (TMCs), collected by TSA, are included in **Appendix A**.

3.1.3 Tracey Street/Tracey Park Drive Intersection

The offset (by approximately 13 m centreline to centreline) intersection of Sidney Street and Tracey Street (east leg)/Tracey Park Drive (west leg) operates under traffic signal control and consists of the following lane arrangement:

- Northbound shared left/through lane and shared through/right-turn lane;
- Southbound shared left/through lane and shared through/right-turn lane;
- Eastbound shared left/through/right-turn lane; and
- Westbound shared left/through/right-turn lane.

The intersection provides painted crosswalks with pedestrian signals on all legs and pushbuttons for the east/west crossings. There are sidewalk connections provided on each corner of the intersection for travel in all directions.

The intersection offset requires that the traffic signal operates with a “split phase” (i.e. the eastbound and westbound directions receive the right-of-way separately, which is different than a typical signal timing). Although this reduces conflicts for left-turning vehicles and therefore improves safety, it also causes longer delays, since each direction needs its own signal phase. Traffic signal timings plans received from the City and TMCs, collected by TSA, are included in **Appendix A**.

3.2 Active Transportation Network

The active transportation network along Sidney Street consists of a concrete sidewalk running along the east side and a concrete sidewalk that transitions to a worn dirt path approximately 110 metres north of Tracey Park Drive on the west side. There are currently no bicycle facilities on Sidney Street. Sidewalk connections at the intersection are noted in Section 3.1.2 and 3.1.3, respectively.

4. Existing (2014) Traffic Operational Analysis

TMCs for the study area intersections were counted on July 9, 2014 and July 10, 2014 by TSA. CIMA utilized these TMCs, in conjunction with the traffic signal timing plans provided by the City, to undertake the existing traffic operational analysis. Synchro/SimTraffic v8 was utilized in this analysis to produce results consistent with the methodologies contained in the Highway Capacity Manual (HCM 2000).[1]

For signalized intersections, the analysis focuses on performance measures such as intersection level of service (LOS), volume-to-capacity (v/c) ratios, control delay and 95th queue.

The 95th-percentile queue is defined to be the queue length (in vehicles) that has only a 5-percent probability of being exceeded during the analysis time period, while LOS is a qualitative measure of operational performance and is based on control delay. The LOS criteria for a signalized intersection are summarized in the following table:

LOS	Control Delay (seconds/vehicle)	Operational Characteristics[2]
A	0-10	Almost no signal phase is fully utilized by traffic. Very seldom does any vehicle wait longer than one signal cycle. The approach appears open, turning movements are easily made and drivers have virtually complete freedom of operation.
B	>10-20	An occasional signal cycle is fully utilized and several phases approach full use. Many drivers begin to feel somewhat restricted within platoons of vehicles approaching the intersection.
C	>20-35	The operation is stable though with more frequent fully utilized signal phases. Drivers feel more restricted and occasionally may have to wait more than one signal cycle, and queues may develop behind turning vehicles.
D	>35-55	The motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough cycles with lower

[1] HCM 2000 methodology was used instead of the most current HCM 2010 because the latter requires strict NEMA signal phasing. Given the intersection offset at Sidney Street & Tracey Street, strict NEMA phasing is not possible.
[2] Canadian Capacity Guide for Signalized Intersections, 2008, pg.4-100

LOS	Control Delay (seconds/vehicle)	Operational Characteristics[2]
		demand to permit occasional clearance of developing queues and prevent excessive backups.
E	>55-80	Capacity is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.
F	>80	Saturation occurs, with vehicle demand exceeding the available capacity.

LOS "A" is represented by a control delay of less than 10 seconds per vehicle (referred to as free-flow operating conditions). LOS "F" is represented by a control delay of more than 80 seconds per vehicle (referred to as restricted flow operating conditions). In determining the LOS performance for signalized intersections, the average control delay per vehicle is estimated for each lane group and is aggregated for each approach and the intersection as a whole.

4.1 Existing Intersection Operations

The results of the AM and PM peak hour operational analysis for the study area intersections are summarized in **Table 1** and **Table 2**, respectively.

Table 1 - 2014 AM Existing (Weekday) Traffic Operations Summary

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	B	18.7	0.13	27
		T/TR	C	28.3	0.29	27
	WB	L/L	B	19.1	0.21	25
		T	C	30.7	0.39	59
		R	C	25.4	0.02	29
	NB	L/T	C	24.4	0.52	77
		R	B	19.0	0.23	49
	SB	L	C	30.2	0.22	33
		T/R	D	36.2	0.56	67
Sidney St. & Tracey St.	EB	L/T/R	D	41.6	0.20	31
	WB	L/T/R	D	40.7	0.15	25
	NB	L/T T/R	D	40.8	0.75	62
	SB	L/T T/R	D	43.7	0.69	62

Table 2 – 2014 PM Existing (Weekday) Traffic Operations Summary

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	D	36.8	0.44	33
		T/TR	D	42.4	0.44	132
	WB	L/L	C	33.7	0.56	51
		T	D	48.8	0.65	94
		R	D	35.2	0.06	41
	NB	L/T	C	29.9	0.65	110
		R	C	20.6	0.30	91
	SB	L	C	25.3	0.15	35
		T/R	C	30.1	0.44	74
Sidney St.	EB	L/T/R	D	43.5	0.29	28

C14-0026

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
&	WB	L/T/R	D	46.5	0.42	37
Tracey St.	NB	L/T T/R	**F**	125.5	**1.16**	83
	SB	L/T T/R	**F**	90.4	**1.05**	105

The results of the AM and PM peak hour operational analysis indicate that:

- During the AM peak hour, both study area intersections operate with acceptable v/c ratios and queues and LOS of "D" or better;
- During the PM peak hour, the Sidney Street & Bell Boulevard intersection operates with acceptable v/c ratios, increased queuing and LOS of "D" or better[3];
  - Queues of 132 m (19 cars) and 110 m (16 cars) were calculated for the eastbound through and shared through/right-turn lanes and the northbound shared left/through lane, respectively, suggesting that there may be opportunities for improvement at the intersection; and
- During the PM peak hour, the Sidney Street & Tracey Street intersection operates poorly with oversaturated v/c ratios, relatively high delay and LOS "F" for the northbound and southbound directions; a queue of 105 m (15 cars) for the southbound direction was calculated. These results suggest that there may be opportunities for improvement at the intersection.

Detailed Synchro/SimTraffic outputs are included in **Appendix B**.

C14-0026

[3] Several municipalities in Ontario considers LOS D as the threshold for acceptable roadway performance and roads are considered over-capacity when the LOS falls below LOS D (i.e. Region of Peel and City of Quinte West)

5. Future (2031) Traffic Operational Analysis – Do Nothing Scenario

In order to calculate the future 2031 traffic volumes for the study area intersections, two separate methodologies were employed.

For the intersection of Sidney Street & Bell Boulevard, the following methodology was applied:

- The City provided CIMA with EMME model outputs for 2011 AM peak hour and 2031 AM peak hour;
- Growth factors were estimated for each approach from the EMME outputs by comparing the 2011 and 2031 volumes (growth factors range from 1.197 to 1.661 – refer to **Appendix C** for details);
- The growth factors were applied to the 2014 AM TMC for intersection entering and exiting volumes only;
- Turning movement volumes for the 2031 AM peak hour were then estimated through the *Fratar* trip distribution method (refer to **Appendix C** for details);
- The 2031 PM volumes were then estimated by applying the same ratio between the AM and PM 2014 TMCs for each individual turning movement. For example:
  - 2014 AM eastbound left turn volume = 56 (July 9 count) and 57 (July 10 count);
  - 2014 PM eastbound left turn volume = 119 (July 9 count) and 106 (July 10 count);
  - PM/AM ratio = 119/56 = 2.13 (July 9 count) and 106/57 = 1.86 (July 10 count) → Adopted 2.0;
  - 2031 AM eastbound left turn volume (from FRATAR) = 82;
  - 2031 PM eastbound left turn volume = 82 x 2.0 = 164;
  - The procedure was repeated for each individual movement.

For the intersection of Sidney Street and Tracey Street/Tracey Park Drive, a growth factor of 1.2 was applied to the 2014 TMCs for both the AM and PM peak hours. This growth factor was estimated based on the output volumes of the 2011 and 2031 EMME models for the north and south approaches[4] of this intersection.

The resultant intersection volumes are included in **Appendix C**.

5.1 Future Road Network Improvements Included in Do Nothing Scenario

The City's Transportation Master Plan identified two improvements that are set to be completed before the 2031 horizon year. These improvements consist of:

- Widening of Sidney Street from two to four lanes between Bell Boulevard and Millennium Parkway (over Highway 401); and

[4] The EMME models did not provide sufficient volumes for the east and west approaches to allow the determination of a growth factor for these approaches.

- Widening of Bell Boulevard from two to four lanes between Sidney Street and Wallbridge Loyalist Road.

These two improvements were included in the Synchro/SimTraffic model for the 2031 Do Nothing scenario.

5.2 Future Intersection Operation Scenarios

Two different scenarios were analyzed for the 2031 horizon year.

- **Scenario 1** – In this scenario, traffic generated by the potential commercial development (included as part of the Appendices) to be located on the east side of Sidney Street between Bell Boulevard and Tracey Street was considered as already included in the 2031 EMME model outputs.
- **Scenario 2** - In the second scenario, the commercial development traffic was added to the 2031 EMME volumes, with 25% of pass-by trips at the assumed Sidney Street access. This percentage is consistent with the Supermarket Land Use (850) as presented in the ITE Trip Generation Manual.

5.2.1 Scenario 1 - Commercial Development Traffic Included in EMME Model

The results of the AM and PM peak hour operational analysis for the study area intersections, for the assumption that traffic volumes generated by the potential commercial development are included in the EMME model outputs, are summarized in **Table 3** and **Table 4**, respectively.

Table 3 – 2031 AM Future Traffic Operations Summary (Scenario 1)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	C	20.8	0.27	26
		T/TR	C	26.5	0.36	43
	WB	L/L	B	17.5	0.32	27
		T	C	34.5	0.69	88
		R	C	21.7	0.03	43
	NB	L/T	C	31.0	0.75	110
		R	B	18.1	0.27	56
	SB	L	C	27.7	0.29	31
		T/TR	C	25.9	0.32	43
	Overall		**C**	**25.7**	**0.72**	**-**

C14-0026

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Tracey St.	EB	L/T/R	D	42.4	0.25	30
	WB	L/T/R	D	41.6	0.20	39
	NB	L/T T/R	D	53.0	0.91	80
	SB	L/T T/R	E	60.2	0.91	72
	Overall		**D**	**54.6**	**0.75**	-

Table 4 – 2031 PM Future Traffic Operations Summary (Scenario 1)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	**F**	168.1	**1.17**	54
		T/TR	D	51.2	0.65	130
	WB	L/L	D	38.9	0.79	484
		T	**F**	98.1	**1.05**	496
		R	C	34.5	0.19	101
	NB	L/T	**F**	83.2	**1.04**	212
		R	C	24.2	0.41	154
	SB	L	C	32.2	0.32	35
		T/TR	C	29.3	0.34	54
	Overall		**E**	**60.1**	**1.09**	-
Sidney St. & Tracey St.	EB	L/T/R	E	64.4	0.51	38
	WB	L/T/R	E	71.5	0.67	55
	NB	L/T T/R	**F**	196.2	**1.32**	125
	SB	L/T T/R	**F**	173.2	**1.25**	134
	Overall		**F**	**170.7**	**1.17**	-

The results of the AM and PM peak hour operational analysis indicate that:

- During the AM peak hour, both intersections are expected to operate with increased v/c ratios and queuing and LOS of “E” or better;
  - The Sidney Street & Bell Boulevard intersection northbound and southbound directions are expected to be approaching capacity, which suggests a potential opportunity for improvement at the intersection;

C14-0026

- During the PM peak hour, both intersections are expected to operate poorly with several movements exhibiting oversaturated v/c ratios and LOS "F", suggesting potential opportunities for improvement at the intersection, specifically:
  - Bell Boulevard Intersection:
    - The eastbound left-turn lane;
    - The westbound through lane;
    - The northbound shared left/through lane;
  - Tracey Street intersection:
    - The northbound and southbound directions.

Detailed Synchro/SimTraffic outputs are included in **Appendix B**.

5.2.2 Scenario 2 - Commercial Development Traffic Added to EMME Model

Loblaw Companies Limited owns the land located on the east side of Sidney Street between Bell Boulevard and Tracey Street. For this scenario it was assumed that, by 2031, a commercial development (supermarket) would have been built, with direct access to Sidney Street. The store size is expected to be approximately 103,000 sq.ft.

For the purpose of this assignment and due to the unofficial status of the 2005 site plan provided as part of the background information of this assignment, the proposed right-in-right-out access and the signalized intersection at Bell Boulevard included as part of the 2005' site plan were not considered as part of our analysis prior to the first Public Information Centre and all traffic generated/attracted for this proposed development was allocated to the single access at Sidney Street.

Due to the limited information regarding potential origins and destinations of the trips generated by the development, trip distribution was assumed to have 50% of the trips originating from the north, turning left from Bell Boulevard onto Sidney Street, and 50% of the trips originating from the south, via Sidney Street.

Based on ITE's average trip generation rates and equations for Supermarket Land Use (850), this development would generate the following number of trips:

- 218 entering trips and 133 exiting trips in the AM Peak Hour; and
- 406 entering trips and 391 exiting trips in the PM Peak Hour.

It is important to note that the aforementioned number of trips are significant and will impact operational conditions at the intersection of Sidney Street and Bell Boulevard during peak hours.

The results of the AM and PM peak hour operational analysis for the study area intersections, for the assumption that traffic volumes generated by the potential commercial development are added to the EMME model outputs, are summarized in **Table 5** and **Table 6**, respectively.

Table 5 – 2031 AM Future Traffic Operations Summary (Scenario 2)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	C	20.8	0.27	27
		T/TR	C	26.5	0.36	48
	WB	L/L	B	19.1	0.47	43
		T	C	34.5	0.69	92
		R	C	21.7	0.03	40
	NB	L/T	C	31.0	0.75	111
		R	B	18.8	0.32	74
	SB	L	C	27.7	0.29	30
		T/TR	C	25.9	0.32	48
	Overall		**C**	**25.5**	**0.74**	-
Sidney St. & Tracey St.	EB	L/T/R	D	42.4	0.25	34
	WB	L/T/R	D	41.6	0.20	40
	NB	L/T T/R	**F**	87.8	**1.06**	95
	SB	L/T T/R	**F**	87.8	**1.04**	77
	Overall		**F**	**82.9**	**0.86**	-

C14-0026

Table 6 – 2031 PM Future Traffic Operations Summary (Scenario 2)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	**F**	132.9	**1.09**	54
		T/TR	D	47.3	0.69	106
	WB	L/L	**F**	96.1	**1.11**	349
		T	**F**	105.5	**1.09**	392
		R	C	30.4	0.17	101
	NB	L/T	**F**	85.1	**1.06**	174
		R	C	30.8	0.72	118
	SB	L	C	30.2	0.33	25
		T/TR	C	27.3	0.36	55
	Overall		**E**	**67.7**	**1.15**	-
Sidney St. & Tracey St.	EB	L/T/R	E	64.4	0.51	37
	WB	L/T/R	E	71.5	0.67	69
	NB	L/T T/R	**F**	323.8	**1.61**	240
	SB	L/T T/R	**F**	319.6	**1.58**	159
	Overall		**F**	**295.7**	**1.42**	-

C14-0026

The results of the AM and PM peak hour operational analysis indicate that:

- During the AM peak hour, the Sidney Street & Bell Boulevard intersection operates with acceptable v/c ratios, increased queuing and LOS of "C" or better.
- During the AM peak hour, the Sidney Street & Tracey Street intersection operates poorly with oversaturated v/c ratios, relatively high delay, and LOS "F" for the northbound and southbound directions. These results suggest that there may be opportunities for improvement at the intersection, as noted in the next bullet.
- During the PM peak hour, both intersections are expected to operate poorly with several movements exhibiting oversaturated v/c ratios and LOS "F", suggesting potential opportunities for improvement, specifically:
  - At the Bell Boulevard intersection:
    - The eastbound left-turn lane;
    - The westbound dual left and through lanes;
    - The northbound shared left/through lane;
  - At the Tracey Street intersection:
    - The northbound and southbound directions.
- It is advisable that, when a formal proposal for the development of the commercial area is presented for approval, the City requests a Traffic Impact Study that conducts a more detailed review of any potential access to the development and its expected effect on intersection operations at Sidney Street and Bell Boulevard. Providing an access to the development at the signalized intersection to the east of Sidney Street on Bell Boulevard has the potential to mitigate impacts on the Sidney Street & Bell Boulevard intersection, specifically for the westbound left and the northbound right movements, and should be considered as a condition of approval for future development of this site.

Detailed Synchro/SimTraffic outputs are included in **Appendix B**.

6. Future (2031) Traffic Operational Analysis – Proposed Improvements

To address the findings described in the previous sections, the following intersection improvements were included to the Synchro model:

- Realignment of Tracey Street/Tracey Park Drive, eliminating the intersection offset at Sidney Street (which in turn eliminates the need for a split phase and allowing the allocation of longer green intervals to Sidney Street);
- Addition of one exclusive left turn lane in the northbound direction at the Sidney Street & Bell Boulevard intersection;
- Addition of one exclusive right-turn lane in the southbound direction at the Sidney Street & Bell Boulevard intersection;
- Signalization of the potential Sidney Street access to the commercial development.

The analysis with the improvements was conducted only for the scenario with the commercial development traffic added to the EMME model outputs, as this represents the worst case scenario.

The results, summarized in **Table 7** and **Table 8**, indicate that both intersections are expected to operate well with acceptable v/c ratios and queues and LOS “C” or better in the AM Peak Hour, and LOS “D” or better in the PM Peak Hour.

Detailed Synchro/SimTraffic outputs are included in **Appendix B**.

Table 7 - 2031 AM Future Traffic Operations Summary (with Intersection Improvements)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	C	20.8	0.27	26
		T/TR	C	26.5	0.36	41
	WB	L/L	B	19.1	0.47	41
		T	C	34.5	0.69	83
		R	C	21.7	0.03	29
	NB	L	B	18.1	0.29	51
		T	B	19.1	0.36	69
		R	B	18.8	0.32	72
	SB	L	C	26.7	0.26	23
		T/T	C	25.2	0.26	39
		R	C	23.4	0.06	16
	Overall		**C**	**23.4**	**0.54**	**-**
Sidney St. & Tracey St.	EB	L/T/R	C	23.1	0.15	29
	WB	L/T/R	C	22.9	0.13	26
	NB	L/T T/R	B	14.3	0.49	61
	SB	L/T T/R	B	13.4	0.49	50
	Overall		**B**	**14.9**	**0.38**	**-**

C14-0026

Table 8 - 2031 PM Future Traffic Operations Summary (with Intersection Improvements)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L	D	50.6	0.73	60
		T/TR	D	42.2	0.53	91
	WB	L/L	D	35.6	0.87	156
		T	D	49.6	0.84	157
		R	C	26.8	0.15	94
	NB	L	C	31.0	0.42	49
		T	D	36.2	0.60	155
		R	D	43.9	0.75	159
	SB	L	D	40.7	0.31	47
		T/T	D	38.4	0.34	70
		R	C	34.9	0.09	33
	Overall		**D**	**40.5**	**0.86**	**-**
Sidney St. & Tracey St.	EB	L/T/R	D	36.5	0.26	31
	WB	L/T/R	D	39.0	0.39	40
	NB	L/T T/R	B	16.4	0.65	119
	SB	L/T T/R	B	14.7	0.78	72
	Overall		**B**	**17.9**	**0.68**	**-**

C14-0026

6.1 Future (2031) Traffic Operational Analysis – Weekend Peak Hour

To respond to comments received from public and the City during and after Public Information Centre No. 1 regarding further consideration of the "commercial" nature of the area surrounding the intersections of Sidney Street at Bell Boulevard and Tracey Street and the potential effect of the commercial plaza (Quinte Mall) located approximately 1.2 km east of the intersection of Sidney Street and Bell Boulevard, TMCs for the study area intersections were counted on November 13, 2014 and November 15, 2014 by TSA.

A comparison between the traffic counts (for all movements) at the intersections of Sidney Street with Bell Boulevard and Tracey Street presented in the **Table 9** provides the following results:

- Total counts for July and November weekdays (Thursday) are very similar showing just a minor increase (between 2 to 3%) that may be attributed to normal variation between traffic volumes as well as seasonal factors.
- Total counts collected during November (weekend) at the intersection of Sidney Street and Bell Boulevard are 10% higher than the total counts collected during July (weekday). Since not all the movements at the intersection were higher, it can be assumed that the effect of the commercial nature of the surrounding environment was captured by the counts conducted during the Saturday peak hour.
- The previous assumptions are reinforced by the counts collected at the intersection of Sidney Street and Tracey Street in which only the Westbound right turn movement shows a significant difference between July and November (weekday) and November (weekend).

Table 9: Traffic Movements Comparison - Weekday and Weekend

2014 (counted)	Sidney Street & Bell Boulevard												
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	TOTAL
Thursday, July	106	311	140	360	274	75	99	300	414	43	261	56	2439
Thursday, November	108	357	148	316	329	135	87	283	358	53	249	62	2485
Saturday, November	109	366	85	364	357	151	84	266	532	74	234	85	2707
Factor (Thu/Jul - Sat/Nov)	1.03	1.18	0.61	1.01	1.30	2.01	0.85	0.89	1.29	1.72	0.90	1.52	
2014 (counted)	**Sidney Street & Tracey Street**												
Thursday, July	41	21	21	43	23	49	19	722	42	63	631	66	1741
Thursday, November	44	25	22	52	23	52	26	686	57	83	664	64	1798
Saturday, November	39	16	5	43	19	78	13	739	24	53	639	41	1709
Factor (Thu/Jul - Sat/Nov)	0.95	0.76	0.24	1.00	0.83	1.59	0.68	1.02	0.57	0.84	1.01	0.62	

C14-0026

Traffic volumes were also collected during the month of December 2012, however a significant variation was found to exist in these counts (approximately 45% additional vehicles) when compared to the July and November counts.

These differences may be the result of several factors including:

- The potential effect of the Holiday shopping season and the proximity of the Quinte Mall, located approximately 1.2 km east of the intersection of Sidney Street and Bell Boulevard;
- Road closures conducted in and around the intersection of Sidney Street and Bell Boulevard that may temporary changed the traffic patterns; and/or
- Other seasonal variations in traffic patterns.

Since the City of Belleville does not collect traffic volumes on a general basis along this portion of Bell Boulevard, seasonal adjustment factors that can be directly applicable to the specific conditions of the study area (urban, highly commercial) are not available. Instead, the following source of information was considered to estimate the highly seasonal effect of the regional shopping centre located east of the study area:

- Daily and Monthly variation in Shopping Centre Traffic provided by the Institute of Transportation Engineers' Trip Generation Manual, 9th Edition

Typical traffic volumes generated during the months of July and December by Shopping Centres are quite different due to the increase of traffic generated during the holiday season. Based on this information, it can be assumed that the road section counts conducted in December 2012 were highly affected by the proximity of Quinte Mall to the intersection under study, as well as the relatively limited access to this shopping area from the west. Because of this variation, this traffic volume data was not included in the study as the July and November data were much more consistent with each other.

To acknowledge the variation on certain movements observed between the July (weekday) and the November (weekend) peak hours at both intersections, the factors presented in **Table 9** were used to modify Synchro/SimTraffic v8 model in order to represent the future (2031) traffic conditions (**see Table 10**) during a Saturday peak hour with the addition of one left turn lane in the eastbound direction at the Sidney Street & Bell Blvd. intersection but maintaining a single access to the proposed commercial development at Sidney Street.

Due to the very high estimated eastbound left turns for the future 2031 traffic conditions, the addition of this additional left turn lane in the eastbound direction at the Sidney Street & Bell Boulevard intersection is recommended to meet LOS targets.

Table 10: Estimated 2031 Traffic Movements - Saturday Peak

2031 (estimated)	Sidney Street & Bell Boulevard											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Saturday Peak Hour	169	407	97	699	694	286	120	364	861	108	289	172
2031 (estimated)	**Sidney Street & Tracey Street**											
Saturday Peak Hour	49	17	5	59	31	96	18	1066	28	59	942	36

The results, summarized in **Table 11**, indicate that both intersections are expected to operate with acceptable v/c ratios and queues and LOS "D" or better in the Saturday Peak Hour, excluding the northbound through/right turn movement which is expected to operate with a significant higher v/c ratio. 2031 forecasted traffic operations during weekdays (based on November 2014 counts) are presented in Table 12 for comparison purposes.

Table 11: 2031 Saturday Future Traffic Operations Summary (with Additional Intersection Improvements)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L/L	D	39.7	0.51	32
		T/TR	D	49.0	0.63	78
	WB	L/L	C	32.6	0.82	94
		T/TR	D	40.3	0.79	138
	NB	L	C	29.5	0.34	57
		T	C	34.2	0.54	147
		R	D	54.7	**0.99**	52
	SB	L	D	43.6	0.46	64
		T/T	D	36.2	0.29	49
		R	C	34.2	0.13	31
	Overall		**D**	**41.7**	**0.99**	-
Sidney St. & Tracey St.	EB	L/T/R	C	34.0	0.21	28
	WB	L/T/R	D	38.2	0.42	70
	NB	L/T T/R	B	17.2	0.64	143
	SB	L/T T/R	B	19.6	0.74	107
	Overall		**C**	**20.4**	**0.65**	-

C14-0026

Table 12: 2031 Weekday Future Traffic Operations Summary (with Additional Intersection Improvements)

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L/L	C	22.9	0.38	23
		T/TR	C	32.8	0.60	67
	WB	L/L	C	21.2	0.74	50
		T/TR	C	28.7	0.73	94
	NB	L	C	27.2	0.42	56
		T	C	32.8	0.66	132
		R	C	22.4	0.71	113
	SB	L	D	40.7	0.45	51
		T/T	C	34.6	0.43	77
		R	C	30.9	0.09	23
	Overall		**C**	**28.1**	**0.79**	-
Sidney St. & Tracey St.	EB	L/T/R	C	34.2	0.33	37
	WB	L/T/R	D	38.0	0.50	53
	NB	L/T T/R	B	14.1	0.66	154
	SB	L/T T/R	C	21.2	0.86	97
	Overall		**B**	**19.8**	**0.78**	-

It should be noted that although the results of this analysis indicates that, from an operation perspective, a continuous left turn lane along Sidney Street is not required, from a safety perspective, the addition of this infrastructure improvement may be of benefit and it may be recommended to evaluate it as part of the design process.

As per existing conditions, vehicles on Sidney Street are required to stop in a shared left turn/through lane while they wait for a gap in traffic to undertake a left-turn manoeuvre. This can pose a safety concern as it may contribute to rear-end collisions due to an unexpected stopped vehicle in the shared through lane.

By implementing a continuous left turn lane along Sidney Street, the opportunity for left-turning vehicles to move out of the through lane can drastically reduce the chance of rear end collisions. Additionally, the capacity of the road is increased as stopped vehicles do not hamper the progress of through vehicles along the road section.

6.1.1 Future (2031) Traffic Operational Analysis - Consideration for Additional Access to Proposed Commercial Development

Prior to the second Public Information Centre, the Engineering and Development Services Department of the City of Belleville acknowledged that although the Site Plan provided in 2005 by Loblaw Companies Limited has no approved status, any future commercial development to be allocated at the intersection of Sydney Street and Bell Boulevard would likely include the provision of an additional access along Bell Boulevard.

