



Diamond Schmitt Architects Inc.

TRAFFIC OPERATIONS ASSESSMENT

OAK VALLEY HEALTH HOSPITAL EXPANSION

**4 Campbell Drive,
Township of Uxbridge**

September 2024
24138

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Dear Mr. Sun,

**RE: Traffic Operations Assessment
Proposed Oak Valley Health Hospital Expansion
4 Campbell Drive, Township of Uxbridge**

LEA Consulting Ltd. (LEA) is pleased to present our findings for our Traffic Operations Assessment (TOA) for the proposed Oak Valley Health Hospital Expansion at 4 Campbell Drive in the Township of Uxbridge. This TOA has been prepared for Diamond Schmitt Architects in support of the Site Plan Approval (SPA) application for the development proposal. This report concludes that the traffic associated with the proposed development has a minimal impact on the road network in the surrounding area and no new constraints identified with added site traffic.

Please do not hesitate to contact the undersigned should you have any additional questions or concerns at (905) 470-0015.

Yours truly,

LEA CONSULTING LTD.

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Encl. Traffic Operations Assessment – Oak Valley Health Hospital Expansion, 4 Campbell Drive, Township of Uxbridge (September 2024)

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1 INTRODUCTION

LEA Consulting Ltd. (LEA) has been retained by Diamond Schmitt Architects to undertake a Traffic Operations Assessment (TOA) for the proposed Oak Valley Hospital expansion, located at 4 Campbell Drive in the Township of Uxbridge (herein referred to as the “subject site”). The subject site is located north of Campbell Drive and approximately 100m west of Toronto Street South, as shown in **Figure 1-1**.

Figure 1-1: Subject Site



Source: Google Maps, Accessed July 2024

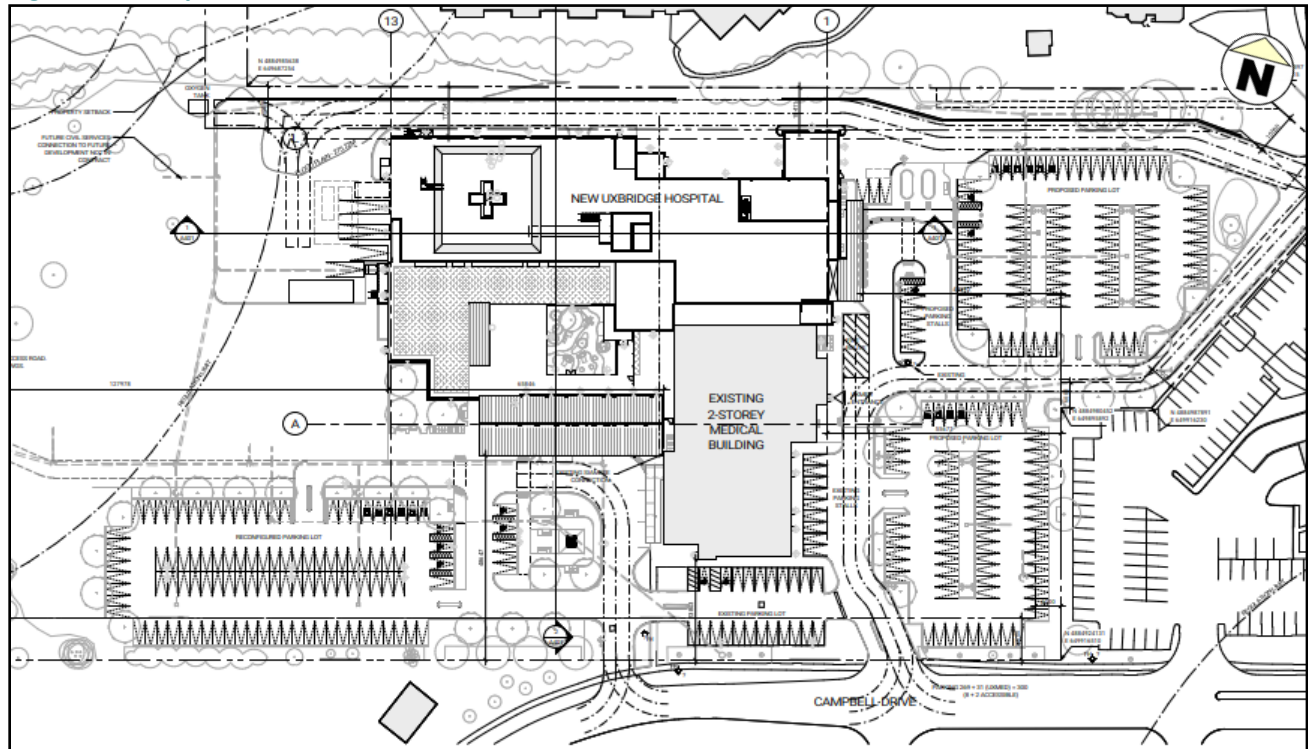
1.1 DEVELOPMENT PROPOSAL

Based on the site plan received, the proposed development will relocate the existing Uxbridge Hospital towards the west side of the site. The existing hospital will be demolished and replaced by surface parking. The existing Uxbridge Medical building will remain unchanged. It is LEA’s understanding that a long-term care facility located west of the proposed hospital is under consideration for future development and has therefore been included in the analysis. The site statistics of the proposed expansion are presented in **Table 1-1**, and the proposed site plan is illustrated in **Figure 1-2**.