In accordance, the original assumption regarding the distribution of the trips generated by the development was modified as follow:

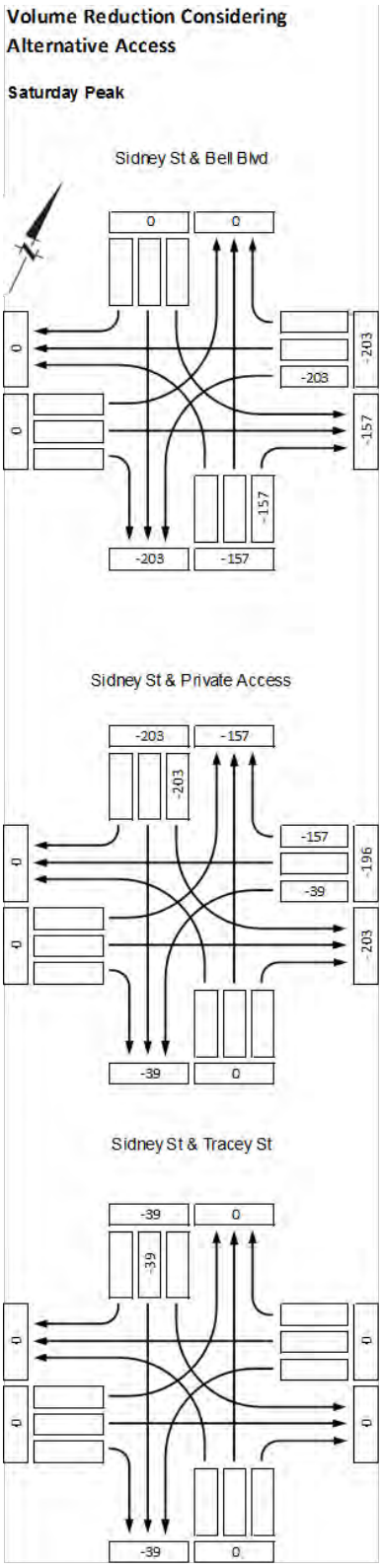
- 50% of the entering and exiting trips generated by the commercial development were reallocated to an additional access on Bell Boulevard;
- The remaining 50% of the trips were assumed to originate from the south, via Sidney Street and were assumed to exit the development as follows:
  - 40% towards the south on Sidney Street;
  - 10% towards the north on Sidney Street and then turning right on Bell Boulevard.

The change in turning movement volumes, as well as the resulting volumes, are summarized in **Table 13** and **Figure 2**.

Table 13: Estimated 2031 Traffic Movements Considering Additional Access to Commercial Development - Saturday Peak

Saturday Peak Hour	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Sidney Street & Bell Boulevard												
Original Volumes	169	407	97	699	694	286	120	364	861	108	289	172
Volume Reduction	-	-	-	-203	-	-	-	-	-157	-	-	-
Resulting Volumes	169	407	97	496	694	286	120	364	704	108	289	172
Sidney Street & Private Access												
Original Volumes	-	-	-	195	-	196	-	975	203	203	919	-
Volume Reduction	-	-	-	-39	-	-157	-	-	-	-203	-	-
Resulting Volumes	-	-	-	156	-	39	-	975	203	0	919	-
Sidney Street & Tracey Street												
Original Volumes	49	17	5	59	31	96	18	1066	28	59	942	36
Volume Reduction	-	-	-	-	-	-	-	-	-	-	-39	-
Resulting Volumes	49	17	5	59	31	96	18	1066	28	59	903	36

C14-0026



C14-0026

Figure 2 - Volume Reduction Considering Alternative Access

This scenario was evaluated with and without a northbound right turn channelization, and the results are summarized in **Table 14** and **Table 15**.

Table 14:2031 Saturday Future Traffic Operations Summary Considering Additional Access on Bell Boulevard

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L/L	D	39.7	0.51	41
		T/TR	D	49.0	0.63	80
	WB	L/L	C	24.9	0.58	75
		T/TR	D	40.3	0.79	125
	NB	L	C	28.4	0.34	57
		T	C	31.4	0.54	99
		R	C	22.0	0.80	95
	SB	L	D	43.6	0.46	46
		T/T	D	36.2	0.29	59
		R	C	34.2	0.13	27
	Overall		**C**	**34.4**	**0.84**	**-**
Sidney St. & Tracey St.	EB	L/T/R	C	34.0	0.21	31
	WB	L/T/R	D	38.2	0.42	57
	NB	L/T T/R	B	17.2	0.64	90
	SB	L/T T/R	B	18.8	0.72	90
	Overall		**C**	**20.0**	**0.64**	**-**

C14-0026

Table 15:2031 Saturday Future Traffic Operations Summary Considering Additional Access on Bell Boulevard and Northbound Right Turn Channelization

Intersection	Approach	Movement	LOS	Delay	v/c	95th Queue
Sidney St. & Bell Blvd.	EB	L/L	D	39.7	0.51	43
		T/TR	D	49.0	0.63	84
	WB	L/L	C	24.9	0.58	69
		T/TR	D	40.3	0.79	120
	NB	L	C	28.4	0.34	52
		T	C	31.4	0.54	108
		R	D	46.5	0.79	110
	SB	L	D	43.6	0.46	51
		T/T	D	36.2	0.29	52
		R	C	34.2	0.13	27
	Overall		**D**	**38.9**	**0.81**	**-**
Sidney St. & Tracey St.	EB	L/T/R	C	34.0	0.21	29
	WB	L/T/R	D	38.2	0.42	72
	NB	L/T T/R	B	17.2	0.64	120
	SB	L/T T/R	B	18.8	0.72	85
	Overall		**C**	**20.0**	**0.64**	**-**

With the volume reduction resulting from the presence of a second access on Bell Boulevard, the volume to capacity ratio for the northbound right-turn decreases from 0.99 to 0.80, which is an acceptable operational performance. The option with a northbound right-turn channelization presents longer delays than the option with the right lane being an exclusive right-turn lane. The channelization increases delay for the northbound right-turn movement by 24 seconds. The reason for this increase is that the channelization operates with a yield control, while the exclusive right-turn lane can take advantage of an exclusive green indication which overlaps with the westbound left turn movement. Another disadvantage of the channelization is the angle at which vehicles are positioned when trying to access Bell Boulevard: while the right turn lane allows drivers to look west at a 90-degree angle, the channelization would impose a greater, more uncomfortable angle on drivers, which is less safe than the 90-degree angle.

7. Summary of Findings

The following summarizes the findings of this traffic analysis report:

7.1 Active Transportation Network

The sidewalk along the west side of Sidney Street continues north from Tracey Park Drive for approximately 110 m where it transitions to a worn dirt path.

7.2 2014 Existing Traffic Operations

- During the AM peak hour, both study area intersections operate with acceptable v/c ratios and queues and LOS of "D" or better;
- During the PM peak hour, the Sidney Street & Bell Boulevard intersection operates with acceptable v/c ratios, increased queuing and LOS of "D" or better;
  - Queues of 132 m (19 cars) and 110 m (16 cars) were calculated for the eastbound through and shared through/right-turn lanes and the northbound shared left/through lane, respectively, suggesting that there may be opportunities for improvement at the intersection; and
- During the PM peak hour, the Sidney Street & Tracey Street intersection operates poorly with oversaturated v/c ratios, relatively high delay and LOS "F" for the northbound and southbound directions; a queue of 105 m (15 cars) for the southbound direction was calculated. These results suggest that there may be opportunities for improvement at the intersection.

7.3 2031 Future Traffic Operations – Do Nothing Scenario

- During the AM peak hour, the Sidney Street & Bell Boulevard intersection operates with acceptable v/c ratios, increased queuing and LOS of "C" or better.
- During the AM peak hour, the Sidney Street & Tracey Street intersection operates poorly with oversaturated v/c ratios, relatively high delay, and LOS "F" for the northbound and southbound directions. These results suggest that there may be opportunities for improvement, as noted in the next bullet.
- During the PM peak hour, both intersections are expected to operate poorly with several movements exhibiting oversaturated v/c ratios and LOS "F", suggesting a potential opportunities for improvement, specifically:
  - At the Bell Boulevard intersection:
    - The eastbound left-turn lane;
    - The westbound dual left and through lanes;
    - The northbound shared left/through lane;
  - At the Tracey Street intersection:
    - The northbound and southbound directions.

C14-0026

7.4 2031 Future Traffic Operational Analysis – Proposed Improvements

- With the implementation of intersection improvements, both intersections are expected to operate with acceptable v/c ratios and queues and LOS "D" or better in the Saturday Peak Hour. For the Weekday Peak Hour, both intersections are expected to operate well with acceptable v/c ratios and queues and LOS "C" or better in the AM Peak Hour, and LOS "D" or better in the PM Peak Hour.
- The proposed intersection improvements include:
  - Realignment of Tracey Street/Tracey Park Drive, eliminating the intersection offset at Sidney Street;
  - Addition of one exclusive left turn lane in the northbound direction at the Sidney Street & Bell Boulevard intersection;
  - Addition of one exclusive right-turn lane in the southbound direction at the Sidney Street & Bell Boulevard intersection;
  - Addition of one left turn lane in the eastbound direction at the Sidney Street & Bell Boulevard intersection;
  - Modification of the existing exclusive right turn lane in the westbound direction at the Sidney Street & Bell Boulevard intersection to a through/right lane; and
  - Future signalization of the potential Sidney Street access to the commercial development.
- It will be advisable that, when a formal proposal for the development of the commercial area is presented for approval, the City will request a Traffic Impact Study that conducts a more detailed review of any potential access to the development, or potential connection to the signals on Bell Boulevard east of Sidney Street, and its effect on intersection operations at Sidney Street and Bell Boulevard.
- It is also recommended that the addition of a continuous left turn lane along Sidney Street between Bell Boulevard and Tracy Street may be evaluated as part of the design process. The results of this analysis indicates that, from a traffic capacity perspective, a continuous left turn lane along Sidney Street is not required but would be beneficial; however, from a safety perspective, the addition of this infrastructure improvement would reduce the chances of rear end collisions between through and left-turning vehicles on Sidney Street, including at the intersection with Tracey Street/Tracey Park Drive.
- As an alternative to a northbound right-turn lane or a channelized right-turn onto Bell Boulevard, the City may want to investigate the use of a dedicated northbound right-turn lane from an operational perspective. This option would eliminate the chance of vehicles in the right lane proceeding north through the intersection or blocking vehicles that intend to turn right, andit provides greater capacity than a channelized right turn lane. It also mirrors the lane configuration on the north side of the intersection, improving driver expectations and lane continuity.

8. Proposed Intersection Configuration

Figure 3 illustrates the proposed lane configuration for the improved intersections in 2031, including the improvements listed in the City's Transportation Master Plan and the ones resulting from the operational analysis.

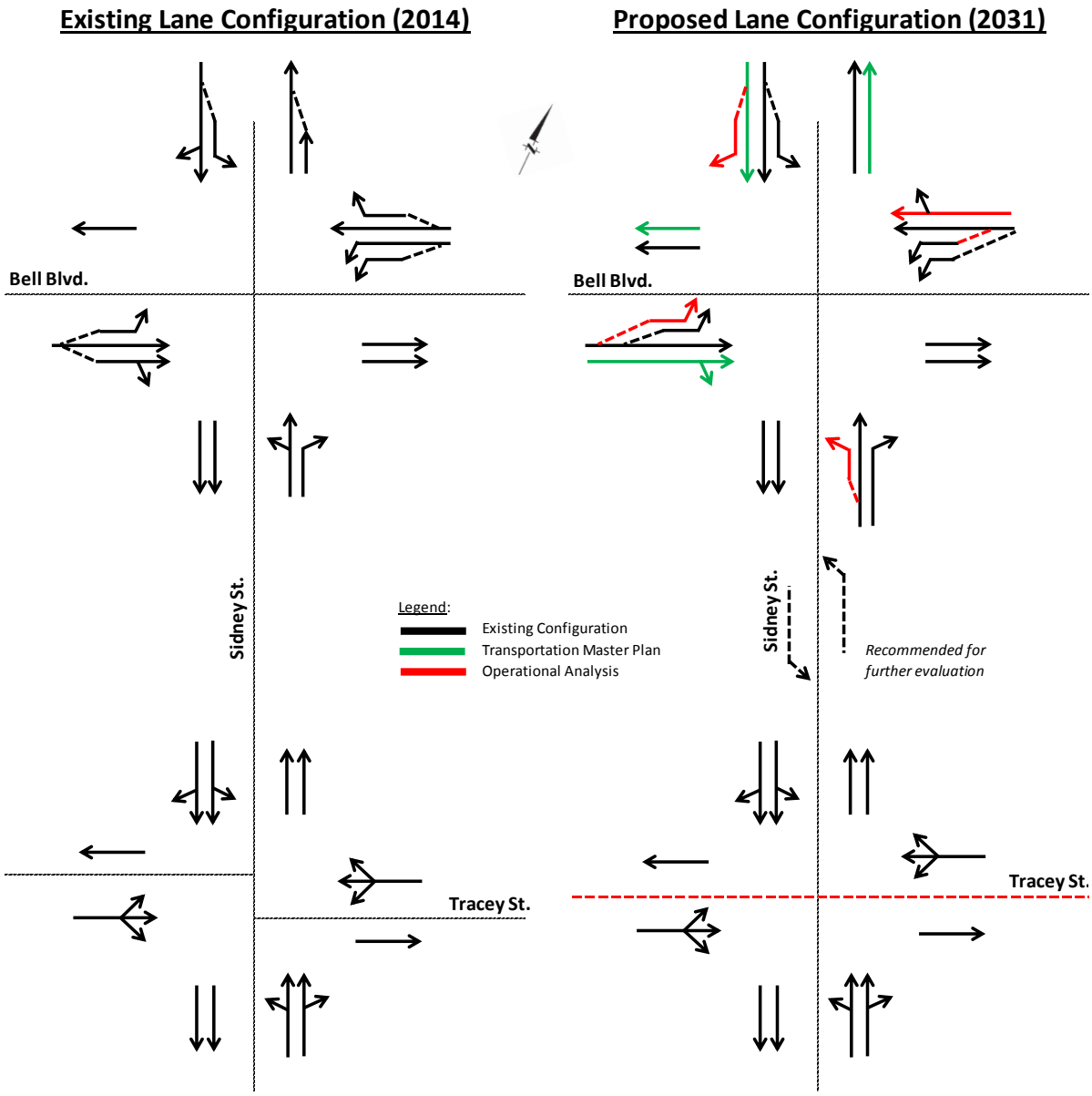


Figure 3 - Proposed 2031 Intersection Configuration

C14-0026

Appendix A: Received Data

Bell Boulevard & Sidney Street

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 9:30:00
To: 10:30:00

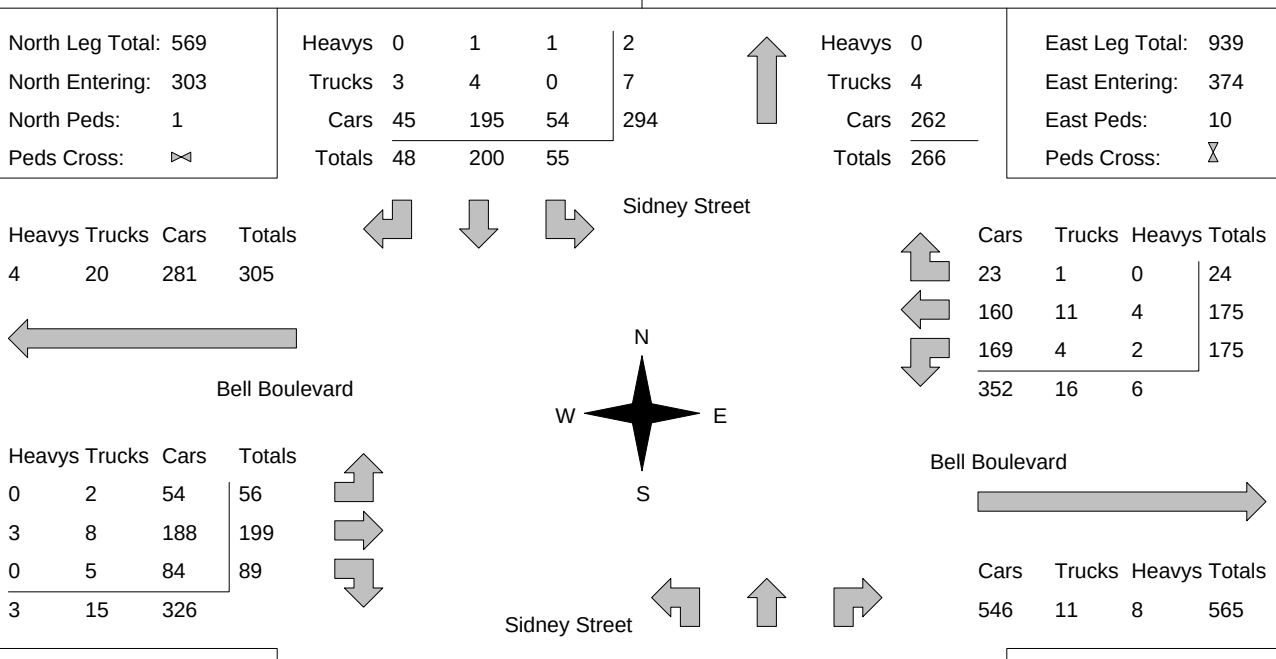
Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 18:30:00

One Hour Peak
From: 15:45:00
To: 16:45:00

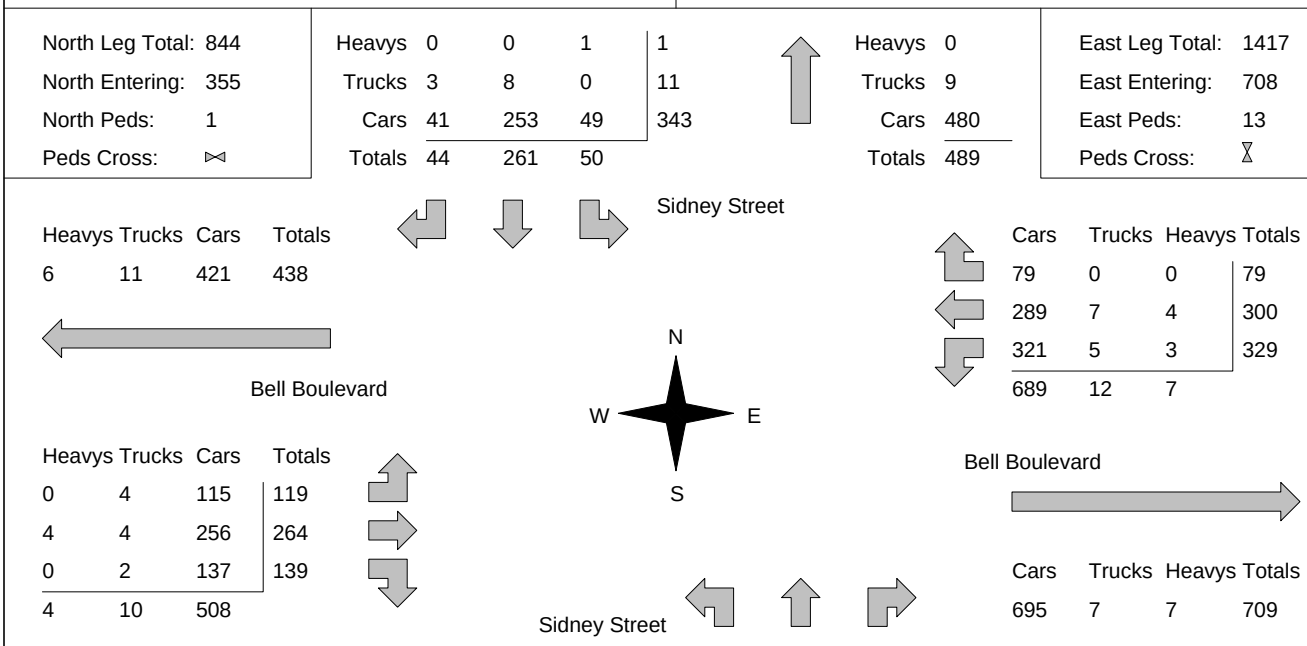
Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street

Total Count Diagram

Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E

North Leg Total:	3807
North Entering:	1775
North Peds:	2
Peds Cross:	⋈

Heavys	5	3	2	10
Trucks	19	31	1	51
Cars	264	1196	254	1714
Totals	288	1230	257	

Heavys	3
Trucks	50
Cars	1979
Totals	2032

East Leg Total:	6346
East Entering:	2928
East Peds:	52
Peds Cross:	⧖

Sidney Street

Heavys	Trucks	Cars	Totals
33	98	1972	2103

Cars	Trucks	Heavys	Totals
280	2	1	283
1251	55	24	1330
1287	14	14	1315
2818	71	39	

Bell Boulevard

N
W E
S

Heavys	Trucks	Cars	Totals
2	23	435	460
15	43	1250	1308
3	24	526	553
20	90	2211	

Bell Boulevard

Cars	Trucks	Heavys	Totals
3325	61	32	3418

Sidney Street

Peds Cross:	⧖
West Peds:	5
West Entering:	2321
West Leg Total:	4424

Cars	3009
Trucks	69
Heavys	20
Totals	3098

Cars	457	1264	1821	3542
Trucks	24	25	17	66
Heavys	4	0	15	19
Totals	485	1289	1853	

Peds Cross:	⋈
South Peds:	6
South Entering:	3627
South Leg Total:	6725

Comments

Bell Boulevard & Sidney Street
Traffic Count Summary

Intersection: Bell Boulevard & Sidney Street | **Count Date:** 9-Jul-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
8:00:00	17	84	27	128	0	355
9:00:00	28	148	49	225	0	712
10:00:00	51	171	45	267	1	863
16:00:00	59	255	46	360	0	987
17:00:00	42	247	51	340	1	1109
18:00:00	44	262	55	361	0	1045
Totals:	241	1167	273	1681	2	5071

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	54	76	97	227	0
9:00:00	85	192	210	487	3
10:00:00	94	172	330	596	1
16:00:00	88	202	337	627	1
17:00:00	76	319	374	769	0
18:00:00	70	243	371	684	1
Totals:	467	1204	1719	3390	6

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
8:00:00	51	91	8	150	0	275
9:00:00	123	149	20	292	2	576
10:00:00	122	165	18	305	6	644
16:00:00	273	248	51	572	9	1028
17:00:00	321	299	77	697	13	1229
18:00:00	300	266	79	645	10	1074
Totals:	1190	1218	253	2661	40	4826

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	17	70	38	125	0
9:00:00	51	168	65	284	0
10:00:00	58	186	95	339	0
16:00:00	93	262	101	456	0
17:00:00	118	273	141	532	4
18:00:00	93	251	85	429	1
Totals:	430	1210	525	2165	5

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	10:00	16:00	17:00	17:00	18:00	18:00
Crossing Values:	155	307	323	411	739	454	387	660

Bell Boulevard & Sidney Street

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 9:30:00
To: 10:30:00

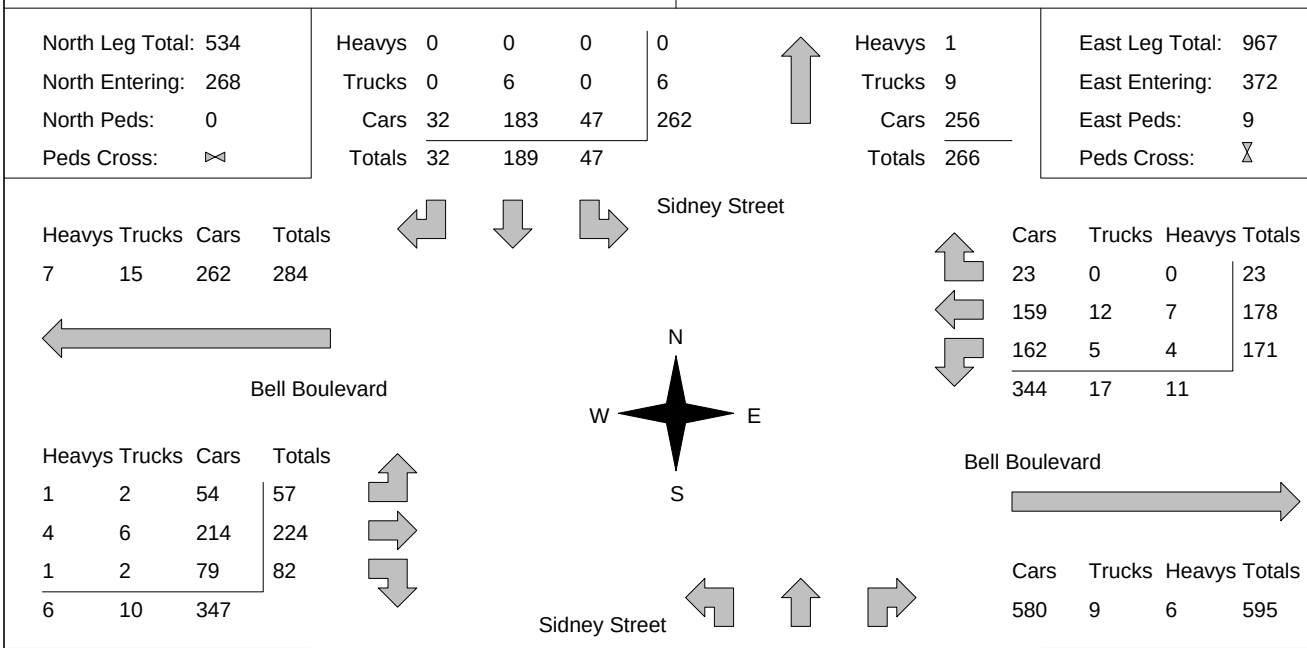
Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 18:30:00

One Hour Peak
From: 16:15:00
To: 17:15:00

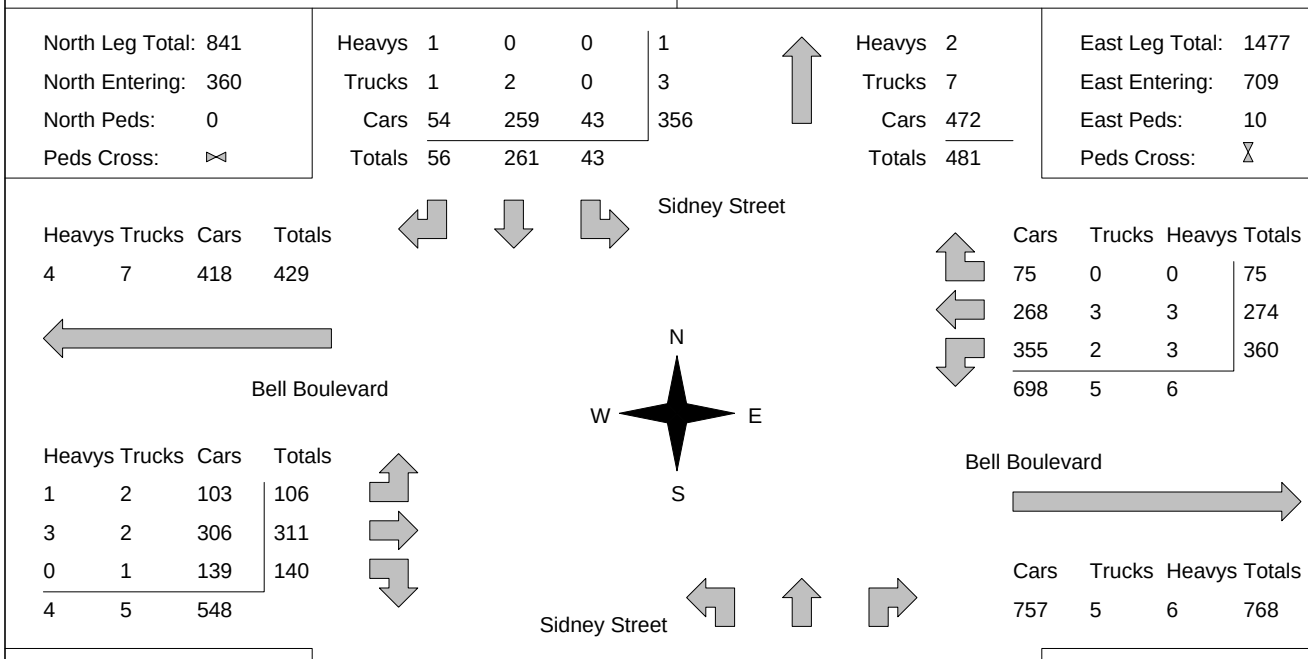
Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street

Total Count Diagram

Municipality: Belleville
Site #: 0000003301
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E

North Leg Total:	3845
North Entering:	1828
North Peds:	2
Peds Cross:	⋈

Heavys	4	4	0	8
Trucks	10	31	2	43
Cars	252	1264	261	1777
Totals	266	1299	263	

Heavys	13
Trucks	50
Cars	1954
Totals	2017

East Leg Total:	6534
East Entering:	2957
East Peds:	41
Peds Cross:	⧖

Sidney Street

Heavys	Trucks	Cars	Totals
32	63	1944	2039

Cars	Trucks	Heavys	Totals
282	1	2	285
1192	39	28	1259
1381	17	15	1413
2855	57	45	

Bell Boulevard

N
W E
S

Heavys	Trucks	Cars	Totals
7	18	396	421
18	45	1341	1404
5	25	558	588
30	88	2295	

Bell Boulevard

Cars	Trucks	Heavys	Totals
3482	60	35	3577

Sidney Street

Peds Cross:	⧖
West Peds:	3
West Entering:	2413
West Leg Total:	4452

Cars	3203
Trucks	73
Heavys	24
Totals	3300

Cars	500	1276	1880	3656
Trucks	14	31	13	58
Heavys	0	4	17	21
Totals	514	1311	1910	

Peds Cross:	⋈
South Peds:	10
South Entering:	3735
South Leg Total:	7035

Comments

Bell Boulevard & Sidney Street
Traffic Count Summary

Intersection: Bell Boulevard & Sidney Street | **Count Date:** 10-Jul-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
8:00:00	12	88	33	133	0	378
9:00:00	31	186	40	257	2	783
10:00:00	43	191	45	279	0	860
16:00:00	53	216	37	306	0	955
17:00:00	43	239	53	335	0	1143
18:00:00	54	276	44	374	0	1029
Totals:	236	1196	252	1684	2	5148

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	58	89	98	245	2
9:00:00	85	194	247	526	1
10:00:00	76	184	321	581	0
16:00:00	80	225	344	649	3
17:00:00	99	288	421	808	0
18:00:00	92	238	325	655	1
	490	1218	1756	3464	7

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
8:00:00	51	70	14	135	0	279
9:00:00	132	143	29	304	3	601
10:00:00	137	158	23	318	5	668
16:00:00	287	229	40	556	9	971
17:00:00	328	288	74	690	9	1257
18:00:00	355	271	66	692	15	1157
Totals:	1290	1159	246	2695	41	4933

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	21	81	42	144	0
9:00:00	53	164	80	297	0
10:00:00	55	210	85	350	0
16:00:00	82	237	96	415	0
17:00:00	114	320	133	567	1
18:00:00	66	285	114	465	1
	391	1297	550	2238	2

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	8:00	9:00	10:00	16:00	17:00	18:00
Crossing Values:	0	0	159	313	315	367	440	438

Sidney Street & Tracey Street /Tracey Park Drive

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 9:30:00
To: 10:30:00

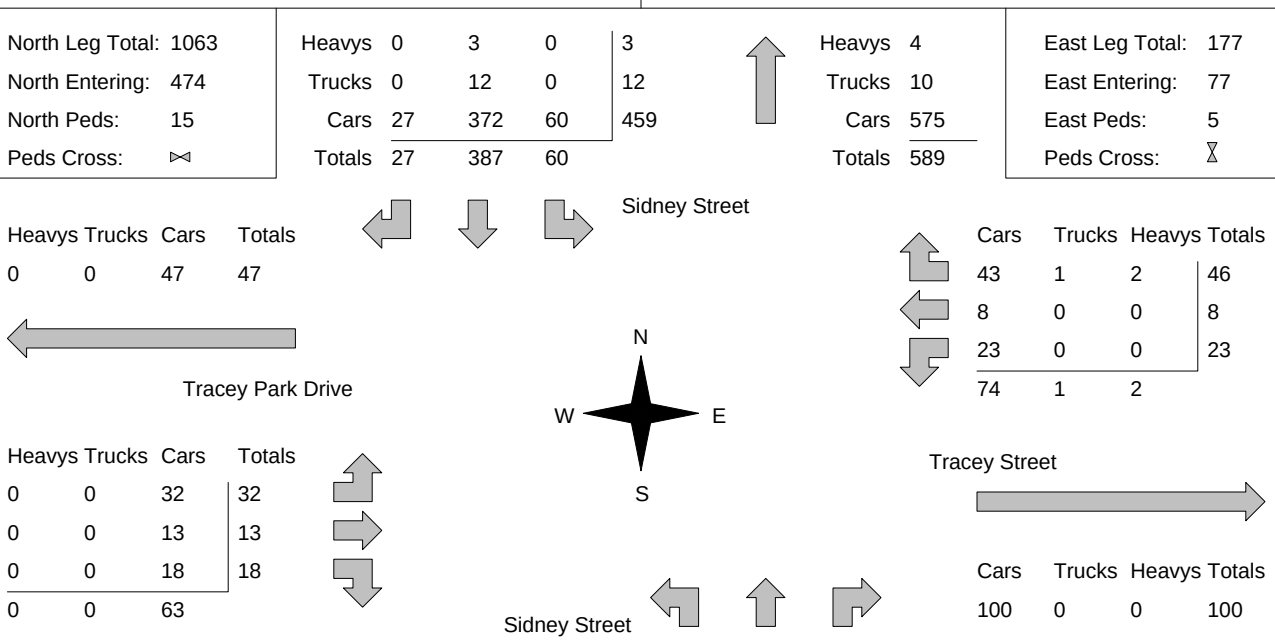
Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 18:30:00

One Hour Peak
From: 16:15:00
To: 17:15:00

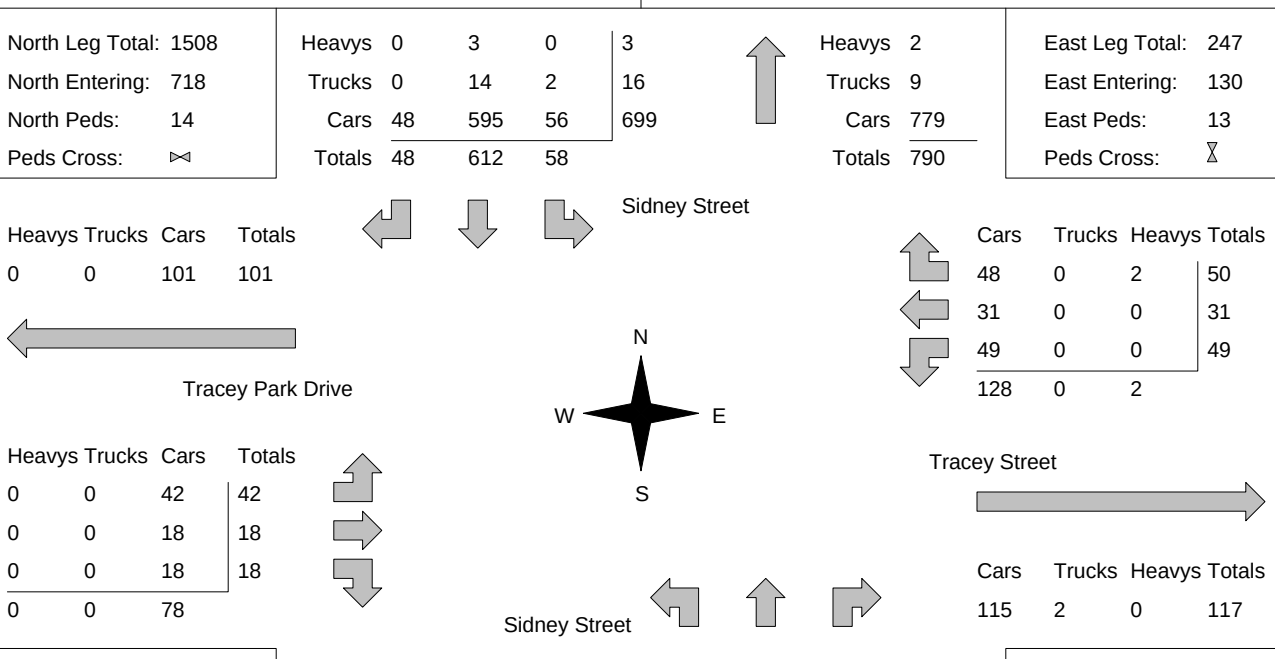
Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive

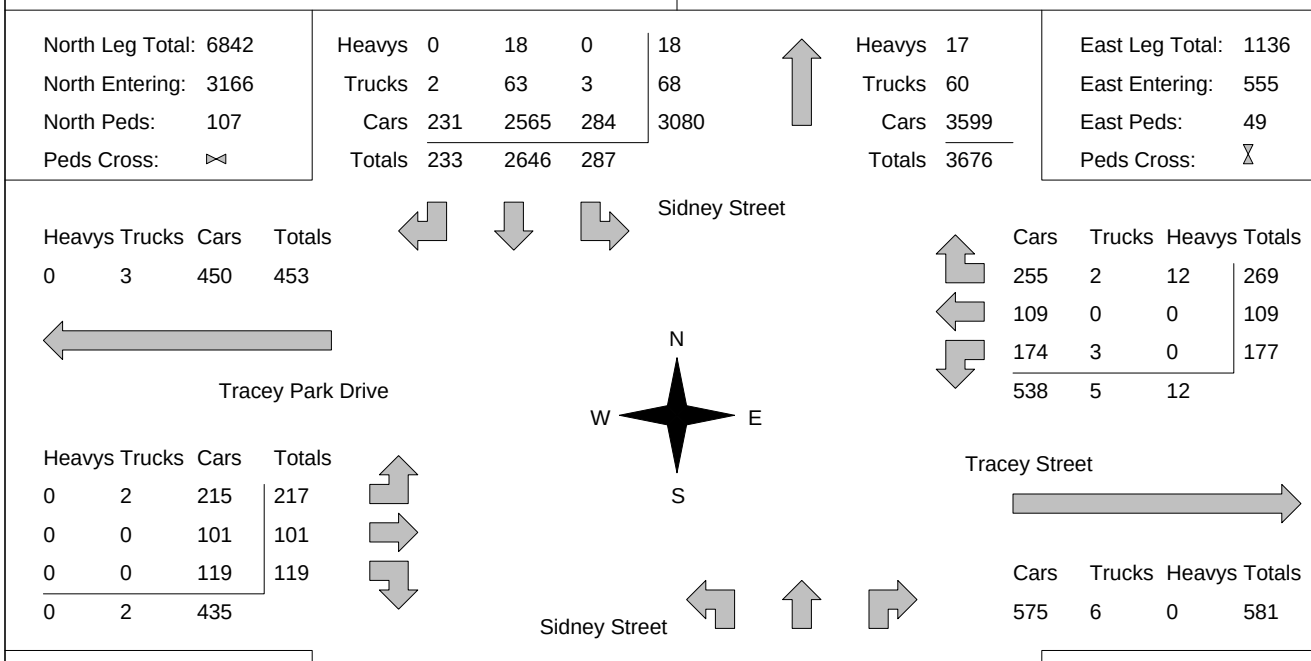
Total Count Diagram

Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 9-Jul-2014

Weather conditions: Clear
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive
Traffic Count Summary

Intersection: Sidney Street & Tracey Street / Tra | **Count Date:** 9-Jul-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
8:00:00	20	151	13	184	10	398
9:00:00	29	306	21	356	15	809
10:00:00	42	326	27	395	16	973
16:00:00	59	515	52	626	24	1212
17:00:00	65	608	51	724	22	1482
18:00:00	59	544	51	654	14	1314
Totals:	274	2450	215	2939	101	6188

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	9	187	18	214	16
9:00:00	9	424	20	453	6
10:00:00	12	538	28	578	3
16:00:00	18	526	42	586	31
17:00:00	26	695	37	758	15
18:00:00	26	601	33	660	7
	100	2971	178	3249	78

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
8:00:00	13	7	20	40	7	78
9:00:00	17	8	32	57	0	126
10:00:00	14	5	52	71	5	138
16:00:00	33	19	53	105	10	174
17:00:00	46	26	44	116	10	200
18:00:00	35	34	49	118	10	191
Totals:	158	99	250	507	42	907

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	19	5	14	38	4
9:00:00	39	17	13	69	2
10:00:00	37	12	18	67	0
16:00:00	33	13	23	69	13
17:00:00	42	20	22	84	9
18:00:00	33	22	18	73	7
	203	89	108	400	35

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	8:00	9:00	10:00	16:00	17:00	18:00
Crossing Values:	0	0	65	94	82	140	151	123

Sidney Street & Tracey Street /Tracey Park Drive

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 8:30:00
To: 9:30:00

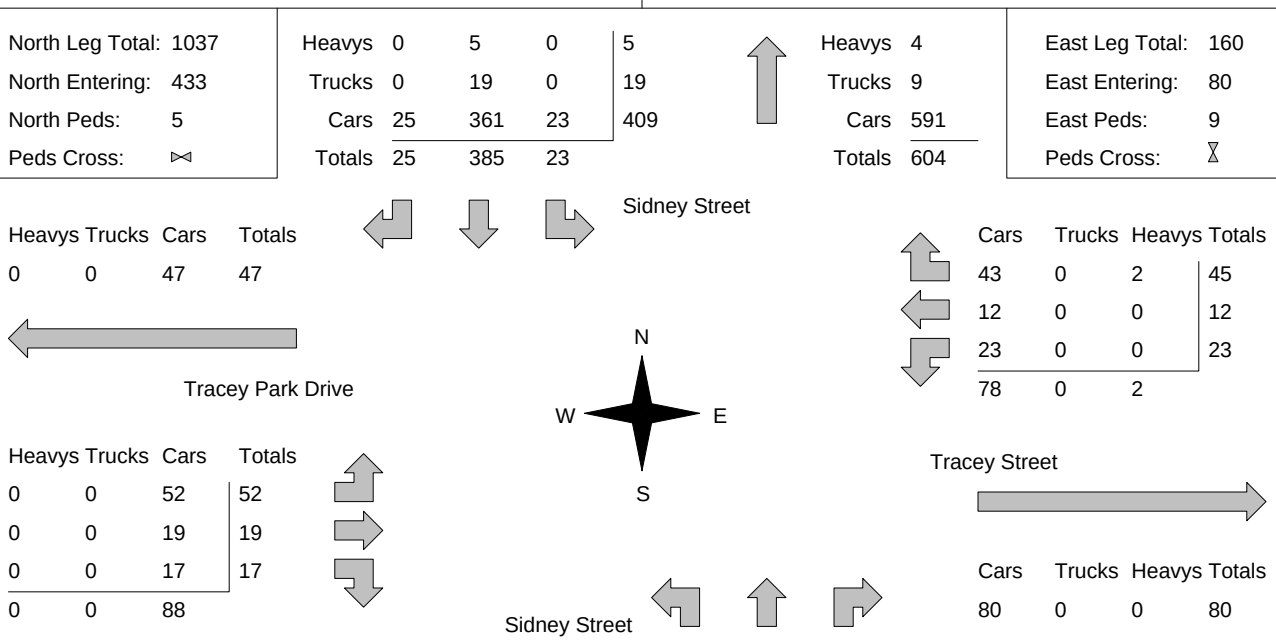
Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 18:30:00

One Hour Peak
From: 16:15:00
To: 17:15:00

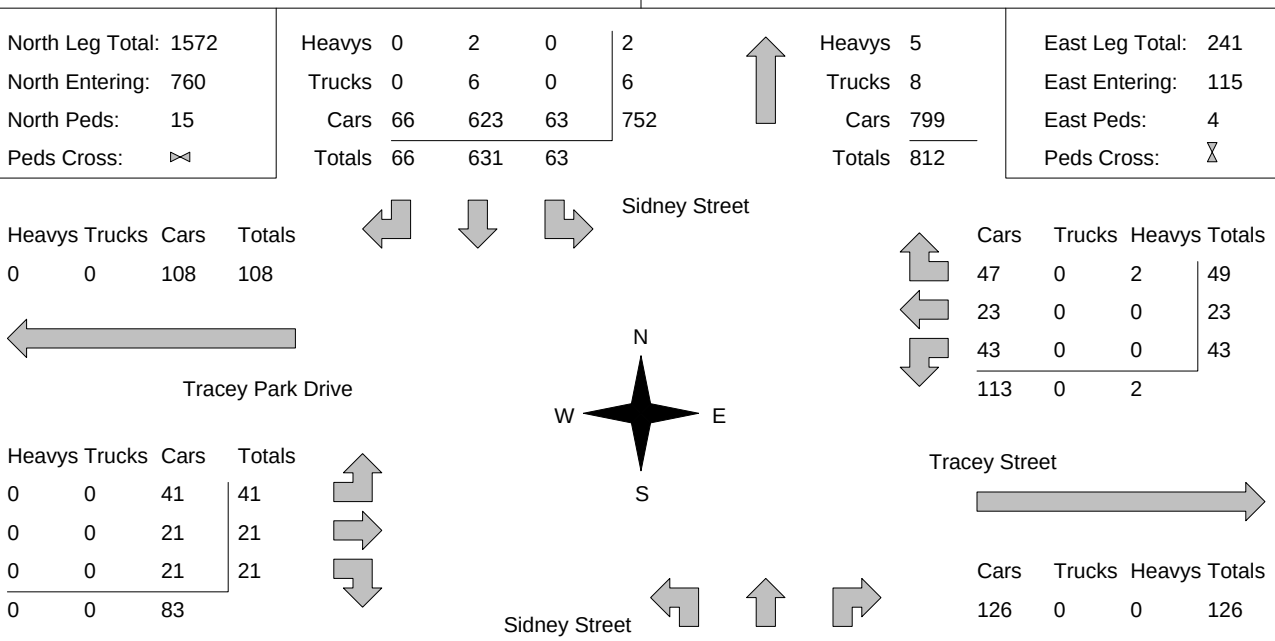
Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive

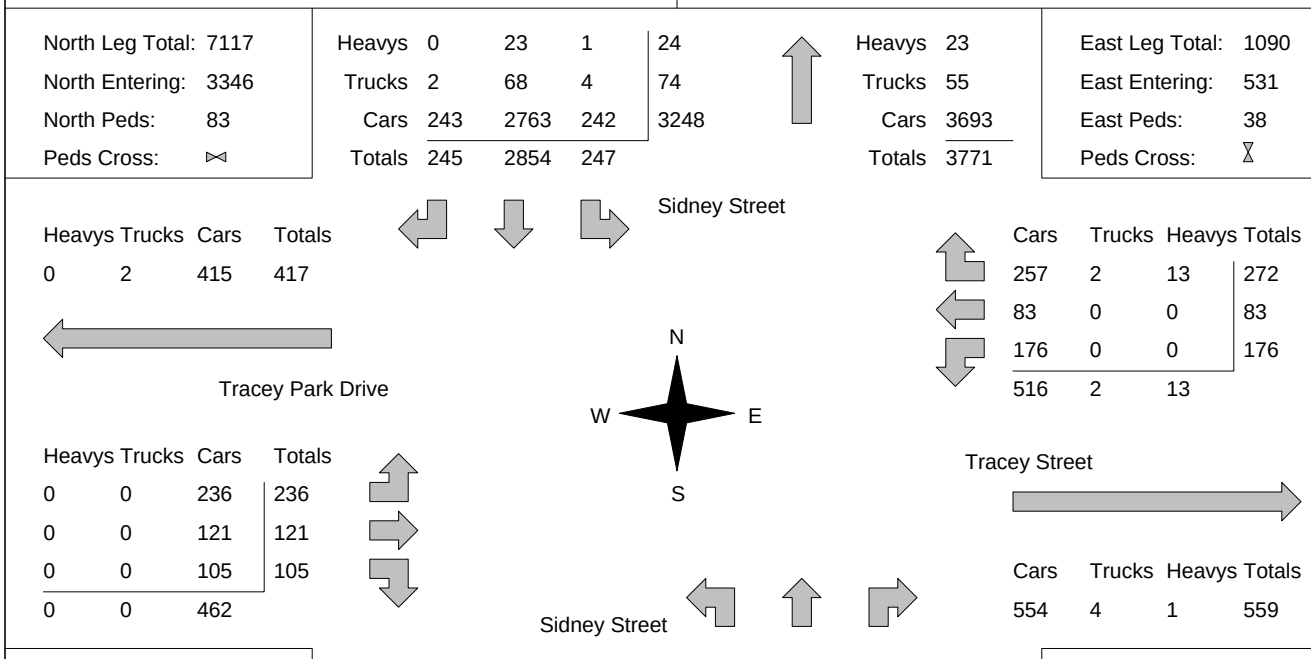
Total Count Diagram

Municipality: Belleville
Site #: 0000003302
Intersection: Sidney Street & Tracey Street / Trac
TFR File #: 1
Count date: 10-Jul-2014

Weather conditions: Clear
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street /Tracey Park Drive
Traffic Count Summary

Intersection: Sidney Street & Tracey Street / Tra | **Count Date:** 10-Jul-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
8:00:00	10	161	16	187	1	405
9:00:00	27	357	17	401	6	906
10:00:00	27	372	34	433	13	981
16:00:00	53	517	36	606	33	1209
17:00:00	60	603	54	717	15	1510
18:00:00	50	615	58	723	12	1332
Totals:	227	2625	215	3067	80	6343

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	5	206	7	218	2
9:00:00	10	458	37	505	7
10:00:00	8	509	31	548	4
16:00:00	16	560	27	603	0
17:00:00	15	733	45	793	4
18:00:00	21	556	32	609	4
Totals:	75	3022	179	3276	21

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
8:00:00	9	2	22	33	2	72
9:00:00	16	6	32	54	1	128
10:00:00	26	7	42	75	11	147
16:00:00	31	19	54	104	4	186
17:00:00	46	14	55	115	9	188
18:00:00	34	28	50	112	6	199
Totals:	162	76	255	493	33	920

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
8:00:00	23	9	7	39	0
9:00:00	45	14	15	74	2
10:00:00	35	19	18	72	1
16:00:00	38	21	23	82	0
17:00:00	39	15	19	73	3
18:00:00	39	32	16	87	4
Totals:	219	110	98	427	10

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	10:00	16:00	17:00	17:00	18:00	18:00
Crossing Values:	44	88	97	123	119	119	121	121

Bell Boulevard & Sidney Street

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 15:00:00

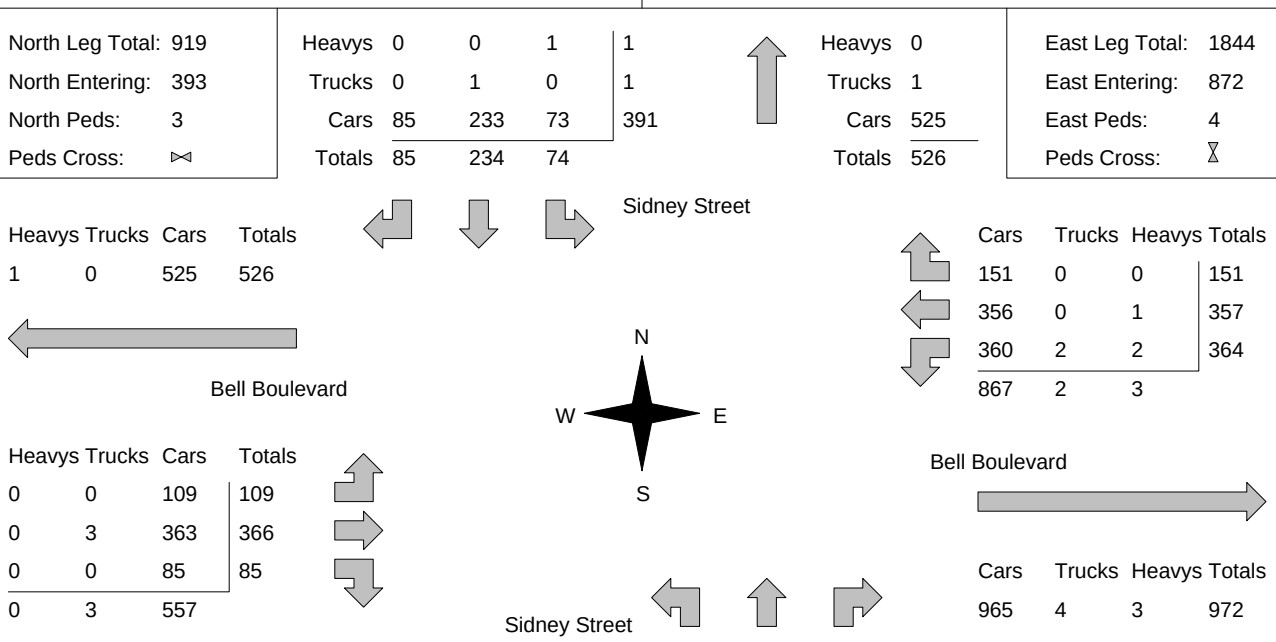
One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Belleville
Site #: 0000005402
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 15-Nov-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street

Total Count Diagram

Municipality: Belleville
Site #: 0000005402
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 15-Nov-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E

North Leg Total:	3378
North Entering:	1446
North Peds:	17
Peds Cross:	⋈

Heavys	0	1	1	2
Trucks	0	5	2	7
Cars	269	828	340	1437
Totals	269	834	343	

Heavys	0
Trucks	11
Cars	1921
Totals	1932

East Leg Total:	7272
East Entering:	3497
East Peds:	5
Peds Cross:	⧖

Sidney Street

Heavys	Trucks	Cars	Totals
4	9	2011	2024

Cars	Trucks	Heavys	Totals
581	1	0	582
1400	7	4	1411
1491	4	9	1504
3472	12	13	

Bell Boulevard

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	390	391
2	7	1423	1432
0	1	294	295
2	9	2107	

Bell Boulevard

Cars	Trucks	Heavys	Totals
3748	14	13	3775

Sidney Street

Peds Cross:	⧖
West Peds:	0
West Entering:	2118
West Leg Total:	4142

Cars	2613
Trucks	10
Heavys	10
Totals	2633

Cars	342	950	1985	3277
Trucks	2	9	5	16
Heavys	0	0	10	10
Totals	344	959	2000	

Peds Cross:	⋈
South Peds:	2
South Entering:	3303
South Leg Total:	5936

Comments

Bell Boulevard & Sidney Street
Traffic Count Summary

Intersection: Bell Boulevard & Sidney Street | **Count Date:** 15-Nov-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
11:00:00	0	0	0	0	0	1
12:00:00	90	207	79	376	13	1195
13:00:00	74	234	85	393	3	1275
14:00:00	91	199	52	342	0	1155
15:00:00	88	194	53	335	1	1123
Totals:	343	834	269	1446	17	4749

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	1	0	1	0
12:00:00	99	237	483	819	0
13:00:00	84	266	532	882	2
14:00:00	81	220	512	813	0
15:00:00	80	235	473	788	0
Totals:	344	959	2000	3303	2

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
11:00:00	0	0	0	0	0	0
12:00:00	344	319	125	788	0	1316
13:00:00	364	357	151	872	4	1432
14:00:00	374	374	144	892	1	1435
15:00:00	422	361	162	945	0	1432
Totals:	1504	1411	582	3497	5	5615

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0
12:00:00	102	356	70	528	0
13:00:00	109	366	85	560	0
14:00:00	86	385	72	543	0
15:00:00	94	325	68	487	0
Totals:	391	1432	295	2118	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	13:00	14:00	14:00	15:00	15:00
Crossing Values:	1	426	428	428	393	393	403	403

Bell Boulevard & Sidney Street

Afternoon Peak Diagram

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

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Belleville
Site #: 0000005402
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 13-Nov-2014

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E

North Leg Total:	890
North Entering:	364
North Peds:	0
Peds Cross:	⋈

Heavys	2	1	0	3
Trucks	1	7	0	8
Cars	59	241	53	353
Totals	62	249	53	

Heavys	4
Trucks	6
Cars	516
Totals	526

East Leg Total:	1548
East Entering:	780
East Peds:	0
Peds Cross:	⧖

Sidney Street

Heavys	Trucks	Cars	Totals
7	6	465	478

Cars	Trucks	Heavys	Totals
133	1	1	135
320	5	4	329
312	1	3	316
765	7	8	

Bell Boulevard

N
W E
S

Heavys	Trucks	Cars	Totals
0	1	107	108
3	2	352	357
0	0	148	148
3	3	607	

Bell Boulevard

Cars	Trucks	Heavys	Totals
761	2	5	768

Sidney Street

Peds Cross:	⧖
West Peds:	0
West Entering:	613
West Leg Total:	1091

Cars	701
Trucks	8
Heavys	4
Totals	713

Cars	86	276	356	718
Trucks	0	4	0	4
Heavys	1	3	2	6
Totals	87	283	358	

Peds Cross:	⋈
South Peds:	0
South Entering:	728
South Leg Total:	1441

Comments

Bell Boulevard & Sidney Street

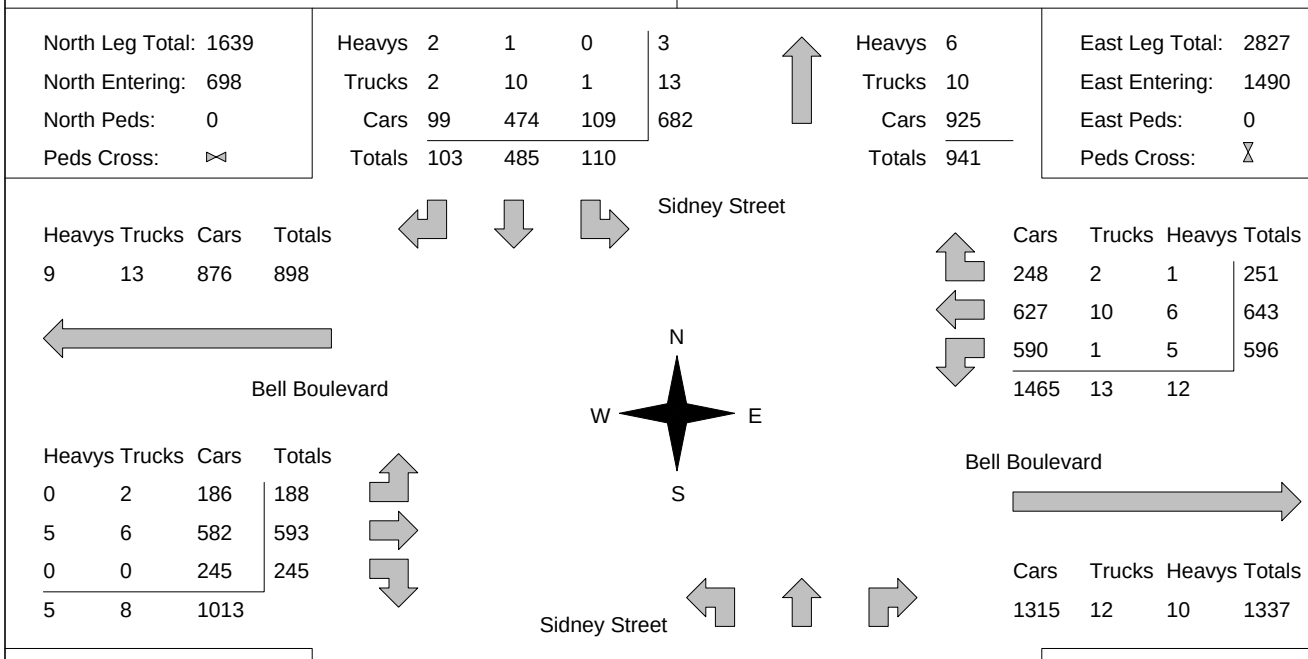
Total Count Diagram

Municipality: Belleville
Site #: 0000005402
Intersection: Bell Boulevard & Sidney Street
TFR File #: 1
Count date: 13-Nov-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bell Boulevard runs W/E



Comments

Bell Boulevard & Sidney Street
Traffic Count Summary

Intersection: Bell Boulevard & Sidney Street | **Count Date:** 13-Nov-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
16:00:00	0	0	0	0	0	0
17:00:00	58	263	54	375	0	1091
18:00:00	52	222	49	323	0	895
Totals:	110	485	103	698	0	1986

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
16:00:00	0	0	0	0	0
17:00:00	89	282	345	716	0
18:00:00	63	220	289	572	0
	152	502	634	1288	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
16:00:00	0	0	0	0	0	0
17:00:00	327	314	137	778	0	1383
18:00:00	269	329	114	712	0	1133
Totals:	596	643	251	1490	0	2516

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
16:00:00	0	0	0	0	0
17:00:00	115	349	141	605	0
18:00:00	73	244	104	421	0
	188	593	245	1026	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	0:00	0:00	0:00	16:00	17:00	18:00
Crossing Values:	0	0	0	0	0	0	429	337

Sidney Street & Tracey Street - Tracey Park Driv

Mid-day Peak Diagram

Specified Period
From: 10:00:00
To: 15:00:00

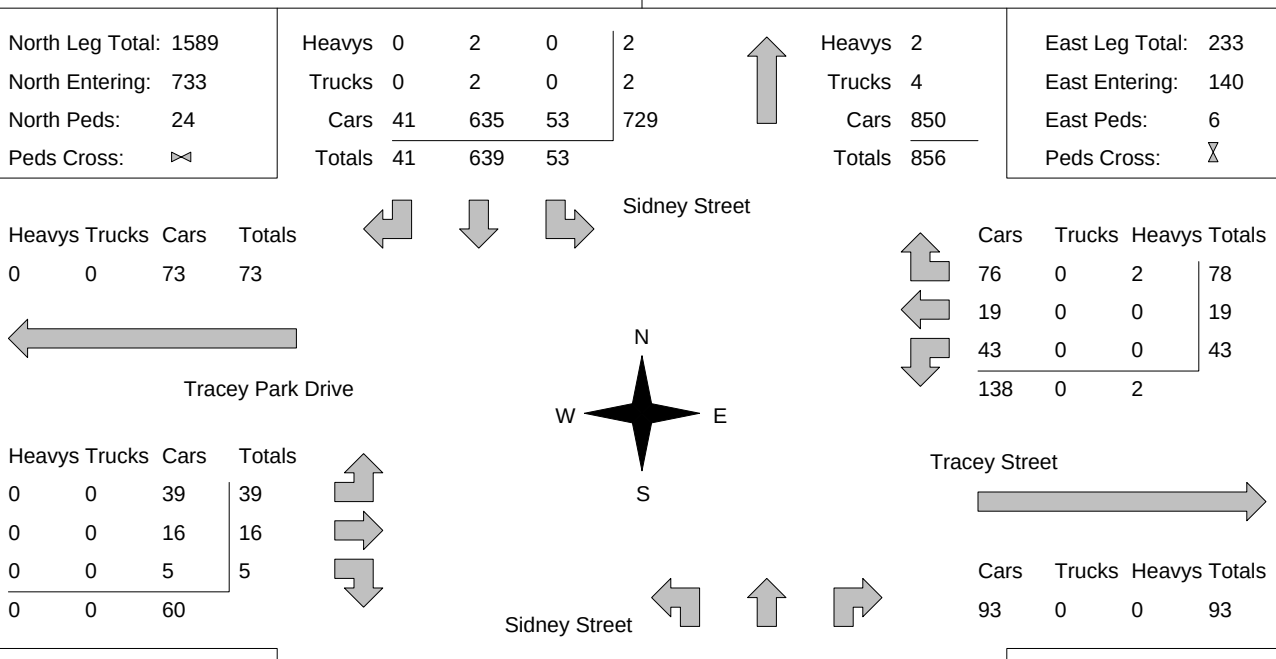
One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Bellevile
Site #: 0000005401
Intersection: Sidney Street & Tracey Street - Trac
TFR File #: 1
Count date: 15-Nov-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street - Tracey Park Driv

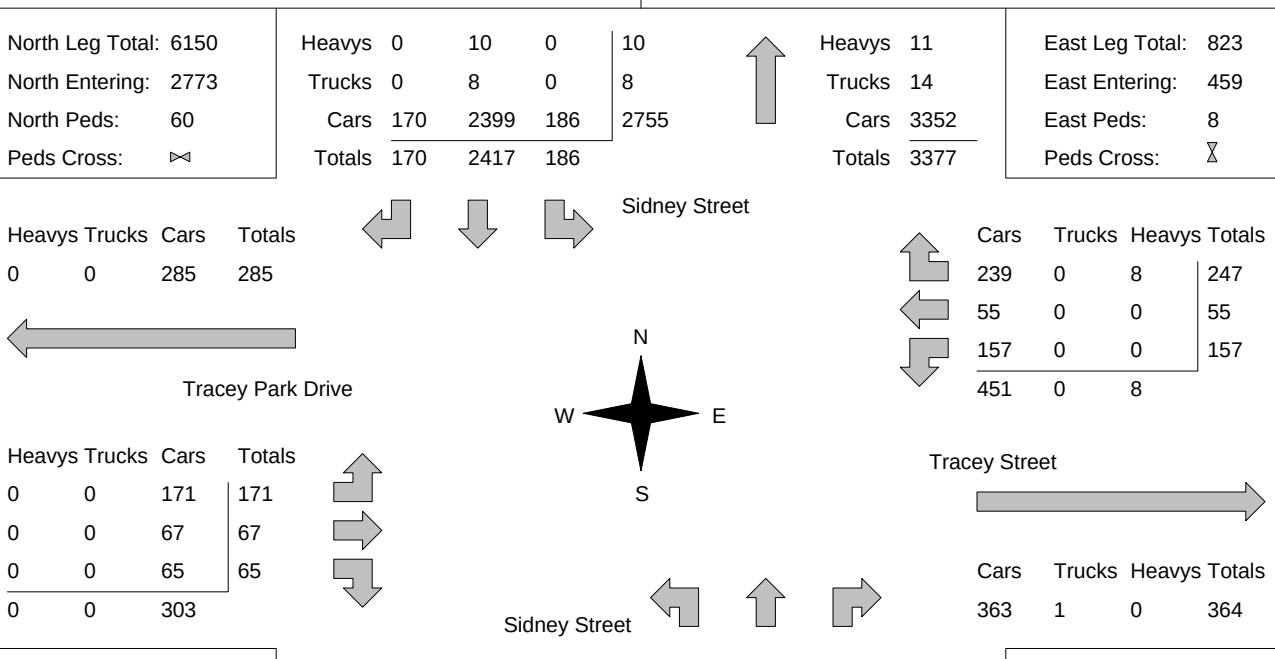
Total Count Diagram

Municipality: Bellevile
Site #: 0000005401
Intersection: Sidney Street & Tracey Street - Trac
TFR File #: 1
Count date: 15-Nov-2014

Weather conditions: Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street - Tracey Park Driv
Traffic Count Summary

Intersection: Sidney Street & Tracey Street - Tra | **Count Date:** 15-Nov-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
11:00:00	0	0	0	0	0	0
12:00:00	46	557	37	640	21	1418
13:00:00	52	601	39	692	10	1490
14:00:00	46	625	47	718	19	1493
15:00:00	42	634	47	723	10	1502
Totals:	186	2417	170	2773	60	5903

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0
12:00:00	15	720	43	778	5
13:00:00	13	762	23	798	0
14:00:00	13	741	21	775	0
15:00:00	19	736	24	779	3
	60	2959	111	3130	8

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
11:00:00	0	0	0	0	0	0
12:00:00	42	11	53	106	0	198
13:00:00	39	16	67	122	3	194
14:00:00	42	19	67	128	4	192
15:00:00	34	9	60	103	1	178
Totals:	157	55	247	459	8	762

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
11:00:00	0	0	0	0	0
12:00:00	54	22	16	92	1
13:00:00	40	15	17	72	2
14:00:00	40	13	11	64	2
15:00:00	37	17	21	75	1
	171	67	65	303	6

Calculated Values for Traffic Crossing Major Street

Hours Ending:	11:00	12:00	13:00	14:00	14:00	15:00	15:00	15:00
Crossing Values:	0	144	105	120	120	101	101	101

Sidney Street & Tracey Street - Tracey Park Driv

Afternoon Peak Diagram

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

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Belleville
Site #: 0000005401
Intersection: Sidney Street & Tracey Street - Trac
TFR File #: 1
Count date: 13-Nov-2014

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S

North Leg Total: 1593
North Entering: 811
North Peds: 15
Peds Cross: ⋈

Heavys	0	5	0	5
Trucks	0	6	0	6
Cars	64	653	83	800
Totals	64	664	83	

Heavys	6
Trucks	5
Cars	771
Totals	782

East Leg Total: 292
East Entering: 127
East Peds: 5
Peds Cross: ⧖

Sidney Street

Heavys	Trucks	Cars	Totals
0	0	113	113

Tracey Park Drive

Heavys	Trucks	Cars	Totals
0	0	44	44
0	0	25	25
0	0	22	22
0	0	91	

Cars	Trucks	Heavys	Totals
50	0	2	52
23	0	0	23
52	0	0	52
125	0	2	

N
W E
S

Tracey Street

Cars	Trucks	Heavys	Totals
164	1	0	165

Sidney Street

Peds Cross: ⧖
West Peds: 8
West Entering: 91
West Leg Total: 204

Cars	727			
Trucks	6			
Heavys	5			
Totals	738			

Cars	26	677	56	759
Trucks	0	5	1	6
Heavys	0	4	0	4
Totals	26	686	57	

Peds Cross: ⋈
South Peds: 2
South Entering: 769
South Leg Total: 1507

Comments

Sidney Street & Tracey Street - Tracey Park Driv

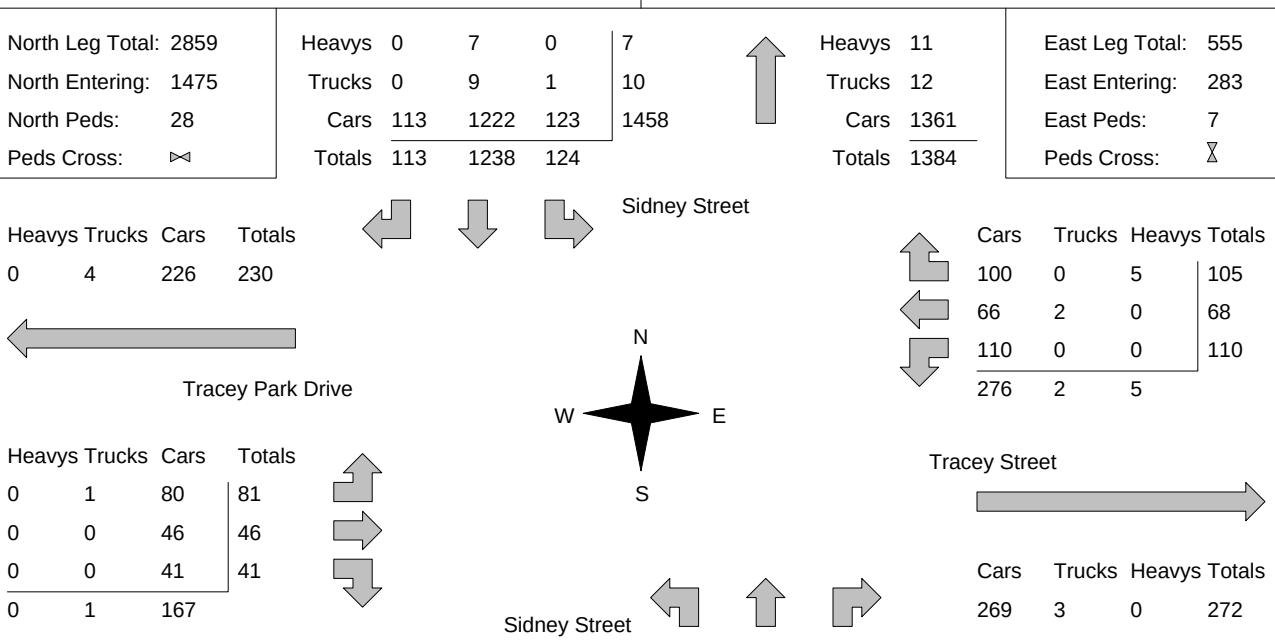
Total Count Diagram

Municipality: Belleville
Site #: 0000005401
Intersection: Sidney Street & Tracey Street - Trac
TFR File #: 1
Count date: 13-Nov-2014

Weather conditions: Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Sidney Street runs N/S



Comments

Sidney Street & Tracey Street - Tracey Park Driv
Traffic Count Summary

Intersection: Sidney Street & Tracey Street - Tra | **Count Date:** 13-Nov-2014 | **Municipality:** Belleville

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
16:00:00	0	0	0	0	0	0
17:00:00	80	655	57	792	15	1529
18:00:00	44	583	56	683	13	1295
Totals:	124	1238	113	1475	28	2824

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
16:00:00	0	0	0	0	0
17:00:00	26	646	65	737	2
18:00:00	23	552	37	612	1
	49	1198	102	1349	3

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
16:00:00	0	0	0	0	0	0
17:00:00	51	27	53	131	4	219
18:00:00	59	41	52	152	3	232
Totals:	110	68	105	283	7	451

West Approach Totals

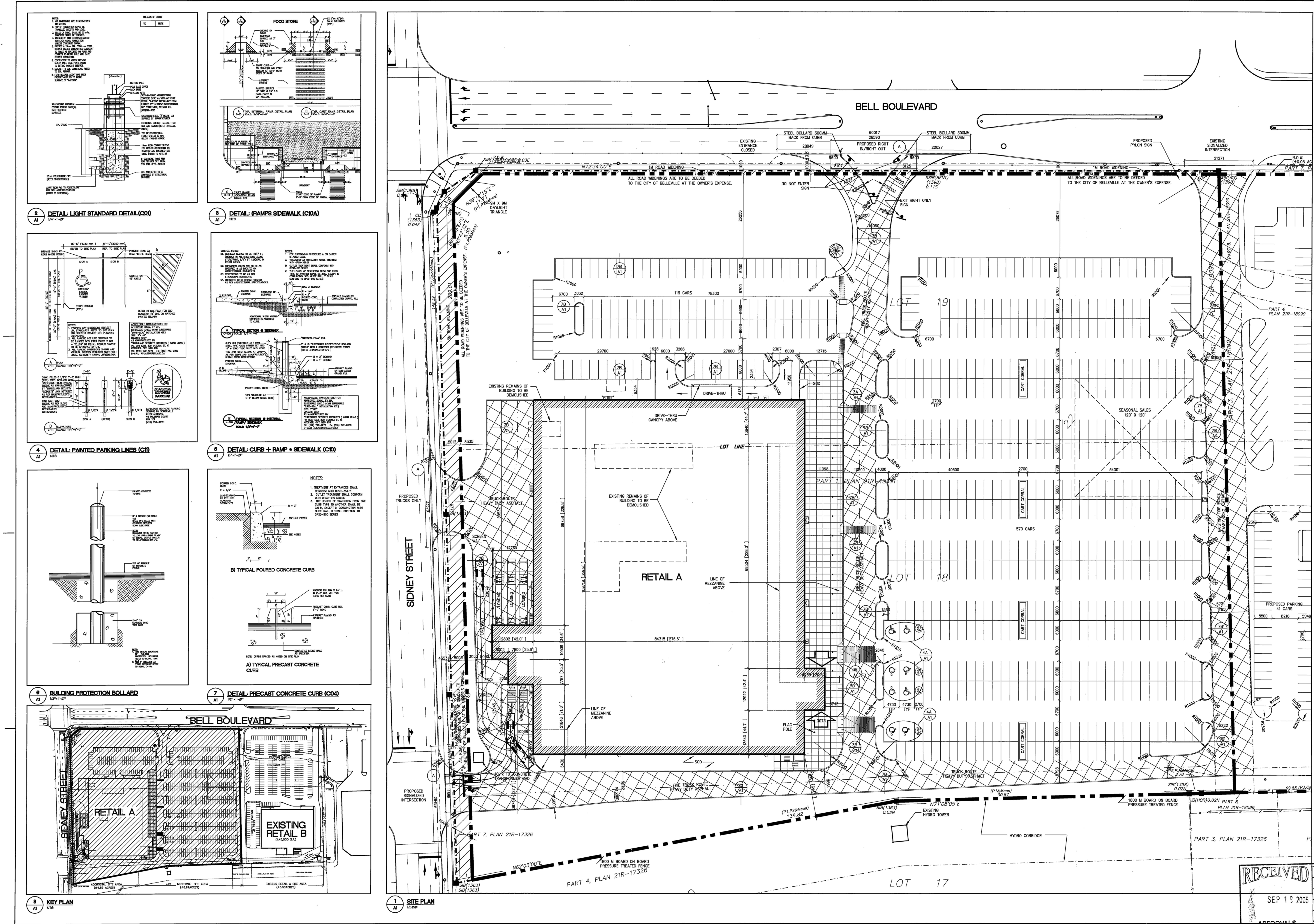
Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
16:00:00	0	0	0	0	0
17:00:00	42	25	21	88	6
18:00:00	39	21	20	80	6
	81	46	41	168	12

Calculated Values for Traffic Crossing Major Street

Hours Ending:	16:00	16:00	17:00	17:00	17:00	18:00	18:00	18:00
Crossing Values:	0	0	137	137	137	153	153	153


300
600
900
1200
1500


300
600
900
1200
1500



This drawing, as an instrument of service, is provided by and is the property of Turner Fleischer Architects Inc. The contractor must verify and accept responsibility for all dimensions and conditions on site and must notify Turner Fleischer Architects Inc. of any variations from the supplied information.

This drawing is not to be scaled.

The architect is not responsible for the accuracy of survey, structural, mechanical, electrical, etc., information shown on this drawing. Refer to the appropiate consultant's drawings before proceeding with the work.

Construction must conform to all applicable codes and requirements of authorities having jurisdiction.

The contractor working from drawings not specifically marked 'For Construction' must assume full responsibility and bear costs for any corrections or damages resulting from his work.

STATISTICS

ENTIRE SITE AREA	±7.01	Ha	±17.31	ACRES
RETAIL A AREA	±4.56	Ha	±11.76	ACRES
RETAIL A SITE AREA	9,580	SM	103,113	SF
MEZZANINE (NIC)	1,346	SM	14,486	SF
PARKING RATIO			689	CARS
			6.68	/1000 SF
COVERAGE (RETAIL A)			20.13	%

(A) NOTE: THE OWNER ACKNOWLEDGES THAT THE PROPOSED DIMENSIONS FOR THE DRIVEWAYS AS SHOWN ON THIS APPROVED DRAWING ARE NOT IN CONFORMANCE WITH THE CITY'S BY-LAW NUMBER 2001-129 RESPECTING STREET AND DRIVEWAY CONTROLS. THE OWNER THEREFORE AGREES THAT THESE DRIVEWAYS WILL NOT BE CONSTRUCTED AS SHOWN ON THIS DRAWING UNTIL CITY COUNCIL HAS AMENDED THE AFORESAID BY-LAW AND APPROVED THE PROPOSED DIMENSIONS. IF THE PROPOSED DIMENSIONS ON THIS DRAWING ARE NOT APPROVED THEN THE DRIVEWAYS SHALL NOT BE CONSTRUCTED UNTIL REVISED DIMENSIONS ARE SUBMITED WHICH MEET CITY COUNCIL'S APPROVAL.

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
750 OAKDALE ROAD, Unit 66
TORONTO, ONTARIO M3N 2Z4
TEL. 416 749-SVNG(7864) FAX 416 749-7866
E-Mail: toronto@svng.on.ca

PLAN OF SURVEY WITH TOPOGRAPHY
PART OF LOTS 17, 18, 19
REGISTERED PLAN 22
CITY OF BELLEVILLE
COUNTY OF HASTINGS

LEGEND

RETAIL A SITE AREA
RETAIL B SITE AREA
R.O.W AREA

No.	Date	Issued/Revision	By
16	SEPT. 14/05	RE-ISSUED FOR SPA	KB
15	AUG 25/05	ISSUED FOR SPA	KB
14	AUG 04/05	ADDED 3M LANDSCAPE BUFFER, 5M DRIVE AT REAR AND SHIFTING STORE + PARKING 2M EAST	KB
13	JULY 06/05	INCREASED ROAD WIDENING TO 5 METRES	KB
12	JUN 08/05	RECONFIGURE PARKING AS PER REVISIONS	LR
11	JUN 03/05	PROVIDE ADDITIONAL PARKING AT ("FUTURE PARKING" DESIGNATED AREA)	LR
10	JUN 03/05	SITE PLAN STATISTICS	AH
9	APR 22/05	OMIT GAS BAR TO FUTURE PARKING NOTE, SHIFT DRIVE THRU PARKING S., DIMENSIONS	AH
8	APR 21/05	UPDATED DOUBLE SIDED LOADING, NOTES, NEW C11 DETAIL, DIMENSIONS	AH
7	MAR 22/05	UPDATED SIDEWALKS, NOTES, DIMENSIONS	PP
6	MAR 04/05	ISSUED FOR SPA	MC
5	FEB 23/05	ADDED 1M ROAD WIDENING ALONG BELL BOULEVARD	BN
4	FEB 03/05	ADDED 1800 M FENCE	BN
3	JAN 25/05	RESIZED PARKING, MOVED RETAIL A 8M FROM WEST PROP. LINE, ADDED SIGNAGE TO RI/RO ISLAND	BN
2	NOV 05/04	UPDATED TO NEW MODEL	BN
1	OCT 14 2004	ISSUED FOR PRELIMINARY REVIEW	BR

TURNER FLEISCHER ARCHITECTS INC.
67 Lesmill Road
Toronto, ON M3B 2T8
Tel: 416-425-2222
Fax: 416-425-6717

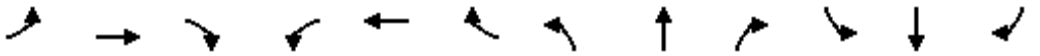
PROJECT
Loblaws the real Canadian Superstore

223 BELL BOULEVARD
BELLEVILLE, ONTARIO

DWG. TITLE
SITE PLAN + DETAILS

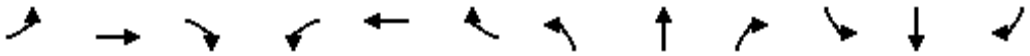
PROJECT NO. 04191	DATE OCTOBER 2004
DRAWN BY RD	SCALE AS NOTED
CHECKED BY JM	FILE NAME: F:/PROJ/04191/03.SPA/4191A1-ZZC XREFS: F:/PROJ/93528/MASTER/351-399/375ZZC.DWG
	PLOT SCALE: AS NOTED 1:1
	DRAWING NO. A1-ZZC

Appendix B: Synchro Outputs



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	199	89	175	175	24	82	186	311	55	200	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.95		1.00	1.00	0.85		1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1618	3125		3169	1685	1416		1759	1441	1637	1722	
Flt Permitted	0.59	1.00		0.54	1.00	1.00		0.63	1.00	0.58	1.00	
Satd. Flow (perm)	997	3125		1799	1685	1416		1125	1441	1003	1722	
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)	61	216	97	190	190	26	89	202	338	60	217	52
RTOR Reduction (vph)	0	51	0	0	0	18	0	0	193	0	9	0
Lane Group Flow (vph)	61	262	0	190	190	8	0	291	145	60	260	0
Confl. Peds. (#/hr)	1		2	2		1			10	10		
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	41.0	29.0		41.0	29.0	29.0		43.0	43.0	27.0	27.0	
Effective Green, g (s)	41.0	29.0		41.0	29.0	29.0		43.0	43.0	27.0	27.0	
Actuated g/C Ratio	0.41	0.29		0.41	0.29	0.29		0.43	0.43	0.27	0.27	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	483	906		901	488	410		559	619	270	464	
v/s Ratio Prot	0.02	0.08		c0.03	c0.11			c0.06			0.15	
v/s Ratio Perm	0.04			0.06		0.01		c0.16	0.10	0.06		
v/c Ratio	0.13	0.29		0.21	0.39	0.02		0.52	0.23	0.22	0.56	
Uniform Delay, d1	18.1	27.5		18.5	28.4	25.3		20.9	18.1	28.3	31.4	
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	0.8		0.5	2.3	0.1		3.4	0.9	1.9	4.8	
Delay (s)	18.7	28.3		19.1	30.7	25.4		24.4	19.0	30.2	36.2	
Level of Service	B	C		B	C	C		C	B	C	D	
Approach Delay (s)		26.7			24.9			21.5			35.1	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	32	13	18	23	8	46	12	511	27	60	387	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		0.96			0.92			0.99			0.99	
Flt Protected		0.98			0.99			1.00			0.99	
Satd. Flow (prot)		1695			1576			3392			3327	
Flt Permitted		0.82			0.90			0.67			0.78	
Satd. Flow (perm)		1433			1442			2268			2604	
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	14	20	25	9	50	13	555	29	65	421	29
RTOR Reduction (vph)	0	12	0	0	40	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	57	0	0	44	0	0	594	0	0	511	0
Confl. Peds. (#/hr)	15		4	4		5			5	5		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%	0%	2%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			42.0			34.0	
Effective Green, g (s)		24.0			24.0			42.0			34.0	
Actuated g/C Ratio		0.20			0.20			0.35			0.28	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		286			288			793			737	
v/s Ratio Prot												
v/s Ratio Perm		c0.04			0.03			c0.26			c0.20	
v/c Ratio		0.20			0.15			0.75			0.69	
Uniform Delay, d1		40.0			39.6			34.4			38.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			1.1			6.4			5.3	
Delay (s)		41.6			40.7			40.8			43.7	
Level of Service		D			D			D			D	
Approach Delay (s)		41.6			40.7			40.8			43.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2715
Vehs Exited	2699
Starting Vehs	95
Ending Vehs	111
Travel Distance (km)	3571
Travel Time (hr)	113.1
Total Delay (hr)	37.5
Total Stops	3239
Fuel Used (l)	304.0

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2715
Vehs Exited	2699
Starting Vehs	95
Ending Vehs	111
Travel Distance (km)	3571
Travel Time (hr)	113.1
Total Delay (hr)	37.5
Total Stops	3239
Fuel Used (l)	304.0

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	L	T	R	LT	R	L	T	TR
Maximum Queue (m)	29.5	35.1	60.6	36.0	56.1	113.2	77.3	122.8	98.1	47.0	54.7	43.2
Average Queue (m)	15.5	22.7	27.4	19.5	26.7	52.9	9.4	56.9	37.8	13.7	27.7	20.5
95th Queue (m)	26.7	35.6	48.0	31.5	42.8	91.6	40.1	110.9	74.3	29.8	47.9	40.4
Link Distance (m)		804.2	804.2		670.0	670.0		173.8	173.8		351.9	351.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0			70.0			70.0			40.0		
Storage Blk Time (%)		0				4	0				3	
Queuing Penalty (veh)		0				2	0				2	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

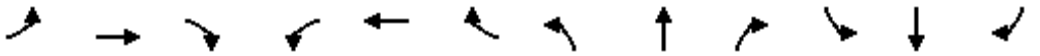
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	39.9	46.8	96.8	107.8	73.3	78.1
Average Queue (m)	17.8	20.8	63.4	66.8	49.4	55.8
95th Queue (m)	34.0	39.9	92.5	95.0	69.1	77.0
Link Distance (m)	717.4	725.4	416.9	416.9	162.0	162.0
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	LT	T
Maximum Queue (m)	29.7	16.6	15.0	60.2	41.0
Average Queue (m)	10.7	9.0	1.2	19.0	3.7
95th Queue (m)	22.4	13.8	6.5	41.8	19.1
Link Distance (m)	151.1	151.1	162.0	173.8	173.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

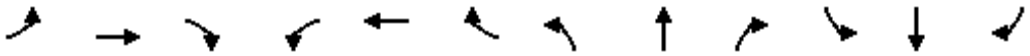
Network Summary

Network wide Queuing Penalty: 4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	346	160	691	533	142	142	410	670	63	322	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.95		1.00	1.00	0.85		1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1620	3136		3173	1685	1429		1768	1431	1641	3217	
Flt Permitted	0.14	1.00		0.23	1.00	1.00		0.60	1.00	0.31	1.00	
Satd. Flow (perm)	244	3136		763	1685	1429		1079	1431	543	3217	
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)	178	376	174	751	579	154	154	446	728	68	350	123
RTOR Reduction (vph)	0	45	0	0	0	78	0	0	233	0	29	0
Lane Group Flow (vph)	178	505	0	751	579	76	0	600	496	68	444	0
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	36.0	28.0		50.0	38.0	38.0		58.0	58.0	46.0	46.0	
Effective Green, g (s)	36.0	28.0		50.0	38.0	38.0		58.0	58.0	46.0	46.0	
Actuated g/C Ratio	0.30	0.23		0.42	0.32	0.32		0.48	0.48	0.38	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	164	731		679	533	452		567	691	208	1233	
v/s Ratio Prot	0.07	0.16		c0.17	0.34			c0.07			0.14	
v/s Ratio Perm	0.25			c0.29		0.05		c0.44	0.35	0.13		
v/c Ratio	1.09	0.69		1.11	1.09	0.17		1.06	0.72	0.33	0.36	
Uniform Delay, d1	38.0	42.0		28.8	41.0	29.6		31.0	24.5	26.1	26.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	94.9	5.3		67.3	64.5	0.8		54.1	6.3	4.1	0.8	
Delay (s)	132.9	47.3		96.1	105.5	30.4		85.1	30.8	30.2	27.3	
Level of Service	F	D		F	F	C		F	C	C	C	
Approach Delay (s)		68.3			92.9			55.3			27.7	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	22	22	59	37	60	27	1041	49	70	930	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.95			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1702			1646			3421			3346	
Flt Permitted		0.65			0.82			0.57			0.70	
Satd. Flow (perm)		1145			1379			1953			2336	
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)	55	24	24	64	40	65	29	1132	53	76	1011	63
RTOR Reduction (vph)	0	8	0	0	16	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	95	0	0	153	0	0	1212	0	0	1147	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			56.0			45.0	
Effective Green, g (s)		24.0			24.0			56.0			45.0	
Actuated g/C Ratio		0.17			0.17			0.39			0.31	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		189			228			754			724	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.11			c0.62			c0.49	
v/c Ratio		0.51			0.67			1.61			1.58	
Uniform Delay, d1		55.1			56.8			44.5			50.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		9.3			14.7			279.3			269.6	
Delay (s)		64.4			71.5			323.8			319.6	
Level of Service		E			E			F			F	
Approach Delay (s)		64.4			71.5			323.8			319.6	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	295.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4283
Vehs Exited	4273
Starting Vehs	257
Ending Vehs	267
Travel Distance (km)	5577
Travel Time (hr)	362.6
Total Delay (hr)	244.7
Total Stops	7117
Fuel Used (l)	640.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4283
Vehs Exited	4273
Starting Vehs	257
Ending Vehs	267
Travel Distance (km)	5577
Travel Time (hr)	362.6
Total Delay (hr)	244.7
Total Stops	7117
Fuel Used (l)	640.1

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	L	T	R	LT	R	L	T	TR
Maximum Queue (m)	47.5	104.2	106.6	77.4	407.7	420.9	77.5	176.6	142.6	28.4	59.7	63.4
Average Queue (m)	45.0	71.4	72.6	71.6	167.6	224.0	47.7	115.2	64.2	11.8	33.2	29.8
95th Queue (m)	53.7	106.3	102.8	86.8	349.3	392.3	101.2	173.5	117.5	24.6	51.5	54.8
Link Distance (m)		804.2	804.2		670.0	670.0		166.4	166.4		351.9	351.9
Upstream Blk Time (%)								4				
Queuing Penalty (veh)								23				
Storage Bay Dist (m)	40.0			70.0			70.0			40.0		
Storage Blk Time (%)	50	17		10	22	51	0				4	
Queuing Penalty (veh)	87	28		36	77	72	0				3	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

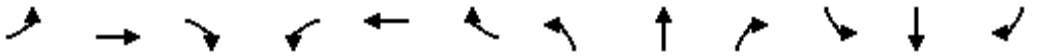
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	53.0	79.0	255.5	246.8	169.2	183.8
Average Queue (m)	19.7	36.6	155.4	159.7	113.0	121.0
95th Queue (m)	37.3	68.8	236.2	240.1	149.3	158.6
Link Distance (m)	717.4	725.4	416.9	416.9	169.5	169.5
Upstream Blk Time (%)					0	1
Queuing Penalty (veh)					0	5
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	254.1	246.8	54.0	64.0	91.0	98.7
Average Queue (m)	245.5	244.5	7.2	13.4	45.3	31.5
95th Queue (m)	250.5	249.7	31.8	41.6	71.9	72.3
Link Distance (m)	242.2	242.2	169.5	169.5	166.4	166.4
Upstream Blk Time (%)	99	93				
Queuing Penalty (veh)	0	0				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

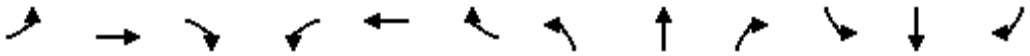
Network Summary

Network wide Queuing Penalty: 332



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	247	100	353	333	43	118	256	431	70	230	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98	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	0.99	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1619	3137		3171	1685	1429	1631	1818	1443	1638	3388	1473
Flt Permitted	0.39	1.00		0.45	1.00	1.00	0.52	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	657	3137		1515	1685	1429	888	1818	1443	1015	3388	1473
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)	89	268	109	384	362	47	128	278	468	76	250	82
RTOR Reduction (vph)	0	49	0	0	0	32	0	0	270	0	0	58
Lane Group Flow (vph)	89	328	0	384	362	15	128	278	198	76	250	24
Confl. Peds. (#/hr)	1		2	2		1			10	10		
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		2
Actuated Green, G (s)	34.0	26.0		38.0	28.0	28.0	38.0	38.0	38.0	26.0	26.0	26.0
Effective Green, g (s)	34.0	26.0		38.0	28.0	28.0	38.0	38.0	38.0	26.0	26.0	26.0
Actuated g/C Ratio	0.38	0.29		0.42	0.31	0.31	0.42	0.42	0.42	0.29	0.29	0.29
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	333	906		823	524	444	440	767	609	293	978	425
v/s Ratio Prot	0.02	0.10		c0.05	c0.21		0.03	c0.15			0.07	
v/s Ratio Perm	0.08			0.15		0.01	0.10		0.14	0.07		0.02
v/c Ratio	0.27	0.36		0.47	0.69	0.03	0.29	0.36	0.32	0.26	0.26	0.06
Uniform Delay, d1	18.8	25.4		17.2	27.2	21.6	16.4	17.7	17.4	24.6	24.6	23.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.1		1.9	7.3	0.1	1.7	1.3	1.4	2.1	0.6	0.2
Delay (s)	20.8	26.5		19.1	34.5	21.7	18.1	19.1	18.8	26.7	25.2	23.4
Level of Service	C	C		B	C	C	B	B	B	C	C	C
Approach Delay (s)		25.4			26.3			18.8			25.1	
Approach LOS		C			C			B			C	

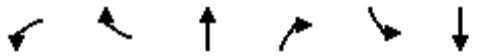
Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	16	22	28	10	55	15	722	33	72	531	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		0.96			0.92			0.99			0.99	
Flt Protected		0.98			0.99			1.00			0.99	
Satd. Flow (prot)		1700			1579			3396			3331	
Flt Permitted		0.83			0.91			0.93			0.76	
Satd. Flow (perm)		1447			1451			3175			2534	
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)	42	17	24	30	11	60	16	785	36	78	577	36
RTOR Reduction (vph)	0	17	0	0	41	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	66	0	0	60	0	0	833	0	0	687	0
Confl. Peds. (#/hr)	15		4	4		5			5	5		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%	0%	2%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		28.0			28.0			48.0			50.0	
Effective Green, g (s)		28.0			28.0			48.0			50.0	
Actuated g/C Ratio		0.31			0.31			0.53			0.56	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		450			451			1693			1407	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.26			c0.27	
v/c Ratio		0.15			0.13			0.49			0.49	
Uniform Delay, d1		22.4			22.3			13.3			12.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.6			1.0			1.2	
Delay (s)		23.1			22.9			14.3			13.4	
Level of Service		C			C			B			B	
Approach Delay (s)		23.1			22.9			14.3			13.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	66	67	711	109	109	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.98			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1711	1531	3353			3393
Flt Permitted	0.95	1.00	1.00			0.66
Satd. Flow (perm)	1711	1531	3353			2252
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	73	773	118	118	590
RTOR Reduction (vph)	0	59	10	0	0	0
Lane Group Flow (vph)	72	14	881	0	0	708
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	23.0	23.0	89.0			89.0
Effective Green, g (s)	23.0	23.0	89.0			89.0
Actuated g/C Ratio	0.19	0.19	0.74			0.74
Clearance Time (s)	4.0	4.0	4.0			4.0
Lane Grp Cap (vph)	327	293	2486			1670
v/s Ratio Prot	c0.04		0.26			
v/s Ratio Perm		0.01				c0.31
v/c Ratio	0.22	0.05	0.35			0.42
Uniform Delay, d1	40.9	39.6	5.4			5.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.5	0.3	0.4			0.8
Delay (s)	42.5	39.9	5.8			6.6
Level of Service	D	D	A			A
Approach Delay (s)	41.2		5.8			6.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2692
Vehs Exited	2696
Starting Vehs	114
Ending Vehs	110
Travel Distance (km)	3564
Travel Time (hr)	103.0
Total Delay (hr)	27.7
Total Stops	3251
Fuel Used (l)	292.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2692
Vehs Exited	2696
Starting Vehs	114
Ending Vehs	110
Travel Distance (km)	3564
Travel Time (hr)	103.0
Total Delay (hr)	27.7
Total Stops	3251
Fuel Used (l)	292.9

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	L	T	R	L	T	R	L	T
Maximum Queue (m)	32.4	38.4	43.8	43.0	47.8	86.4	77.5	47.4	77.2	96.8	34.8	41.3
Average Queue (m)	12.1	20.9	25.5	22.1	27.3	50.4	6.5	26.1	40.5	44.2	12.6	23.0
95th Queue (m)	25.8	34.4	40.5	35.6	40.9	83.2	29.3	50.8	69.1	72.2	23.2	38.8
Link Distance (m)		800.7	800.7		669.8	669.8			173.8	173.8		351.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0			70.0			70.0	40.0			40.0	
Storage Blk Time (%)		0				2	0	2	10		0	0
Queuing Penalty (veh)		0				1	0	4	11		0	0

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	39.0	20.7
Average Queue (m)	11.9	8.5
95th Queue (m)	25.2	16.3
Link Distance (m)	351.9	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		40.0
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

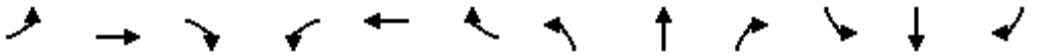
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	40.1	28.6	71.5	69.8	63.8	54.7
Average Queue (m)	13.8	14.0	34.0	38.3	31.6	34.0
95th Queue (m)	28.5	25.7	59.4	60.6	50.0	48.3
Link Distance (m)	717.4	725.5	423.9	423.9	169.0	169.0
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	34.5	20.5	53.8	65.8	48.1	46.0
Average Queue (m)	13.9	8.7	23.9	31.1	26.9	24.1
95th Queue (m)	30.0	15.7	50.3	60.7	44.5	46.0
Link Distance (m)	149.5	149.5	169.0	169.0	173.8	173.8
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

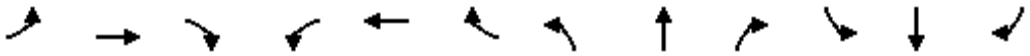
Network Summary

Network wide Queuing Penalty: 17



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	346	160	691	533	142	142	410	670	63	322	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1620	3136		3173	1685	1428	1629	1818	1426	1634	3388	1447
Flt Permitted	0.25	1.00		0.29	1.00	1.00	0.44	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	418	3136		965	1685	1428	750	1818	1426	720	3388	1447
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)	178	376	174	751	579	154	154	446	728	68	350	123
RTOR Reduction (vph)	0	39	0	0	0	66	0	0	295	0	0	85
Lane Group Flow (vph)	178	511	0	751	579	88	154	446	433	68	350	38
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		2
Actuated Green, G (s)	53.0	43.0		71.0	57.0	57.0	57.0	57.0	57.0	43.0	43.0	43.0
Effective Green, g (s)	53.0	43.0		71.0	57.0	57.0	57.0	57.0	57.0	43.0	43.0	43.0
Actuated g/C Ratio	0.38	0.31		0.51	0.41	0.41	0.41	0.41	0.41	0.31	0.31	0.31
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	244	963		867	686	581	368	740	580	221	1040	444
v/s Ratio Prot	0.05	0.16		c0.15	0.34		0.03	0.25			0.10	
v/s Ratio Perm	0.22			c0.29		0.06	0.14		c0.30	0.09		0.03
v/c Ratio	0.73	0.53		0.87	0.84	0.15	0.42	0.60	0.75	0.31	0.34	0.09
Uniform Delay, d1	33.2	40.1		24.3	37.5	26.2	27.5	32.6	35.4	37.1	37.5	34.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	2.1		11.3	12.1	0.5	3.5	3.6	8.5	3.6	0.9	0.4
Delay (s)	50.6	42.2		35.6	49.6	26.8	31.0	36.2	43.9	40.7	38.4	34.9
Level of Service	D	D		D	D	C	C	D	D	D	D	C
Approach Delay (s)		44.3			40.1			39.8			37.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	22	22	59	37	60	27	1041	49	70	930	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.95			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1705			1650			3422			3347	
Flt Permitted		0.77			0.85			0.89			0.69	
Satd. Flow (perm)		1344			1435			3039			2325	
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)	55	24	24	64	40	65	29	1132	53	76	1011	63
RTOR Reduction (vph)	0	9	0	0	19	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	94	0	0	150	0	0	1211	0	0	1146	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		32.0			32.0			74.0			76.0	
Effective Green, g (s)		32.0			32.0			74.0			76.0	
Actuated g/C Ratio		0.27			0.27			0.62			0.63	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		358			382			1874			1472	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.10			0.40			c0.49	
v/c Ratio		0.26			0.39			0.65			0.78	
Uniform Delay, d1		34.7			36.0			14.7			15.9	
Progression Factor		1.00			1.00			1.00			0.80	
Incremental Delay, d2		1.8			3.0			1.7			2.0	
Delay (s)		36.5			39.0			16.4			14.7	
Level of Service		D			D			B			B	
Approach Delay (s)		36.5			39.0			16.4			14.7	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	195	196	975	203	203	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1711	1531	3333			3391
Flt Permitted	0.95	1.00	1.00			0.54
Satd. Flow (perm)	1711	1531	3333			1833
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	213	1060	221	221	999
RTOR Reduction (vph)	0	138	15	0	0	0
Lane Group Flow (vph)	212	75	1266	0	0	1220
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	21.0	21.0	89.0			89.0
Effective Green, g (s)	21.0	21.0	89.0			89.0
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	299	267	2471			1359
v/s Ratio Prot	c0.12		0.38			
v/s Ratio Perm		0.05				c0.67
v/c Ratio	0.71	0.28	0.51			0.90
Uniform Delay, d1	46.6	43.0	6.5			12.0
Progression Factor	1.00	1.00	0.23			1.00
Incremental Delay, d2	13.3	2.6	0.6			9.6
Delay (s)	59.9	45.6	2.1			21.6
Level of Service	E	D	A			C
Approach Delay (s)	52.7		2.1			21.6
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4322
Vehs Exited	4294
Starting Vehs	202
Ending Vehs	230
Travel Distance (km)	5548
Travel Time (hr)	198.0
Total Delay (hr)	80.3
Total Stops	5535
Fuel Used (l)	492.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4322
Vehs Exited	4294
Starting Vehs	202
Ending Vehs	230
Travel Distance (km)	5548
Travel Time (hr)	198.0
Total Delay (hr)	80.3
Total Stops	5535
Fuel Used (l)	492.6

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	L	T	R	L	T	R	L	T
Maximum Queue (m)	47.4	85.5	110.4	77.3	243.3	179.1	77.5	47.4	167.9	177.3	47.4	81.7
Average Queue (m)	38.0	52.6	58.8	52.8	72.1	100.9	39.8	25.5	83.6	81.1	21.2	42.9
95th Queue (m)	59.7	81.7	90.7	83.5	156.1	157.4	94.2	48.9	154.9	159.3	46.6	69.6
Link Distance (m)		800.7	800.7		669.8	669.8			166.5	166.5		351.9
Upstream Blk Time (%)									1	1		
Queuing Penalty (veh)									8	4		
Storage Bay Dist (m)	40.0			70.0			70.0	40.0			40.0	
Storage Blk Time (%)	16	14		6	13	17	0	0	28			16
Queuing Penalty (veh)	28	23		22	43	25	0	1	39			10

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (m)	96.0	47.4
Average Queue (m)	31.6	15.3
95th Queue (m)	68.0	33.0
Link Distance (m)	351.9	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		40.0
Storage Blk Time (%)	6	0
Queuing Penalty (veh)	7	0

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	41.2	52.2	174.2	181.7	86.2	94.3
Average Queue (m)	17.2	23.9	60.2	61.9	42.6	45.2
95th Queue (m)	31.4	40.4	115.3	119.4	71.9	72.4
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	92.6	48.9	65.6	104.9	172.2	184.6
Average Queue (m)	49.3	22.0	16.6	23.6	95.7	88.9
95th Queue (m)	79.5	41.9	44.0	60.7	164.5	164.0
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)					6	1
Queuing Penalty (veh)					36	7
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 254

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	1764
Vehs Exited	1753
Starting Vehs	68
Ending Vehs	79
Travel Distance (km)	2435
Travel Time (hr)	73.7
Total Delay (hr)	22.4
Total Stops	1969
Fuel Used (l)	201.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	1764
Vehs Exited	1753
Starting Vehs	68
Ending Vehs	79
Travel Distance (km)	2435
Travel Time (hr)	73.7
Total Delay (hr)	22.4
Total Stops	1969
Fuel Used (l)	201.5

Intersection: 3: Sidney St & Bell Blvd

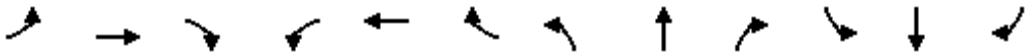
Movement	EB	EB	EB	B9	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	T	L	L	T	R	LT	R	L	TR
Maximum Queue (m)	27.3	39.4	40.1	8.5	15.5	26.3	81.6	77.5	86.9	61.2	47.4	77.0
Average Queue (m)	11.6	19.7	23.8	0.5	6.0	14.9	30.9	6.0	41.7	22.8	12.5	37.9
95th Queue (m)	26.7	34.2	37.2	3.8	15.8	24.5	59.4	28.8	77.3	48.9	32.8	67.2
Link Distance (m)		27.4	27.4	751.6		670.3	670.3		355.4	355.4		351.9
Upstream Blk Time (%)	0	3	6									
Queuing Penalty (veh)	0	0	0									
Storage Bay Dist (m)	40.0				70.0			70.0			40.0	
Storage Blk Time (%)	0	3					1	0				7
Queuing Penalty (veh)	0	2					0	0				4

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	40.8	28.1	65.4	60.3	75.3	72.2
Average Queue (m)	13.2	12.4	36.6	39.7	38.5	41.7
95th Queue (m)	30.6	25.0	56.2	62.2	61.7	62.3
Link Distance (m)	717.3	725.4	416.9	416.9	355.4	355.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	264	139	329	300	79	94	291	395	50	261	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.95		1.00	1.00	0.85		1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1619	3122		3173	1685	1414		1770	1426	1631	1730	
Flt Permitted	0.37	1.00		0.37	1.00	1.00		0.66	1.00	0.50	1.00	
Satd. Flow (perm)	632	3122		1239	1685	1414		1183	1426	851	1730	
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)	129	287	151	358	326	86	102	316	429	54	284	48
RTOR Reduction (vph)	0	49	0	0	0	60	0	0	208	0	5	0
Lane Group Flow (vph)	129	389	0	358	326	26	0	418	221	54	327	0
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	50.0	40.0		54.0	42.0	42.0		72.0	72.0	60.0	60.0	
Effective Green, g (s)	50.0	40.0		54.0	42.0	42.0		72.0	72.0	60.0	60.0	
Actuated g/C Ratio	0.36	0.29		0.39	0.30	0.30		0.51	0.51	0.43	0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	296	892		643	505	424		641	733	364	741	
v/s Ratio Prot	0.03	0.12		c0.05	c0.19			c0.04			0.19	
v/s Ratio Perm	0.12			0.17		0.02		c0.30	0.15	0.06		
v/c Ratio	0.44	0.44		0.56	0.65	0.06		0.65	0.30	0.15	0.44	
Uniform Delay, d1	32.2	40.8		30.3	42.5	34.9		24.8	19.5	24.4	28.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	1.6		3.5	6.2	0.3		5.1	1.1	0.9	1.9	
Delay (s)	36.8	42.4		33.7	48.8	35.2		29.9	20.6	25.3	30.1	
Level of Service	D	D		C	D	D		C	C	C	C	
Approach Delay (s)		41.1			40.3			25.2			29.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	18	18	49	31	50	22	698	41	58	612	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.95			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1705			1650			3414			3336	
Flt Permitted		0.76			0.86			0.60			0.78	
Satd. Flow (perm)		1336			1448			2036			2606	
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)	46	20	20	53	34	54	24	759	45	63	665	52
RTOR Reduction (vph)	0	9	0	0	18	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	77	0	0	123	0	0	825	0	0	776	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			42.0			34.0	
Effective Green, g (s)		24.0			24.0			42.0			34.0	
Actuated g/C Ratio		0.20			0.20			0.35			0.28	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		267			289			712			738	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.08			c0.41			c0.30	
v/c Ratio		0.29			0.42			1.16			1.05	
Uniform Delay, d1		40.8			42.0			39.0			43.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.7			4.5			86.5			47.4	
Delay (s)		43.5			46.5			125.5			90.4	
Level of Service		D			D			F			F	
Approach Delay (s)		43.5			46.5			125.5			90.4	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	100.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2655
Vehs Exited	2625
Starting Vehs	101
Ending Vehs	131
Travel Distance (km)	3668
Travel Time (hr)	121.6
Total Delay (hr)	44.7
Total Stops	3206
Fuel Used (l)	311.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2655
Vehs Exited	2625
Starting Vehs	101
Ending Vehs	131
Travel Distance (km)	3668
Travel Time (hr)	121.6
Total Delay (hr)	44.7
Total Stops	3206
Fuel Used (l)	311.5

Intersection: 3: Sidney St & Bell Blvd

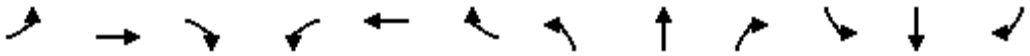
Movement	EB	EB	EB	B9	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	T	L	L	T	R	LT	R	L	TR
Maximum Queue (m)	30.2	51.7	51.4	119.7	53.1	64.1	110.4	77.4	111.5	112.2	47.3	79.9
Average Queue (m)	19.7	36.7	38.7	25.3	24.0	33.3	56.7	12.7	67.3	40.5	12.8	48.0
95th Queue (m)	32.8	55.3	53.2	76.9	42.1	51.3	93.9	41.3	110.4	91.3	34.6	73.9
Link Distance (m)		30.3	30.3	757.2		670.3	670.3		355.4	355.4		351.9
Upstream Blk Time (%)	5	21	19									
Queuing Penalty (veh)	0	0	0									
Storage Bay Dist (m)	40.0				70.0			70.0			40.0	
Storage Blk Time (%)	5	21				0	6	0			0	14
Queuing Penalty (veh)	6	25				0	5	0			0	7

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	37.2	41.8	89.6	94.6	111.2	129.4
Average Queue (m)	13.9	21.4	57.0	62.9	62.4	68.1
95th Queue (m)	28.4	37.3	75.0	83.4	94.3	104.8
Link Distance (m)	717.3	725.4	416.9	416.9	355.4	355.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

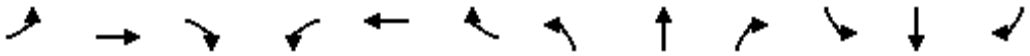
Network Summary

Network wide Queuing Penalty: 43



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	247	100	244	333	43	118	256	364	70	230	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.96		1.00	1.00	0.85		1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1619	3137		3171	1685	1429		1757	1443	1641	3239	
Flt Permitted	0.39	1.00		0.45	1.00	1.00		0.65	1.00	0.52	1.00	
Satd. Flow (perm)	657	3137		1515	1685	1429		1164	1443	904	3239	
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)	89	268	109	265	362	47	128	278	396	76	250	82
RTOR Reduction (vph)	0	49	0	0	0	32	0	0	229	0	36	0
Lane Group Flow (vph)	89	328	0	265	362	15	0	406	167	76	296	0
Confl. Peds. (#/hr)	1		2	2		1			10	10		
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	34.0	26.0		38.0	28.0	28.0		38.0	38.0	26.0	26.0	
Effective Green, g (s)	34.0	26.0		38.0	28.0	28.0		38.0	38.0	26.0	26.0	
Actuated g/C Ratio	0.38	0.29		0.42	0.31	0.31		0.42	0.42	0.29	0.29	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	333	906		823	524	444		544	609	261	935	
v/s Ratio Prot	0.02	0.10		c0.04	c0.21			c0.07			0.09	
v/s Ratio Perm	0.08			0.10		0.01		c0.25	0.12	0.08		
v/c Ratio	0.27	0.36		0.32	0.69	0.03		0.75	0.27	0.29	0.32	
Uniform Delay, d1	18.8	25.4		16.5	27.2	21.6		21.9	17.0	24.8	25.0	
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	1.1		1.0	7.3	0.1		9.0	1.1	2.8	0.9	
Delay (s)	20.8	26.5		17.5	34.5	21.7		31.0	18.1	27.7	25.9	
Level of Service	C	C		B	C	C		C	B	C	C	
Approach Delay (s)		25.4			26.9			24.6			26.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	16	22	28	10	55	15	613	33	72	465	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		0.96			0.92			0.99			0.99	
Flt Protected		0.98			0.99			1.00			0.99	
Satd. Flow (prot)		1696			1577			3391			3327	
Flt Permitted		0.83			0.89			0.65			0.74	
Satd. Flow (perm)		1442			1428			2196			2467	
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)	42	17	24	30	11	60	16	666	36	78	505	36
RTOR Reduction (vph)	0	12	0	0	44	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	71	0	0	57	0	0	715	0	0	615	0
Confl. Peds. (#/hr)	15		4	4		5			5	5		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%	0%	2%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			43.0			33.0	
Effective Green, g (s)		24.0			24.0			43.0			33.0	
Actuated g/C Ratio		0.20			0.20			0.36			0.28	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		288			285			786			678	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			c0.33			c0.25	
v/c Ratio		0.25			0.20			0.91			0.91	
Uniform Delay, d1		40.4			40.0			36.6			42.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			1.6			16.4			18.2	
Delay (s)		42.4			41.6			53.0			60.2	
Level of Service		D			D			D			E	
Approach Delay (s)		42.4			41.6			53.0			60.2	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	2538
Vehs Exited	2511
Starting Vehs	77
Ending Vehs	104
Travel Distance (km)	3241
Travel Time (hr)	99.9
Total Delay (hr)	31.1
Total Stops	2828
Fuel Used (l)	274.8

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	2538
Vehs Exited	2511
Starting Vehs	77
Ending Vehs	104
Travel Distance (km)	3241
Travel Time (hr)	99.9
Total Delay (hr)	31.1
Total Stops	2828
Fuel Used (l)	274.8

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	L	T	R	LT	R	L	T	TR
Maximum Queue (m)	28.6	51.1	55.7	27.6	28.8	117.6	77.4	126.6	75.1	47.1	64.6	56.7
Average Queue (m)	14.8	19.3	23.7	14.7	17.5	52.8	12.5	61.6	27.8	13.9	29.0	21.1
95th Queue (m)	26.4	35.9	43.1	24.8	27.3	88.4	43.1	110.2	55.9	30.7	47.5	42.6
Link Distance (m)		804.2	804.2		670.0	670.0		173.8	173.8		351.9	351.9
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0			70.0			70.0			40.0		
Storage Blk Time (%)		0				4	0				2	
Queuing Penalty (veh)		0				2	0				2	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

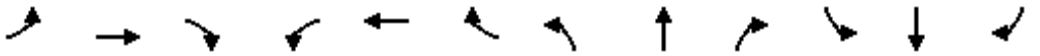
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	39.0	40.9	98.8	98.6	92.3	95.2
Average Queue (m)	15.1	21.8	46.7	49.4	46.0	48.4
95th Queue (m)	29.8	39.4	76.1	79.5	71.7	72.2
Link Distance (m)	717.4	725.4	416.9	416.9	162.0	162.0
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB
Directions Served	L	R	T	TR	LT
Maximum Queue (m)	28.1	22.3	22.5	18.3	28.6
Average Queue (m)	12.7	9.9	0.7	0.6	14.8
95th Queue (m)	24.4	17.1	7.4	6.0	25.6
Link Distance (m)	151.1	151.1	162.0	162.0	173.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

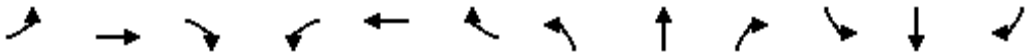
Network Summary

Network wide Queuing Penalty: 3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	346	160	488	533	142	142	410	474	63	322	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.95		1.00	1.00	0.85		1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1620	3136		3173	1685	1428		1768	1426	1641	3217	
Flt Permitted	0.11	1.00		0.24	1.00	1.00		0.61	1.00	0.30	1.00	
Satd. Flow (perm)	195	3136		798	1685	1428		1095	1426	524	3217	
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)	178	376	174	530	579	154	154	446	515	68	350	123
RTOR Reduction (vph)	0	39	0	0	0	66	0	0	226	0	25	0
Lane Group Flow (vph)	178	511	0	530	579	88	0	600	289	68	448	0
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	44.0	35.0		59.0	46.0	46.0		69.0	69.0	57.0	57.0	
Effective Green, g (s)	44.0	35.0		59.0	46.0	46.0		69.0	69.0	57.0	57.0	
Actuated g/C Ratio	0.31	0.25		0.42	0.33	0.33		0.49	0.49	0.41	0.41	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	152	784		675	553	469		578	702	213	1309	
v/s Ratio Prot	c0.07	0.16		0.11	c0.34			c0.06			0.14	
v/s Ratio Perm	c0.29			0.22		0.06		c0.45	0.20	0.13		
v/c Ratio	1.17	0.65		0.79	1.05	0.19		1.04	0.41	0.32	0.34	
Uniform Delay, d1	41.7	47.0		30.0	47.0	33.6		35.5	22.6	28.3	28.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	126.4	4.2		8.9	51.1	0.9		47.7	1.8	3.9	0.7	
Delay (s)	168.1	51.2		38.9	98.1	34.5		83.2	24.4	32.2	29.3	
Level of Service	F	D		D	F	C		F	C	C	C	
Approach Delay (s)		79.8			65.5			56.0			29.7	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	22	22	59	37	60	27	838	49	70	735	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.95			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1702			1646			3413			3335	
Flt Permitted		0.65			0.82			0.57			0.72	
Satd. Flow (perm)		1145			1379			1949			2413	
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)	55	24	24	64	40	65	29	911	53	76	799	63
RTOR Reduction (vph)	0	8	0	0	16	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	95	0	0	153	0	0	990	0	0	935	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			56.0			45.0	
Effective Green, g (s)		24.0			24.0			56.0			45.0	
Actuated g/C Ratio		0.17			0.17			0.39			0.31	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		189			228			752			748	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.11			c0.51			c0.39	
v/c Ratio		0.51			0.67			1.32			1.25	
Uniform Delay, d1		55.1			56.8			44.5			50.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		9.3			14.7			151.7			123.2	
Delay (s)		64.4			71.5			196.2			173.2	
Level of Service		E			E			F			F	
Approach Delay (s)		64.4			71.5			196.2			173.2	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	170.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	3974
Vehs Exited	3934
Starting Vehs	201
Ending Vehs	241
Travel Distance (km)	5062
Travel Time (hr)	284.3
Total Delay (hr)	176.8
Total Stops	6841
Fuel Used (l)	540.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	3974
Vehs Exited	3934
Starting Vehs	201
Ending Vehs	241
Travel Distance (km)	5062
Travel Time (hr)	284.3
Total Delay (hr)	176.8
Total Stops	6841
Fuel Used (l)	540.9

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	L	T	R	LT	R	L	T	TR
Maximum Queue (m)	47.4	129.1	135.5	77.4	464.0	491.1	77.5	178.8	179.1	47.3	60.8	55.9
Average Queue (m)	44.7	78.1	75.7	59.6	317.7	419.5	47.6	126.8	69.9	13.9	35.7	31.8
95th Queue (m)	54.3	129.5	126.1	86.7	483.6	495.7	100.8	211.7	153.9	34.5	54.1	50.4
Link Distance (m)		804.2	804.2		670.0	670.0		166.4	166.4		351.9	351.9
Upstream Blk Time (%)								11	1			
Queuing Penalty (veh)								56	5			
Storage Bay Dist (m)	40.0			70.0			70.0			40.0		
Storage Blk Time (%)	61	7		5	12	61	0				6	
Queuing Penalty (veh)	106	12		12	30	87	0				4	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

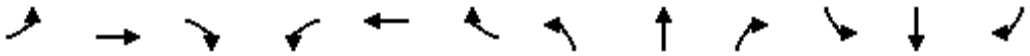
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	40.9	65.4	127.4	132.2	122.5	134.6
Average Queue (m)	21.7	34.4	86.6	90.0	88.6	96.6
95th Queue (m)	38.0	55.0	118.7	125.0	119.6	133.5
Link Distance (m)	717.4	725.4	416.9	416.9	169.5	169.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	246.8	246.8	127.2	136.3	114.9	115.7
Average Queue (m)	165.5	122.2	22.4	28.1	42.8	21.5
95th Queue (m)	291.0	296.4	85.7	101.0	75.0	67.6
Link Distance (m)	242.2	242.2	169.5	169.5	166.4	166.4
Upstream Blk Time (%)	41	38				
Queuing Penalty (veh)	0	0				
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

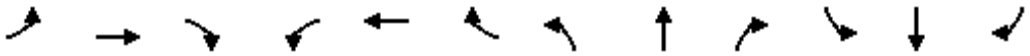
Network Summary

Network wide Queuing Penalty: 312



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	247	100	353	333	43	118	256	431	70	230	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95		0.97	1.00	1.00		1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99		1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	0.99	1.00	
Frt	1.00	0.96		1.00	1.00	0.85		1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1619	3137		3171	1685	1429		1757	1443	1641	3239	
Flt Permitted	0.39	1.00		0.45	1.00	1.00		0.65	1.00	0.52	1.00	
Satd. Flow (perm)	657	3137		1515	1685	1429		1164	1443	904	3239	
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)	89	268	109	384	362	47	128	278	468	76	250	82
RTOR Reduction (vph)	0	49	0	0	0	32	0	0	270	0	36	0
Lane Group Flow (vph)	89	328	0	384	362	15	0	406	198	76	296	0
Confl. Peds. (#/hr)	1		2	2		1			10	10		
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8		8	6		6	2		
Actuated Green, G (s)	34.0	26.0		38.0	28.0	28.0		38.0	38.0	26.0	26.0	
Effective Green, g (s)	34.0	26.0		38.0	28.0	28.0		38.0	38.0	26.0	26.0	
Actuated g/C Ratio	0.38	0.29		0.42	0.31	0.31		0.42	0.42	0.29	0.29	
Clearance Time (s)	4.0	6.0		4.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	333	906		823	524	444		544	609	261	935	
v/s Ratio Prot	0.02	0.10		c0.05	c0.21			c0.07			0.09	
v/s Ratio Perm	0.08			0.15		0.01		c0.25	0.14	0.08		
v/c Ratio	0.27	0.36		0.47	0.69	0.03		0.75	0.32	0.29	0.32	
Uniform Delay, d1	18.8	25.4		17.2	27.2	21.6		21.9	17.4	24.8	25.0	
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	1.1		1.9	7.3	0.1		9.0	1.4	2.8	0.9	
Delay (s)	20.8	26.5		19.1	34.5	21.7		31.0	18.8	27.7	25.9	
Level of Service	C	C		B	C	C		C	B	C	C	
Approach Delay (s)		25.4			26.3			24.5			26.3	
Approach LOS		C			C			C			C	

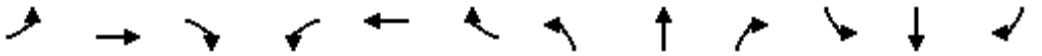
Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	16	22	28	10	55	15	722	33	72	531	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			1.00			1.00			1.00	
Frt		0.96			0.92			0.99			0.99	
Flt Protected		0.98			0.99			1.00			0.99	
Satd. Flow (prot)		1696			1577			3395			3330	
Flt Permitted		0.83			0.89			0.65			0.72	
Satd. Flow (perm)		1442			1428			2199			2416	
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)	42	17	24	30	11	60	16	785	36	78	577	36
RTOR Reduction (vph)	0	12	0	0	44	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	71	0	0	57	0	0	834	0	0	687	0
Confl. Peds. (#/hr)	15		4	4		5			5	5		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	7%	0%	2%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			1			2	
Permitted Phases	8			4			1			2		
Actuated Green, G (s)		24.0			24.0			43.0			33.0	
Effective Green, g (s)		24.0			24.0			43.0			33.0	
Actuated g/C Ratio		0.20			0.20			0.36			0.28	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		288			285			787			664	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			c0.38			c0.28	
v/c Ratio		0.25			0.20			1.06			1.04	
Uniform Delay, d1		40.4			40.0			38.5			43.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			1.6			49.3			44.3	
Delay (s)		42.4			41.6			87.8			87.8	
Level of Service		D			D			F			F	
Approach Delay (s)		42.4			41.6			87.8			87.8	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	82.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	407	97	699	694	286	120	364	861	108	289	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3197		3173	3089		1629	1818	1444	1632	3388	1447
Flt Permitted	0.21	1.00		0.26	1.00		0.47	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	681	3197		853	3089		813	1818	1444	798	3388	1447
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)	184	442	105	760	754	311	130	396	936	117	314	187
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	45	0	0	127
Lane Group Flow (vph)	184	532	0	760	1033	0	130	396	891	117	314	60
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6	3		2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Effective Green, g (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Actuated g/C Ratio	0.32	0.26		0.51	0.42		0.41	0.41	0.62	0.32	0.32	0.32
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Grp Cap (vph)	359	844		929	1301		377	740	897	256	1089	465
v/s Ratio Prot	0.03	0.17		0.18	0.33		0.02	0.22	c0.21		0.09	
v/s Ratio Perm	0.14			c0.24			0.12		0.40	0.15		0.04
v/c Ratio	0.51	0.63		0.82	0.79		0.34	0.54	0.99	0.46	0.29	0.13
Uniform Delay, d1	34.6	45.5		24.6	35.2		27.0	31.5	26.2	37.8	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	3.6		7.9	5.1		2.5	2.8	28.5	5.8	0.7	0.6
Delay (s)	39.7	49.0		32.6	40.3		29.5	34.2	54.7	43.6	36.2	34.2
Level of Service	D	D		C	D		C	C	D	D	D	C
Approach Delay (s)		46.7			37.1			46.9			37.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	17	5	59	31	96	18	1066	28	59	942	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.93			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1739			1610			3436			3359	
Flt Permitted		0.70			0.88			0.92			0.73	
Satd. Flow (perm)		1261			1431			3149			2456	
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)	53	18	5	64	34	104	20	1159	30	64	1024	39
RTOR Reduction (vph)	0	2	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	170	0	0	1207	0	0	1125	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		34.0			34.0			72.0			74.0	
Effective Green, g (s)		34.0			34.0			72.0			74.0	
Actuated g/C Ratio		0.28			0.28			0.60			0.62	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		357			405			1889			1514	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.12			0.38			c0.46	
v/c Ratio		0.21			0.42			0.64			0.74	
Uniform Delay, d1		32.7			35.0			15.6			16.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			3.2			1.7			3.3	
Delay (s)		34.0			38.2			17.2			19.6	
Level of Service		C			D			B			B	
Approach Delay (s)		34.0			38.2			17.2			19.6	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	195	196	975	203	203	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1711	1531	3333			3391
Flt Permitted	0.95	1.00	1.00			0.50
Satd. Flow (perm)	1711	1531	3333			1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	213	1060	221	221	999
RTOR Reduction (vph)	0	178	14	0	0	0
Lane Group Flow (vph)	212	35	1267	0	0	1220
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	21.0	21.0	71.0			97.0
Effective Green, g (s)	21.0	21.0	71.0			97.0
Actuated g/C Ratio	0.16	0.16	0.55			0.76
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	280	251	1848			1585
v/s Ratio Prot	c0.12		0.38			c0.13
v/s Ratio Perm		0.02				c0.45
v/c Ratio	0.76	0.14	0.69			0.77
Uniform Delay, d1	51.1	45.8	20.5			9.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	17.3	1.2	2.1			3.7
Delay (s)	68.4	46.9	22.6			12.7
Level of Service	E	D	C			B
Approach Delay (s)	57.6		22.6			12.7
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4928
Vehs Exited	4929
Starting Vehs	236
Ending Vehs	235
Travel Distance (km)	6259
Travel Time (hr)	222.4
Total Delay (hr)	89.1
Total Stops	6580
Fuel Used (l)	555.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4928
Vehs Exited	4929
Starting Vehs	236
Ending Vehs	235
Travel Distance (km)	6259
Travel Time (hr)	222.4
Total Delay (hr)	89.1
Total Stops	6580
Fuel Used (l)	555.7

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	42.3	44.7	80.3	82.8	79.4	119.7	136.2	162.1	47.4	167.5	163.2	47.4
Average Queue (m)	13.2	18.4	48.2	55.2	59.1	64.8	82.2	96.9	32.5	76.6	77.4	30.9
95th Queue (m)	27.8	31.8	69.4	78.0	77.2	94.4	123.2	137.9	57.2	143.4	147.0	51.5
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										1	0	
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)	0	0	19		2	4	8		4	29		10
Queuing Penalty (veh)	0	0	32		6	13	56		16	35		14

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	89.6	77.7	47.5
Average Queue (m)	36.2	20.4	15.8
95th Queue (m)	64.0	48.5	30.6
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	4	0	0
Queuing Penalty (veh)	4	1	0

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

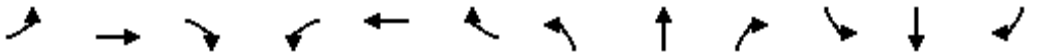
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	34.9	91.6	209.0	207.0	160.1	158.2
Average Queue (m)	14.8	38.0	67.7	76.8	55.6	58.1
95th Queue (m)	28.2	69.9	137.4	142.9	107.2	104.4
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	79.0	61.1	182.5	181.6	102.4	116.4
Average Queue (m)	46.2	26.6	102.3	120.1	66.8	56.0
95th Queue (m)	72.1	46.1	159.6	174.8	103.2	103.0
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)			1	1		
Queuing Penalty (veh)			5	7		
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

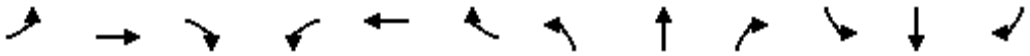
Network Summary

Network wide Queuing Penalty: 191



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	397	169	607	640	256	125	387	579	78	307	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3145		3173	3093		1629	1818	1450	1637	3388	1449
Flt Permitted	0.23	1.00		0.25	1.00		0.42	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	762	3145		848	3093		723	1818	1450	818	3388	1449
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)	182	432	184	660	696	278	136	421	629	85	334	136
RTOR Reduction (vph)	0	48	0	0	42	0	0	0	76	0	0	105
Lane Group Flow (vph)	182	568	0	660	932	0	136	421	553	85	334	31
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6	3		2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	38.0	30.0		53.0	41.0		35.0	35.0	54.0	23.0	23.0	23.0
Effective Green, g (s)	38.0	30.0		53.0	41.0		35.0	35.0	54.0	23.0	23.0	23.0
Actuated g/C Ratio	0.38	0.30		0.53	0.41		0.35	0.35	0.54	0.23	0.23	0.23
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Grp Cap (vph)	479	943		891	1268		325	636	783	188	779	333
v/s Ratio Prot	0.03	0.18		c0.14	0.30		0.03	0.23	c0.13		0.10	
v/s Ratio Perm	0.11			c0.25			0.11		0.25	0.10		0.02
v/c Ratio	0.38	0.60		0.74	0.73		0.42	0.66	0.71	0.45	0.43	0.09
Uniform Delay, d1	20.7	29.9		15.6	24.9		23.3	27.5	17.1	33.1	32.9	30.3
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	2.3	2.9		5.5	3.8		3.9	5.4	5.3	7.7	1.7	0.6
Delay (s)	22.9	32.8		21.2	28.7		27.2	32.8	22.4	40.7	34.6	30.9
Level of Service	C	C		C	C		C	C	C	D	C	C
Approach Delay (s)		30.5			25.7			26.7			34.6	
Approach LOS		C			C			C			C	

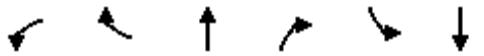
Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	26	23	71	37	64	37	989	67	92	979	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.97			0.95			0.99			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1713			1654			3410			3347	
Flt Permitted		0.74			0.83			0.85			0.66	
Satd. Flow (perm)		1297			1395			2894			2228	
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)	60	28	25	77	40	70	40	1075	73	100	1064	61
RTOR Reduction (vph)	0	10	0	0	21	0	0	5	0	0	4	0
Lane Group Flow (vph)	0	103	0	0	166	0	0	1183	0	0	1221	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		24.0			24.0			62.0			64.0	
Effective Green, g (s)		24.0			24.0			62.0			64.0	
Actuated g/C Ratio		0.24			0.24			0.62			0.64	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		311			334			1794			1425	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.12			0.41			c0.55	
v/c Ratio		0.33			0.50			0.66			0.86	
Uniform Delay, d1		31.4			32.8			12.2			14.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.8			5.2			1.9			6.8	
Delay (s)		34.2			38.0			14.1			21.2	
Level of Service		C			D			B			C	
Approach Delay (s)		34.2			38.0			14.1			21.2	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	195	196	975	203	203	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1711	1531	3333			3391
Flt Permitted	0.95	1.00	1.00			0.50
Satd. Flow (perm)	1711	1531	3333			1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	213	1060	221	221	999
RTOR Reduction (vph)	0	178	14	0	0	0
Lane Group Flow (vph)	212	35	1267	0	0	1220
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	21.0	21.0	71.0			97.0
Effective Green, g (s)	21.0	21.0	71.0			97.0
Actuated g/C Ratio	0.16	0.16	0.55			0.76
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	280	251	1848			1585
v/s Ratio Prot	c0.12		0.38			c0.13
v/s Ratio Perm		0.02				c0.45
v/c Ratio	0.76	0.14	0.69			0.77
Uniform Delay, d1	51.1	45.8	20.5			9.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	17.3	1.2	2.1			3.7
Delay (s)	68.4	46.9	22.6			12.7
Level of Service	E	D	C			B
Approach Delay (s)	57.6		22.6			12.7
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	128.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4692
Vehs Exited	4666
Starting Vehs	189
Ending Vehs	215
Travel Distance (km)	6015
Travel Time (hr)	201.5
Total Delay (hr)	73.8
Total Stops	6295
Fuel Used (l)	525.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4692
Vehs Exited	4666
Starting Vehs	189
Ending Vehs	215
Travel Distance (km)	6015
Travel Time (hr)	201.5
Total Delay (hr)	73.8
Total Stops	6295
Fuel Used (l)	525.7

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	32.4	27.3	67.4	81.1	53.1	54.8	97.4	104.8	47.4	157.4	130.7	47.4
Average Queue (m)	10.7	15.1	33.6	44.0	31.8	33.9	57.1	66.7	31.0	71.9	54.1	26.1
95th Queue (m)	21.3	23.3	56.3	67.0	49.2	50.4	83.6	94.3	55.9	131.9	113.3	51.1
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)			5				2		3	24		15
Queuing Penalty (veh)			8				14		13	30		23

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	101.9	88.4	28.4
Average Queue (m)	44.3	29.0	14.1
95th Queue (m)	76.5	61.4	22.7
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	7	1	
Queuing Penalty (veh)	5	2	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

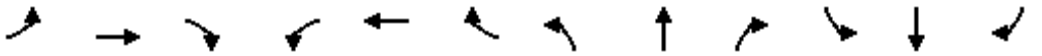
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	45.8	55.0	218.8	201.2	107.1	108.0
Average Queue (m)	19.6	31.7	75.0	80.3	60.8	62.2
95th Queue (m)	37.1	53.1	154.2	151.8	97.0	95.4
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	67.5	54.2	163.5	169.6	92.9	121.9
Average Queue (m)	41.6	25.1	75.1	86.5	58.5	56.4
95th Queue (m)	63.2	43.1	137.6	147.3	88.4	96.2
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

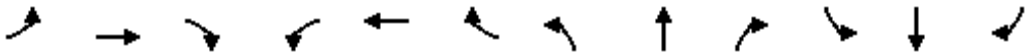
Network Summary

Network wide Queuing Penalty: 95



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	407	97	496	694	286	120	364	704	108	289	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3197		3173	3089		1629	1818	1444	1632	3388	1447
Flt Permitted	0.21	1.00		0.26	1.00		0.47	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	681	3197		853	3089		813	1818	1444	798	3388	1447
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)	184	442	105	539	754	311	130	396	765	117	314	187
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	45	0	0	127
Lane Group Flow (vph)	184	532	0	539	1033	0	130	396	720	117	314	60
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6	3		2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Effective Green, g (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Actuated g/C Ratio	0.32	0.26		0.51	0.42		0.41	0.41	0.62	0.32	0.32	0.32
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Grp Cap (vph)	359	844		929	1301		377	740	897	256	1089	465
v/s Ratio Prot	0.03	0.17		0.12	c0.33		0.02	0.22	c0.17		0.09	
v/s Ratio Perm	0.14			0.17			0.12		0.33	0.15		0.04
v/c Ratio	0.51	0.63		0.58	0.79		0.34	0.54	0.80	0.46	0.29	0.13
Uniform Delay, d1	34.6	45.5		22.2	35.2		27.0	31.5	20.0	37.8	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		0.97	0.92	0.75	1.00	1.00	1.00
Incremental Delay, d2	5.2	3.6		2.6	5.1		2.3	2.6	7.0	5.8	0.7	0.6
Delay (s)	39.7	49.0		24.9	40.3		28.4	31.4	22.0	43.6	36.2	34.2
Level of Service	D	D		C	D		C	C	C	D	D	C
Approach Delay (s)		46.7			35.1			25.5			37.0	
Approach LOS		D			D			C			D	

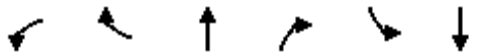
Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	17	5	59	31	96	18	1066	28	59	903	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.93			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1739			1610			3436			3358	
Flt Permitted		0.70			0.88			0.92			0.73	
Satd. Flow (perm)		1261			1431			3155			2443	
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)	53	18	5	64	34	104	20	1159	30	64	982	39
RTOR Reduction (vph)	0	2	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	170	0	0	1207	0	0	1083	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		34.0			34.0			72.0			74.0	
Effective Green, g (s)		34.0			34.0			72.0			74.0	
Actuated g/C Ratio		0.28			0.28			0.60			0.62	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		357			405			1893			1506	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.12			0.38			c0.44	
v/c Ratio		0.21			0.42			0.64			0.72	
Uniform Delay, d1		32.7			35.0			15.6			15.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			3.2			1.7			3.0	
Delay (s)		34.0			38.2			17.2			18.8	
Level of Service		C			D			B			B	
Approach Delay (s)		34.0			38.2			17.2			18.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	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)	14.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	156	39	975	203	0	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1711	1531	3333			3421
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1711	1531	3333			3421
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	42	1060	221	0	999
RTOR Reduction (vph)	0	37	13	0	0	0
Lane Group Flow (vph)	170	5	1268	0	0	999
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	16.0	16.0	106.0			114.0
Effective Green, g (s)	16.0	16.0	106.0			114.0
Actuated g/C Ratio	0.11	0.11	0.76			0.81
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	195	174	2523			2785
v/s Ratio Prot	c0.10		c0.38			c0.29
v/s Ratio Perm		0.00				
v/c Ratio	0.87	0.03	0.50			0.36
Uniform Delay, d1	61.0	55.1	6.7			3.4
Progression Factor	1.00	1.00	1.00			0.98
Incremental Delay, d2	37.9	0.3	0.7			0.3
Delay (s)	98.9	55.4	7.4			3.7
Level of Service	F	E	A			A
Approach Delay (s)	90.3		7.4			3.7
Approach LOS	F		A			A

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4504
Vehs Exited	4496
Starting Vehs	158
Ending Vehs	166
Travel Distance (km)	5795
Travel Time (hr)	184.7
Total Delay (hr)	62.1
Total Stops	4649
Fuel Used (l)	492.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4504
Vehs Exited	4496
Starting Vehs	158
Ending Vehs	166
Travel Distance (km)	5795
Travel Time (hr)	184.7
Total Delay (hr)	62.1
Total Stops	4649
Fuel Used (l)	492.3

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	32.5	79.9	93.1	96.6	59.5	119.8	123.1	139.7	47.4	102.8	97.3	47.4
Average Queue (m)	10.4	18.8	45.5	54.8	36.1	44.0	78.8	91.2	31.9	66.1	59.3	24.3
95th Queue (m)	21.6	41.4	70.6	79.5	55.1	75.4	113.9	125.2	57.4	98.6	94.6	45.6
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)		0	17			0	8		2	27		10
Queuing Penalty (veh)		0	28			0	39		8	32		14

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	77.5	75.3	29.7
Average Queue (m)	35.0	22.4	16.5
95th Queue (m)	58.6	47.9	27.1
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	3	0	
Queuing Penalty (veh)	3	1	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

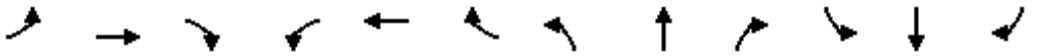
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	34.9	67.6	92.4	96.1	98.1	97.8
Average Queue (m)	18.6	35.8	50.0	60.9	49.7	52.0
95th Queue (m)	31.3	57.4	77.6	90.4	86.0	89.8
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	59.6	33.6	85.6	144.3	39.1	40.6
Average Queue (m)	37.2	10.0	29.6	66.3	15.2	15.8
95th Queue (m)	57.9	20.9	67.4	131.9	31.5	32.4
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

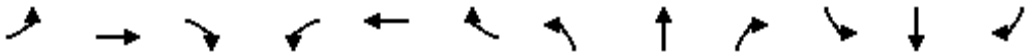
Network Summary

Network wide Queuing Penalty: 125



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	407	97	496	694	286	120	364	704	108	289	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3197		3173	3089		1629	1818	1426	1632	3388	1447
Flt Permitted	0.21	1.00		0.26	1.00		0.47	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	681	3197		853	3089		813	1818	1426	798	3388	1447
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)	184	442	105	539	754	311	130	396	765	117	314	187
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	308	0	0	127
Lane Group Flow (vph)	184	532	0	539	1033	0	130	396	457	117	314	60
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	45.0	37.0		71.0	59.0		57.0	57.0	57.0	45.0	45.0	45.0
Effective Green, g (s)	45.0	37.0		71.0	59.0		57.0	57.0	57.0	45.0	45.0	45.0
Actuated g/C Ratio	0.32	0.26		0.51	0.42		0.41	0.41	0.41	0.32	0.32	0.32
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	359	844		929	1301		377	740	580	256	1089	465
v/s Ratio Prot	0.03	0.17		c0.12	c0.33		0.02	0.22			0.09	
v/s Ratio Perm	0.14			0.17			0.12		c0.32	0.15		0.04
v/c Ratio	0.51	0.63		0.58	0.79		0.34	0.54	0.79	0.46	0.29	0.13
Uniform Delay, d1	34.6	45.5		22.2	35.2		27.0	31.5	36.2	37.8	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		0.97	0.92	1.02	1.00	1.00	1.00
Incremental Delay, d2	5.2	3.6		2.6	5.1		2.3	2.6	9.6	5.8	0.7	0.6
Delay (s)	39.7	49.0		24.9	40.3		28.4	31.4	46.5	43.6	36.2	34.2
Level of Service	D	D		C	D		C	C	D	D	D	C
Approach Delay (s)		46.7			35.1			40.0			37.0	
Approach LOS		D			D			D			D	

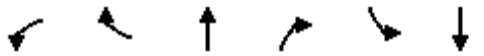
Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	17	5	59	31	96	18	1066	28	59	903	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.93			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1739			1610			3436			3358	
Flt Permitted		0.70			0.88			0.92			0.73	
Satd. Flow (perm)		1261			1431			3155			2443	
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)	53	18	5	64	34	104	20	1159	30	64	982	39
RTOR Reduction (vph)	0	2	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	170	0	0	1207	0	0	1083	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		34.0			34.0			72.0			74.0	
Effective Green, g (s)		34.0			34.0			72.0			74.0	
Actuated g/C Ratio		0.28			0.28			0.60			0.62	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		357			405			1893			1506	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.12			0.38			c0.44	
v/c Ratio		0.21			0.42			0.64			0.72	
Uniform Delay, d1		32.7			35.0			15.6			15.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			3.2			1.7			3.0	
Delay (s)		34.0			38.2			17.2			18.8	
Level of Service		C			D			B			B	
Approach Delay (s)		34.0			38.2			17.2			18.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	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)	14.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	156	39	975	203	0	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1711	1531	3333			3421
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1711	1531	3333			3421
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	42	1060	221	0	999
RTOR Reduction (vph)	0	37	13	0	0	0
Lane Group Flow (vph)	170	5	1268	0	0	999
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	16.0	16.0	106.0			114.0
Effective Green, g (s)	16.0	16.0	106.0			114.0
Actuated g/C Ratio	0.11	0.11	0.76			0.81
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	195	174	2523			2785
v/s Ratio Prot	c0.10		c0.38			c0.29
v/s Ratio Perm		0.00				
v/c Ratio	0.87	0.03	0.50			0.36
Uniform Delay, d1	61.0	55.1	6.7			3.4
Progression Factor	1.00	1.00	1.00			0.98
Incremental Delay, d2	37.9	0.3	0.7			0.3
Delay (s)	98.9	55.4	7.4			3.7
Level of Service	F	E	A			A
Approach Delay (s)	90.3		7.4			3.7
Approach LOS	F		A			A

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4617
Vehs Exited	4623
Starting Vehs	193
Ending Vehs	187
Travel Distance (km)	5970
Travel Time (hr)	192.5
Total Delay (hr)	66.6
Total Stops	4865
Fuel Used (l)	507.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4617
Vehs Exited	4623
Starting Vehs	193
Ending Vehs	187
Travel Distance (km)	5970
Travel Time (hr)	192.5
Total Delay (hr)	66.6
Total Stops	4865
Fuel Used (l)	507.2

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	27.2	76.5	87.5	88.6	57.7	103.4	132.0	134.1	47.4	117.3	143.4	47.4
Average Queue (m)	15.3	22.7	50.2	59.7	35.6	43.0	79.5	88.6	26.6	67.6	49.0	26.0
95th Queue (m)	25.0	42.9	75.4	83.8	53.6	68.8	112.4	120.3	52.3	107.8	109.9	51.4
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)			18				11			24		4
Queuing Penalty (veh)			30				55			29		6

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	62.5	66.6	47.4
Average Queue (m)	33.0	24.1	14.0
95th Queue (m)	52.2	45.8	27.4
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	4	1	0
Queuing Penalty (veh)	4	2	0

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

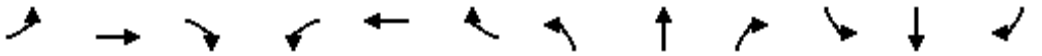
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	36.3	90.7	191.2	187.9	85.4	102.6
Average Queue (m)	15.1	36.8	63.0	72.0	49.6	53.4
95th Queue (m)	28.5	71.8	118.2	119.8	80.2	84.9
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	80.7	27.9	140.9	142.3	26.2	36.8
Average Queue (m)	47.2	9.1	39.1	61.7	12.9	15.8
95th Queue (m)	76.4	21.2	106.6	132.2	23.7	28.2
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

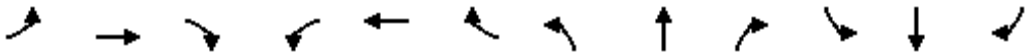
Network Summary

Network wide Queuing Penalty: 127



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	407	97	496	694	286	120	364	704	108	289	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3197		3173	3089		1629	1818	1444	1632	3388	1447
Flt Permitted	0.21	1.00		0.26	1.00		0.47	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	681	3197		853	3089		813	1818	1444	798	3388	1447
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)	184	442	105	539	754	311	130	396	765	117	314	187
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	45	0	0	127
Lane Group Flow (vph)	184	532	0	539	1033	0	130	396	720	117	314	60
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6	3		2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Effective Green, g (s)	45.0	37.0		71.0	59.0		57.0	57.0	87.0	45.0	45.0	45.0
Actuated g/C Ratio	0.32	0.26		0.51	0.42		0.41	0.41	0.62	0.32	0.32	0.32
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	6.0	6.0	6.0
Lane Grp Cap (vph)	359	844		929	1301		377	740	897	256	1089	465
v/s Ratio Prot	0.03	0.17		0.12	c0.33		0.02	0.22	c0.17		0.09	
v/s Ratio Perm	0.14			0.17			0.12		0.33	0.15		0.04
v/c Ratio	0.51	0.63		0.58	0.79		0.34	0.54	0.80	0.46	0.29	0.13
Uniform Delay, d1	34.6	45.5		22.2	35.2		27.0	31.5	20.0	37.8	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		0.97	0.92	0.75	1.00	1.00	1.00
Incremental Delay, d2	5.2	3.6		2.6	5.1		2.3	2.6	7.0	5.8	0.7	0.6
Delay (s)	39.7	49.0		24.9	40.3		28.4	31.4	22.0	43.6	36.2	34.2
Level of Service	D	D		C	D		C	C	C	D	D	C
Approach Delay (s)		46.7			35.1			25.5			37.0	
Approach LOS		D			D			C			D	

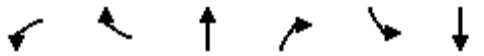
Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	17	5	59	31	96	18	1066	28	59	903	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.93			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1739			1610			3436			3358	
Flt Permitted		0.70			0.88			0.92			0.73	
Satd. Flow (perm)		1261			1431			3155			2443	
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)	53	18	5	64	34	104	20	1159	30	64	982	39
RTOR Reduction (vph)	0	2	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	170	0	0	1207	0	0	1083	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		34.0			34.0			72.0			74.0	
Effective Green, g (s)		34.0			34.0			72.0			74.0	
Actuated g/C Ratio		0.28			0.28			0.60			0.62	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		357			405			1893			1506	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.12			0.38			c0.44	
v/c Ratio		0.21			0.42			0.64			0.72	
Uniform Delay, d1		32.7			35.0			15.6			15.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			3.2			1.7			3.0	
Delay (s)		34.0			38.2			17.2			18.8	
Level of Service		C			D			B			B	
Approach Delay (s)		34.0			38.2			17.2			18.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	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)	14.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	156	39	975	203	0	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1711	1531	3333			3421
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1711	1531	3333			3421
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	42	1060	221	0	999
RTOR Reduction (vph)	0	37	13	0	0	0
Lane Group Flow (vph)	170	5	1268	0	0	999
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	16.0	16.0	106.0			114.0
Effective Green, g (s)	16.0	16.0	106.0			114.0
Actuated g/C Ratio	0.11	0.11	0.76			0.81
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	195	174	2523			2785
v/s Ratio Prot	c0.10		c0.38			c0.29
v/s Ratio Perm		0.00				
v/c Ratio	0.87	0.03	0.50			0.36
Uniform Delay, d1	61.0	55.1	6.7			3.4
Progression Factor	1.00	1.00	1.00			0.98
Incremental Delay, d2	37.9	0.3	0.7			0.3
Delay (s)	98.9	55.4	7.4			3.7
Level of Service	F	E	A			A
Approach Delay (s)	90.3		7.4			3.7
Approach LOS	F		A			A

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4504
Vehs Exited	4496
Starting Vehs	158
Ending Vehs	166
Travel Distance (km)	5795
Travel Time (hr)	184.7
Total Delay (hr)	62.1
Total Stops	4649
Fuel Used (l)	492.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4504
Vehs Exited	4496
Starting Vehs	158
Ending Vehs	166
Travel Distance (km)	5795
Travel Time (hr)	184.7
Total Delay (hr)	62.1
Total Stops	4649
Fuel Used (l)	492.3

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	32.5	79.9	93.1	96.6	59.5	119.8	123.1	139.7	47.4	102.8	97.3	47.4
Average Queue (m)	10.4	18.8	45.5	54.8	36.1	44.0	78.8	91.2	31.9	66.1	59.3	24.3
95th Queue (m)	21.6	41.4	70.6	79.5	55.1	75.4	113.9	125.2	57.4	98.6	94.6	45.6
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)		0	17			0	8		2	27		10
Queuing Penalty (veh)		0	28			0	39		8	32		14

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	77.5	75.3	29.7
Average Queue (m)	35.0	22.4	16.5
95th Queue (m)	58.6	47.9	27.1
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	3	0	
Queuing Penalty (veh)	3	1	

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

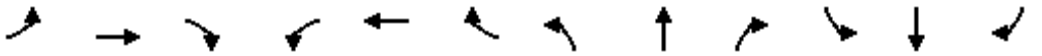
Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	34.9	67.6	92.4	96.1	98.1	97.8
Average Queue (m)	18.6	35.8	50.0	60.9	49.7	52.0
95th Queue (m)	31.3	57.4	77.6	90.4	86.0	89.8
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	59.6	33.6	85.6	144.3	39.1	40.6
Average Queue (m)	37.2	10.0	29.6	66.3	15.2	15.8
95th Queue (m)	57.9	20.9	67.4	131.9	31.5	32.4
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

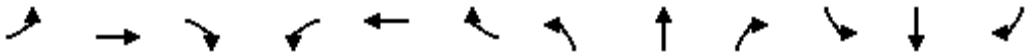
Network Summary

Network wide Queuing Penalty: 125



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	169	407	97	496	694	286	120	364	704	108	289	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.3	3.3	3.0	3.3	3.0	3.3	3.3	3.0	3.0	3.3	3.3
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3142	3197		3173	3089		1629	1818	1426	1632	3388	1447
Flt Permitted	0.21	1.00		0.26	1.00		0.47	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	681	3197		853	3089		813	1818	1426	798	3388	1447
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)	184	442	105	539	754	311	130	396	765	117	314	187
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	308	0	0	127
Lane Group Flow (vph)	184	532	0	539	1033	0	130	396	457	117	314	60
Confl. Peds. (#/hr)	1					1	3		13	13		3
Heavy Vehicles (%)	4%	6%	6%	3%	9%	4%	7%	1%	2%	2%	3%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		1	6			2	
Permitted Phases	4			8			6		6	2		2
Actuated Green, G (s)	45.0	37.0		71.0	59.0		57.0	57.0	57.0	45.0	45.0	45.0
Effective Green, g (s)	45.0	37.0		71.0	59.0		57.0	57.0	57.0	45.0	45.0	45.0
Actuated g/C Ratio	0.32	0.26		0.51	0.42		0.41	0.41	0.41	0.32	0.32	0.32
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	359	844		929	1301		377	740	580	256	1089	465
v/s Ratio Prot	0.03	0.17		c0.12	c0.33		0.02	0.22			0.09	
v/s Ratio Perm	0.14			0.17			0.12		c0.32	0.15		0.04
v/c Ratio	0.51	0.63		0.58	0.79		0.34	0.54	0.79	0.46	0.29	0.13
Uniform Delay, d1	34.6	45.5		22.2	35.2		27.0	31.5	36.2	37.8	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		0.97	0.92	1.02	1.00	1.00	1.00
Incremental Delay, d2	5.2	3.6		2.6	5.1		2.3	2.6	9.6	5.8	0.7	0.6
Delay (s)	39.7	49.0		24.9	40.3		28.4	31.4	46.5	43.6	36.2	34.2
Level of Service	D	D		C	D		C	C	D	D	D	C
Approach Delay (s)		46.7			35.1			40.0			37.0	
Approach LOS		D			D			D			D	

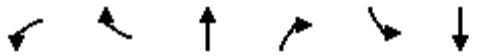
Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	17	5	59	31	96	18	1066	28	59	903	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			8.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.93			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1739			1610			3436			3358	
Flt Permitted		0.70			0.88			0.92			0.73	
Satd. Flow (perm)		1261			1431			3155			2443	
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)	53	18	5	64	34	104	20	1159	30	64	982	39
RTOR Reduction (vph)	0	2	0	0	32	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	170	0	0	1207	0	0	1083	0
Confl. Peds. (#/hr)	14		12	12		14	5		13	13		5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	1%	0%	3%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		34.0			34.0			72.0			74.0	
Effective Green, g (s)		34.0			34.0			72.0			74.0	
Actuated g/C Ratio		0.28			0.28			0.60			0.62	
Clearance Time (s)		6.0			6.0			8.0			6.0	
Lane Grp Cap (vph)		357			405			1893			1506	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.12			0.38			c0.44	
v/c Ratio		0.21			0.42			0.64			0.72	
Uniform Delay, d1		32.7			35.0			15.6			15.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			3.2			1.7			3.0	
Delay (s)		34.0			38.2			17.2			18.8	
Level of Service		C			D			B			B	
Approach Delay (s)		34.0			38.2			17.2			18.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	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)	14.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	156	39	975	203	0	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0			6.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1711	1531	3333			3421
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1711	1531	3333			3421
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	42	1060	221	0	999
RTOR Reduction (vph)	0	37	13	0	0	0
Lane Group Flow (vph)	170	5	1268	0	0	999
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Actuated Green, G (s)	16.0	16.0	106.0			114.0
Effective Green, g (s)	16.0	16.0	106.0			114.0
Actuated g/C Ratio	0.11	0.11	0.76			0.81
Clearance Time (s)	4.0	4.0	6.0			6.0
Lane Grp Cap (vph)	195	174	2523			2785
v/s Ratio Prot	c0.10		c0.38			c0.29
v/s Ratio Perm		0.00				
v/c Ratio	0.87	0.03	0.50			0.36
Uniform Delay, d1	61.0	55.1	6.7			3.4
Progression Factor	1.00	1.00	1.00			0.98
Incremental Delay, d2	37.9	0.3	0.7			0.3
Delay (s)	98.9	55.4	7.4			3.7
Level of Service	F	E	A			A
Approach Delay (s)	90.3		7.4			3.7
Approach LOS	F		A			A

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Start Time	6:57
End Time	8:27
Total Time (min)	90
Time Recorded (min)	60
# of Intervals	2
# of Recorded Intervals	1
Vehs Entered	4617
Vehs Exited	4623
Starting Vehs	193
Ending Vehs	187
Travel Distance (km)	5970
Travel Time (hr)	192.5
Total Delay (hr)	66.6
Total Stops	4865
Fuel Used (l)	507.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:27
Total Time (min)	30

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:27
End Time	8:27
Total Time (min)	60

Volumes adjusted by Growth Factors.

Vehs Entered	4617
Vehs Exited	4623
Starting Vehs	193
Ending Vehs	187
Travel Distance (km)	5970
Travel Time (hr)	192.5
Total Delay (hr)	66.6
Total Stops	4865
Fuel Used (l)	507.2

Intersection: 3: Sidney St & Bell Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	L	L	T	TR	L	T	R	L
Maximum Queue (m)	27.2	76.5	87.5	88.6	57.7	103.4	132.0	134.1	47.4	117.3	143.4	47.4
Average Queue (m)	15.3	22.7	50.2	59.7	35.6	43.0	79.5	88.6	26.6	67.6	49.0	26.0
95th Queue (m)	25.0	42.9	75.4	83.8	53.6	68.8	112.4	120.3	52.3	107.8	109.9	51.4
Link Distance (m)			800.7	800.7			669.8	669.8		166.5	166.5	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	40.0	40.0			70.0	70.0			40.0			40.0
Storage Blk Time (%)			18				11			24		4
Queuing Penalty (veh)			30				55			29		6

Intersection: 3: Sidney St & Bell Blvd

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (m)	62.5	66.6	47.4
Average Queue (m)	33.0	24.1	14.0
95th Queue (m)	52.2	45.8	27.4
Link Distance (m)	351.9	351.9	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			40.0
Storage Blk Time (%)	4	1	0
Queuing Penalty (veh)	4	2	0

Intersection: 6: Sidney St & Tracey Park Dr/Tracey St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (m)	36.3	90.7	191.2	187.9	85.4	102.6
Average Queue (m)	15.1	36.8	63.0	72.0	49.6	53.4
95th Queue (m)	28.5	71.8	118.2	119.8	80.2	84.9
Link Distance (m)	717.4	725.5	423.9	423.9	176.4	176.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Sidney St & Loblaw

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	TR	LT	T
Maximum Queue (m)	80.7	27.9	140.9	142.3	26.2	36.8
Average Queue (m)	47.2	9.1	39.1	61.7	12.9	15.8
95th Queue (m)	76.4	21.2	106.6	132.2	23.7	28.2
Link Distance (m)	240.6	240.6	176.4	176.4	166.5	166.5
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 127

Appendix C: 2031 Calculated Volumes

AM Peak Volumes

2011 Intersection Daily Volumes (EMME Model)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	5,900	4,400
S	10,500	7,600
E	5,600	8,400
W	5,300	7,000
Sidney St & Tracey St		
N	7,600	10,500
S	10,500	7,600
E	N/A	N/A
W	N/A	N/A

2031 Intersection Daily Volumes (EMME Model)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	7,300	6,100
S	13,400	9,100
E	9,300	9,800
W	6,600	11,700
Sidney St & Tracey St		
N	9,100	13,400
S	12,900	9,100
E	500	N/A
W	N/A	N/A

Growth Factors (EMME Model)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	1.237	1.386
S	1.276	1.197
E	1.661	1.167
W	1.245	1.671
Sidney St & Tracey St		
N	1.197	1.276
S	1.229	1.197
E	N/A	N/A
W	N/A	N/A

2011 Intersection AM Peak Hour Volumes (EMME)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	354	264
S	630	456
E	336	504
W	318	420
Sidney St & Tracey St		
N	456	630
S	630	456
E	N/A	N/A
W	N/A	N/A
** AM Peak Hour = 6% of Daily Traffic*		

2031 Intersection AM Peak Hour Volumes (EMME)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	438	366
S	804	546
E	558	588
W	396	702
Sidney St & Tracey St		
N	546	804
S	774	546
E	30	N/A
W	N/A	N/A
** AM Peak Hour = 6% of Daily Traffic*		

Annual Growth Rates (EMME Model)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	1.07%	1.65%
S	1.23%	0.90%
E	2.57%	0.77%
W	1.10%	2.60%
Sidney St & Tracey St		
N	0.90%	1.23%
S	1.03%	0.90%
E	N/A	N/A
W	N/A	N/A

2014 Intersection AM Peak Hour Volumes (Counted)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	303	266
S	579	464
E	374	565
W	344	305
Sidney St & Tracey St		
N	474	589
S	550	428
E	77	100
W	63	47
Total Volumes		

2031 Intersection AM Peak Hour Volumes (Estimated)		
Approach	Entering	Exiting
Sidney St & Bell Blvd		
N	375	369
S	739	556
E	622	660
W	429	510
Sidney St & Tracey St		
N	568	752
S	676	513
E	#VALUE!	#VALUE!
W	#VALUE!	#VALUE!
2011-2031 Growth Factors Applied		

PM Peak Volumes

	Sidney St & Bell Blvd Count July 9 2014											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM Peak	56	199	89	175	175	24	82	186	311	55	200	48
PM Peak	119	264	139	329	300	79	94	291	395	50	261	44
Factor	2.13	1.33	1.56	1.88	1.71	3.29	1.15	1.56	1.27	0.91	1.31	0.92

	Sidney St & Bell Blvd Count July 10 2014											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM Peak	57	224	82	171	178	23	74	186	324	47	189	32
PM Peak	106	311	140	360	274	75	99	300	414	43	261	56
Factor	1.86	1.39	1.71	2.11	1.54	3.26	1.34	1.61	1.28	0.91	1.38	1.75

Suggested	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Factors	2.0	1.4	1.6	2.0	1.6	3.3	1.2	1.6	1.3	0.9	1.4	1.5

	2031 Estimated Turning Movement Volumes Sidney St & Bell Blvd											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM Peak	82	247	100	244	333	43	118	256	364	70	230	75
PM Peak	164	346	160	488	533	142	142	410	474	63	322	113

2031 AM PEAK HOUR

origin\dest	Sydney N	Bell E	Sydney S	Bell W		total
Sydney N	0	55	200	48	1	304
Bell E	24	0	175	175	1	375
Sydney S	186	311	0	82	1	580
Bell W	56	199	89	0	1	345
	1	1	1	1	0	4
total	267	566	465	306	4	1608

Instructions:
- enter data in yellow areas only
- use *Original* or *Balanced* totals as needed
- click on *Reset Factors*
- alternately click on *Row Factor* and *Column Factor* until the % error and total of individual errors (see blue values) are both as low as needed

	factor	1.016673	0.8663088	0.7837847	1.0691924	0.455625				
factor	**origin\dest**	**Sydney N**	**Bell E**	**Sydney S**	**Bell W**	**0**	**total**	**goal**	**err**	**NEW**
1.46462	**Sydney N**	0	70	230	75	1	376	375	0.002667	1.461
1.781541	**Bell E**	43	0	244	333	1	621	622	0.001608	1.784
1.351257	**Sydney S**	256	364	0	118	1	739	739	0	1.351
1.433444	**Bell W**	82	247	100	0	1	430	429	0.002331	1.430
0.632813	**0**	1	1	0	1	0	3	3	0	0.633
	total	382	682	574	527	4	2169 / 2169			
	goal	375	671	565	519	3		2133 / 2168	**0.000461**	
	err	0.018667	0.0163934	0.0159292	0.0154143	0.333333		**0.016878**	Error is about 1 percent	
	NEW	0.998	0.852	0.771	1.053	0.342				

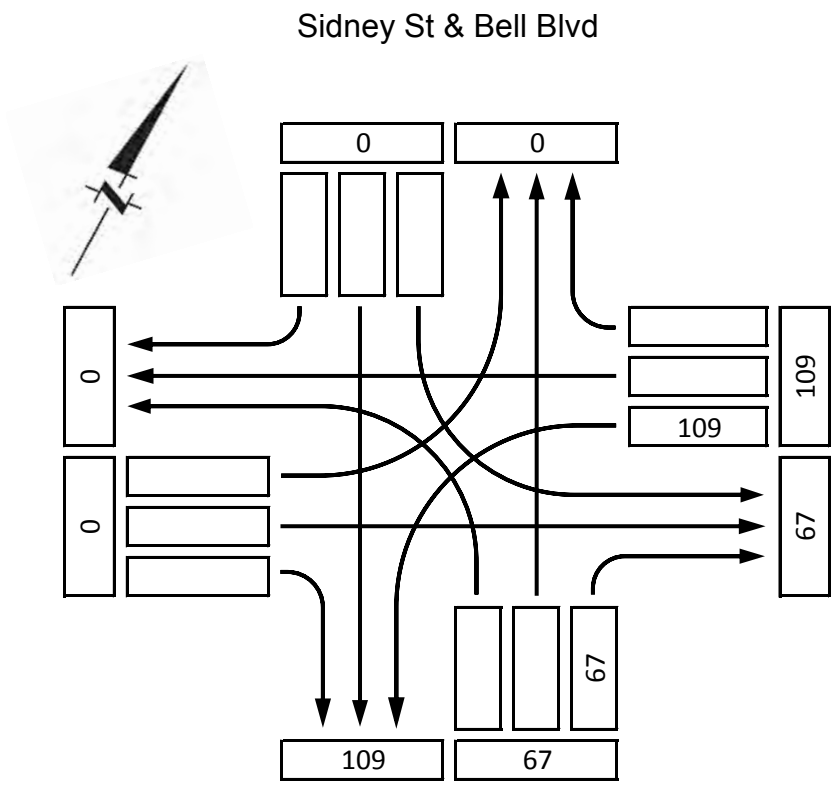
Warning: Goal sums off by 35, cannot converge!

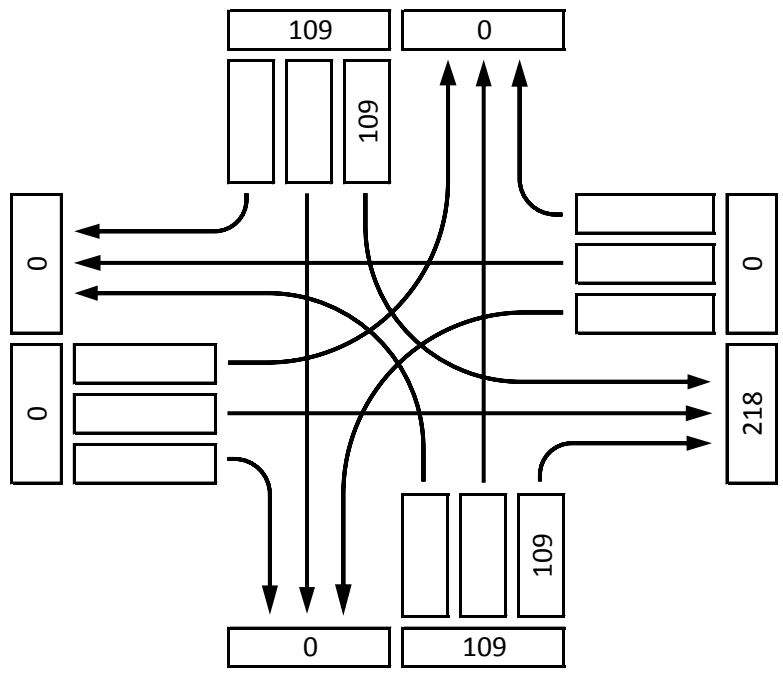
Total of individual movement errors: 39 (0.9142% of enter+exit)

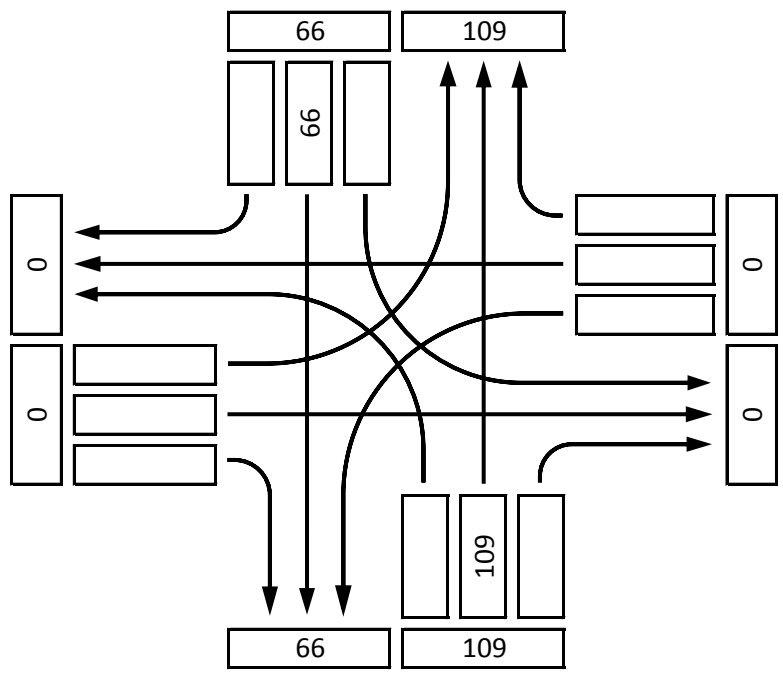
Original	Row totals	369	660	556	510	3	2098	**Average**
	Col totals	375	622	739	429	3	2168	**2133**
Balanced	Row totals	375	671	565	519	3	2133	
	Col totals	369	612	727	422	3	2133	

Loblaws Traffic Generation

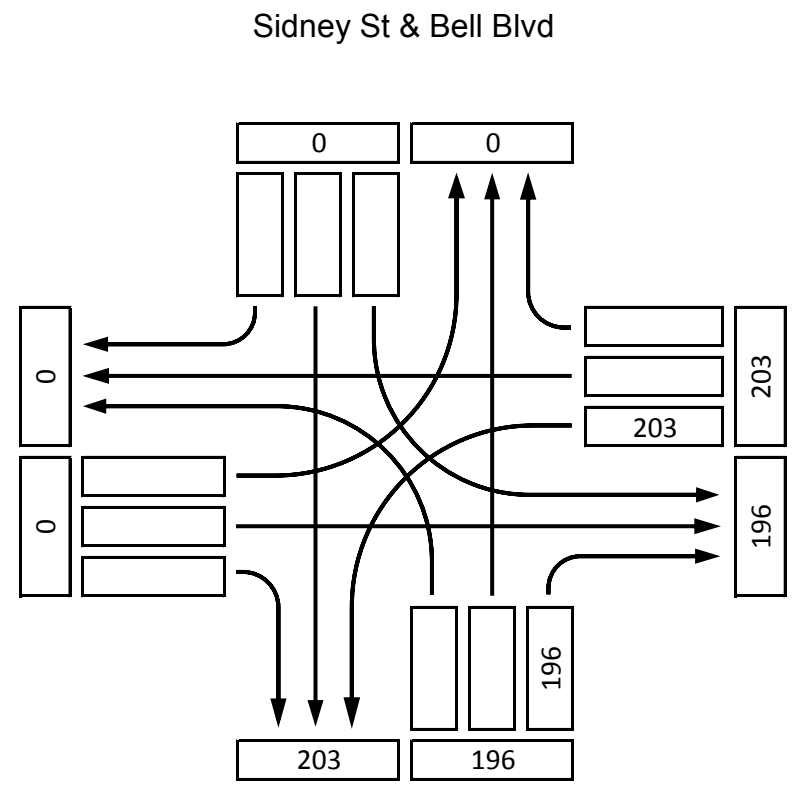
AM Peak Hour

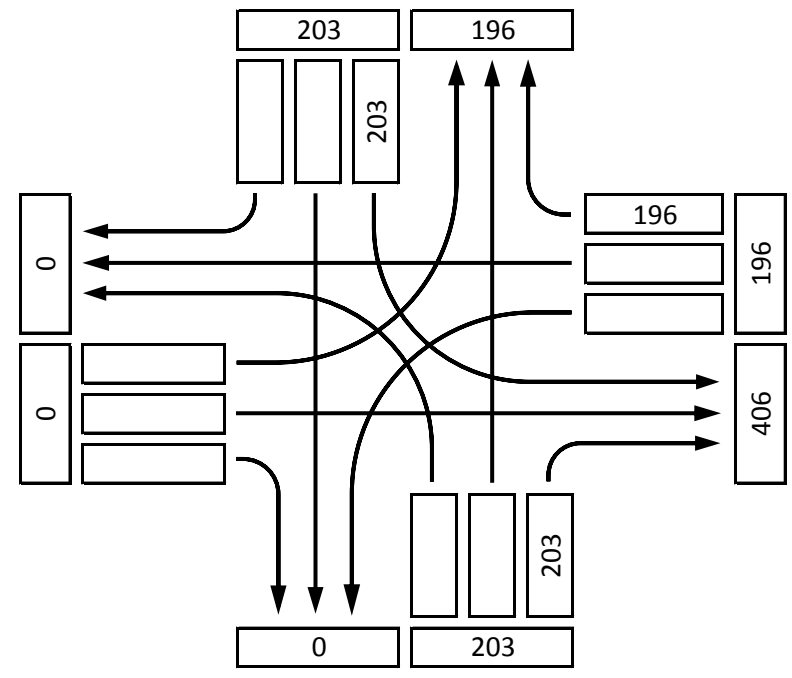


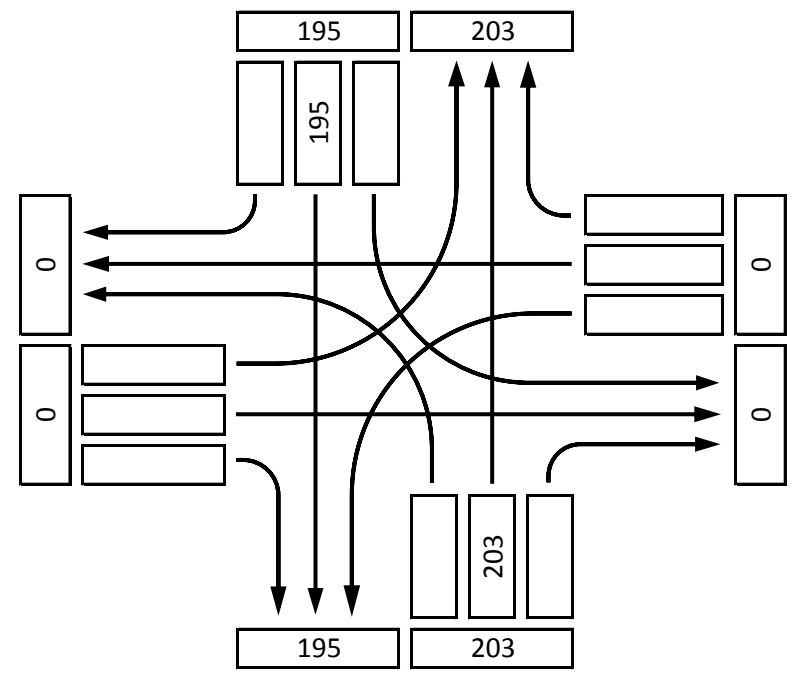




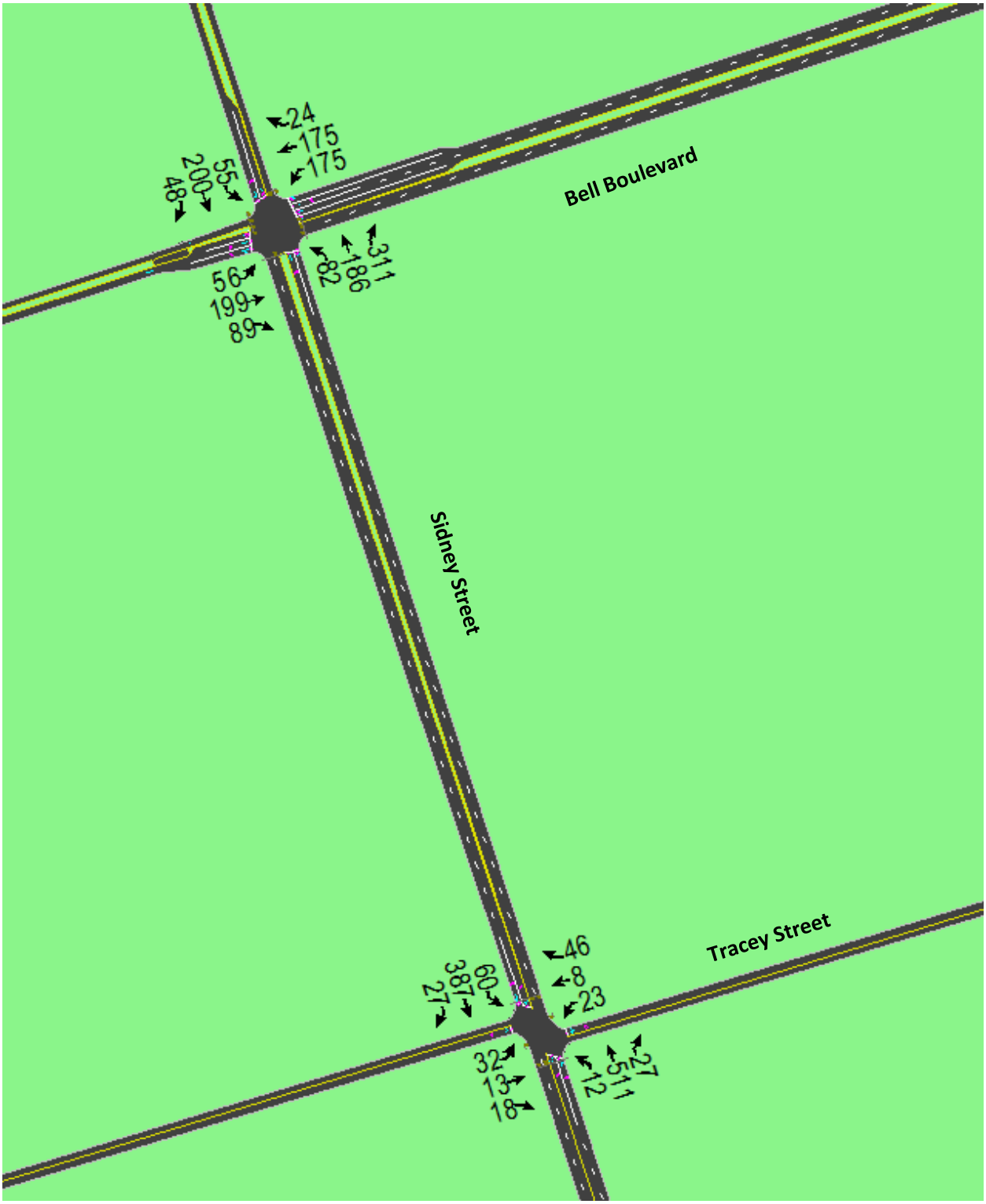
PM Peak Hour



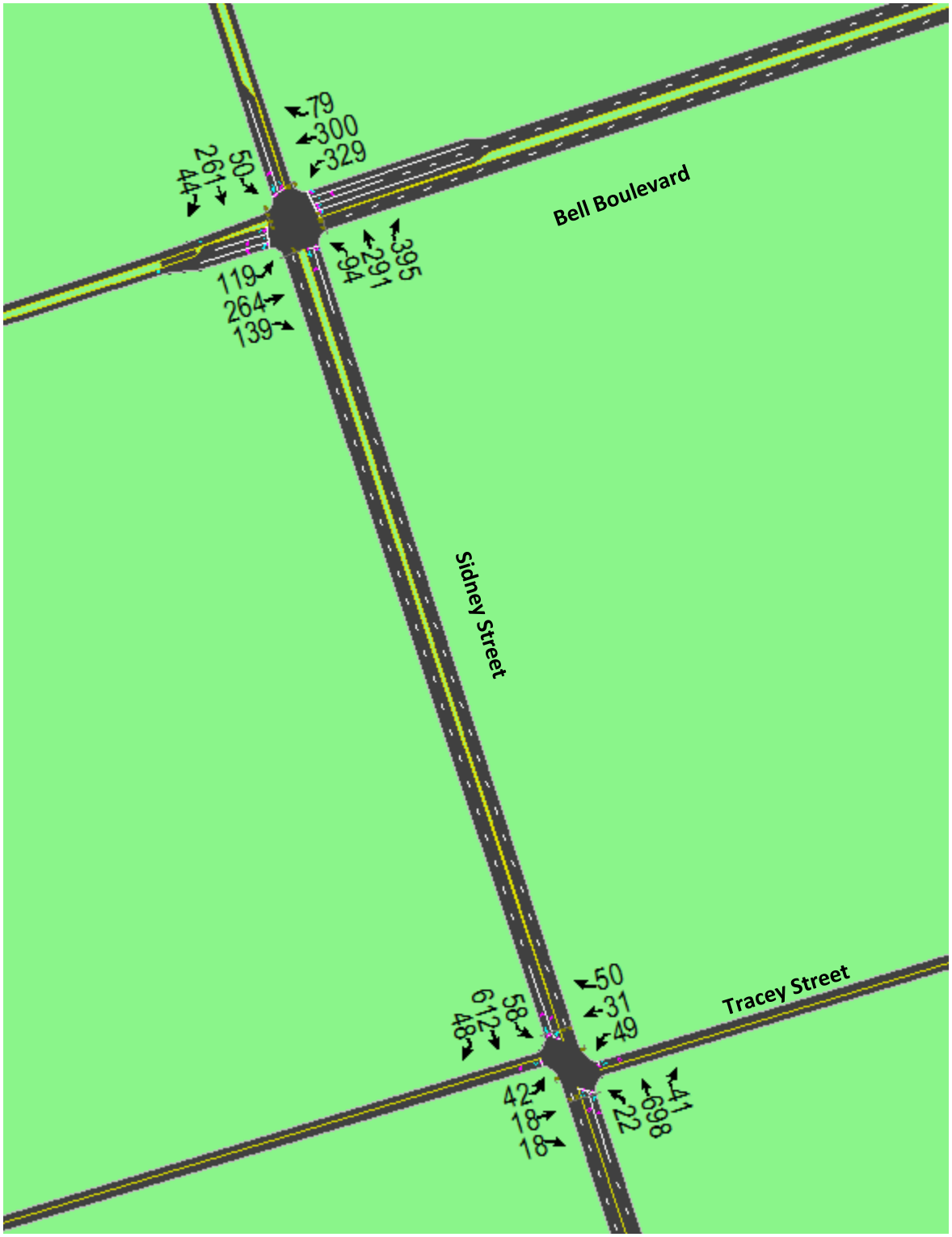




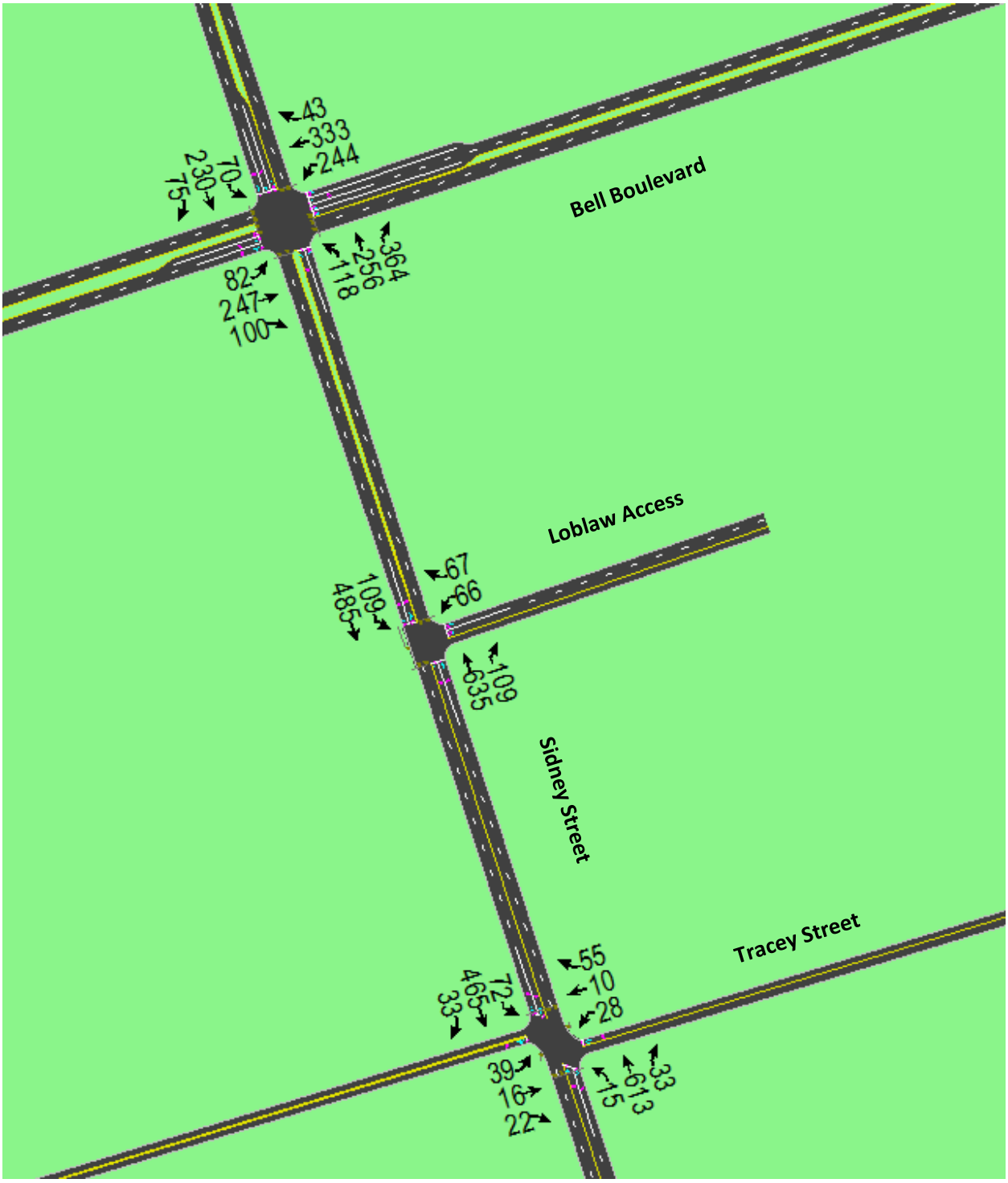
2014 Existing Traffic – AM Peak Hour



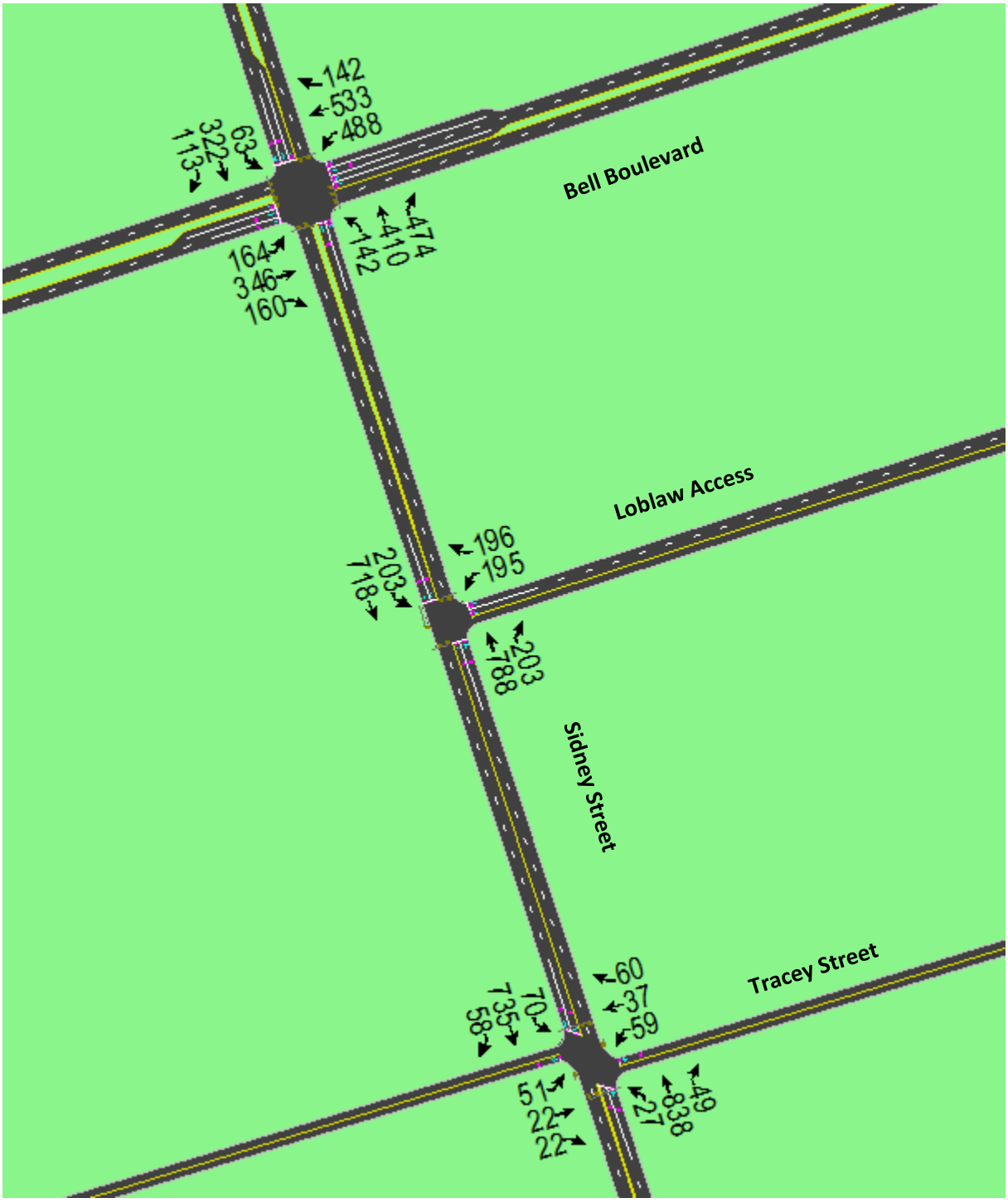
2014 Existing Traffic – PM Peak Hour



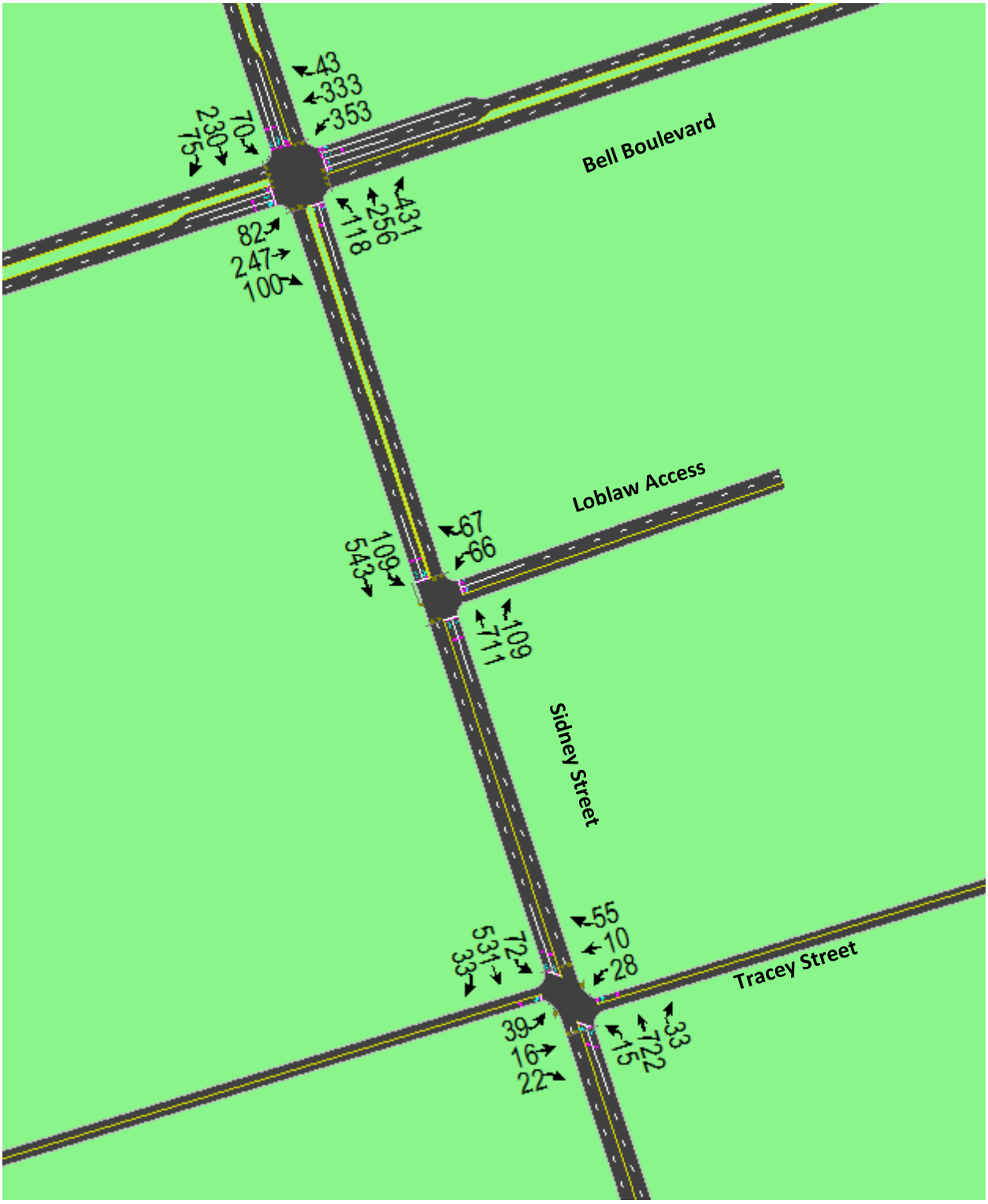
2031 Future Traffic – AM Peak Hour (Loblaw traffic included in EMME)



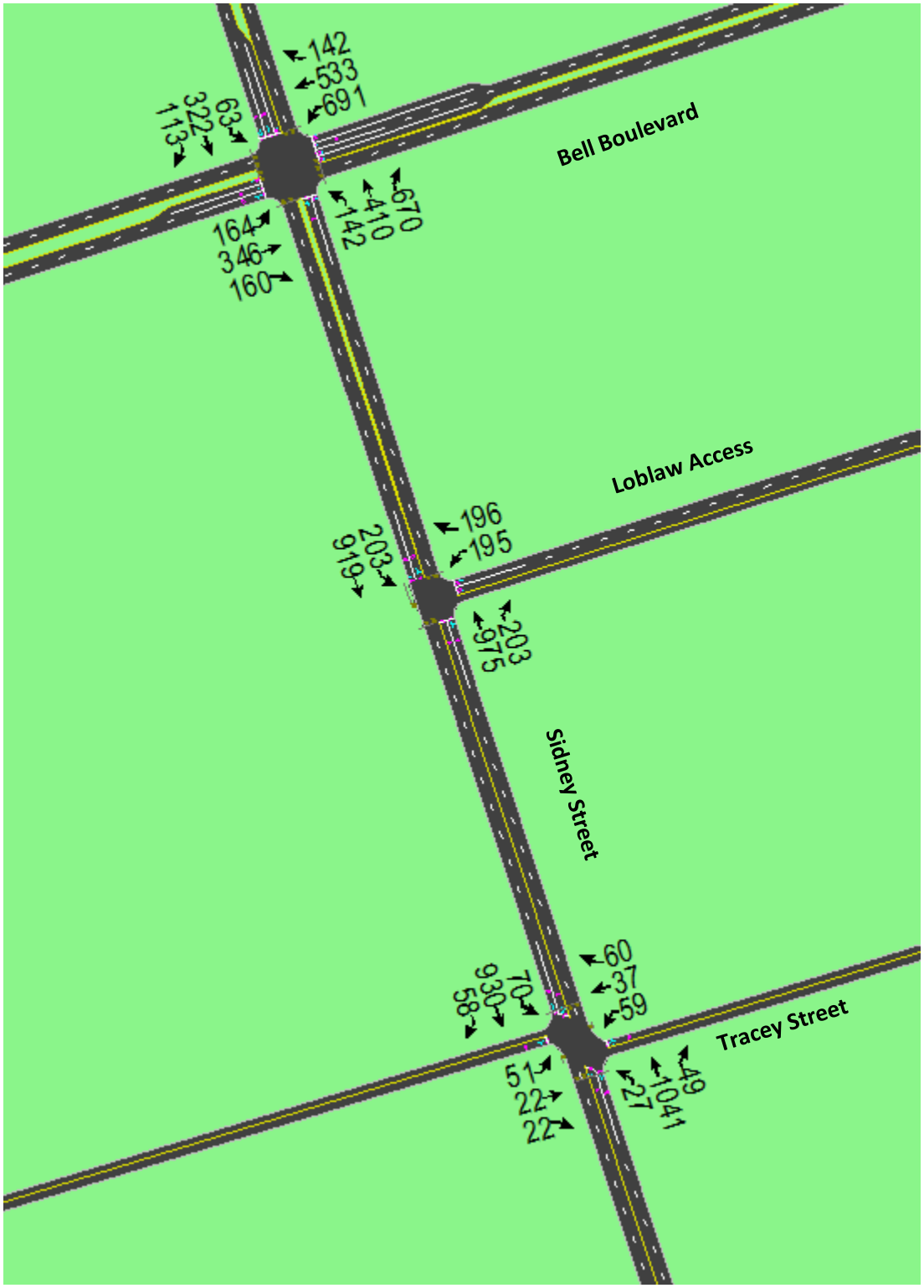
2031 Future Traffic – PM Peak Hour (Loblaw traffic included in EMME)



2031 Future Traffic – AM Peak Hour (Loblaw traffic added to EMME)



2031 Future Traffic – PM Peak Hour (Loblaw traffic added to EMME)



3027 Harvester Road, Suite 400
Burlington, ON L7N 3G7
CANADA
T. 289.288.0287
F. 289.288.0285

www.cima.ca

3027 Harvester Road, Suite 400
Burlington, ON L7N 3G7
CANADA
T. 289.288.0287
F. 289.288.0285

www.cima.ca