Table 1-1: Proposed Site Statistics

Land Use	Existing	Proposed	Change
Uxbridge Medical	~ 3,521 m ²	-	-
Hospital	~ 3,934 m ² (20 Beds)	~ 12,355 m ² (32 Beds)	+8,421 m ² (12 Beds)
Long-Term Care	-	242 Beds	+242 Beds

Figure 1-2: Proposed Site Plan



Source: Diamond Schmitt Architects, September 2024

The following TOA will undertake a review of the existing transportation context, applicable parking requirements, provide a transportation demand management plan (TDM), and forecast vehicle trip generation anticipated for the proposed land uses. The TOR shared to the Region is provided in **Appendix A**.

2 EXISTING TRANSPORTATION CONDITIONS

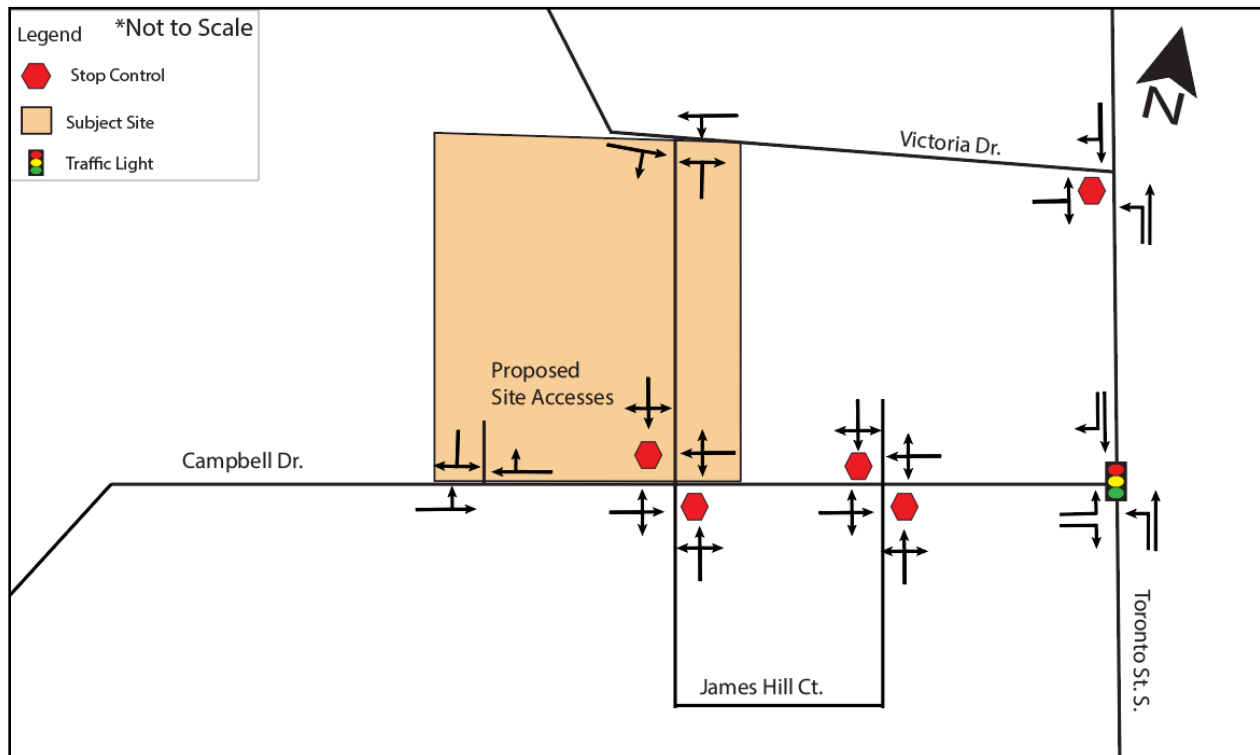
This section identifies and assesses the existing transportation conditions present in the study area, including the road, transit, cyclist, and pedestrian networks. The study area was determined by assessing the size of the proposed expansion and its anticipated transportation impacts. The study area includes the following existing intersections:

- ▶ James Hill Court/Hospital Southeast Driveway and Campbell Drive (Unsignalized);
- ▶ Hospital Southwest Driveway and Campbell Drive (Unsignalized);
- ▶ Hospital North Driveway and Victoria Drive (Unsignalized);
- ▶ Victoria Drive and Toronto Street South (Unsignalized); and,
- ▶ Campbell Drive and Toronto Street South (Signalized).

2.1 ROAD NETWORK

The following section provides a description and classification of the roadways within the study area that facilitate access to the subject site. **Figure 2-1** illustrates the existing lane configuration and traffic control.

Figure 2-1: Existing Lane Configuration and Traffic Control



Toronto Street South is a north-south Type “B” arterial road within the study area. Toronto Street South operates with a three-lane cross section (1 lanes per direction along with dedicated left or right turn lanes),

with sidewalks provided along both sides of the street. The posted speed within the study area is 50 km/h. On-street parking is not permitted along Toronto Street South.

Campbell Drive is an east-west local road within the study area. Campbell Drive operates with a two-lane cross section (one lane per direction). Campbell Drive operates from Toronto Street South in the east towards Cemetery Road to the south before terminating. Campbell Drive has a posted speed limit of 40 km/h and on-street parking is not permitted within the study area.

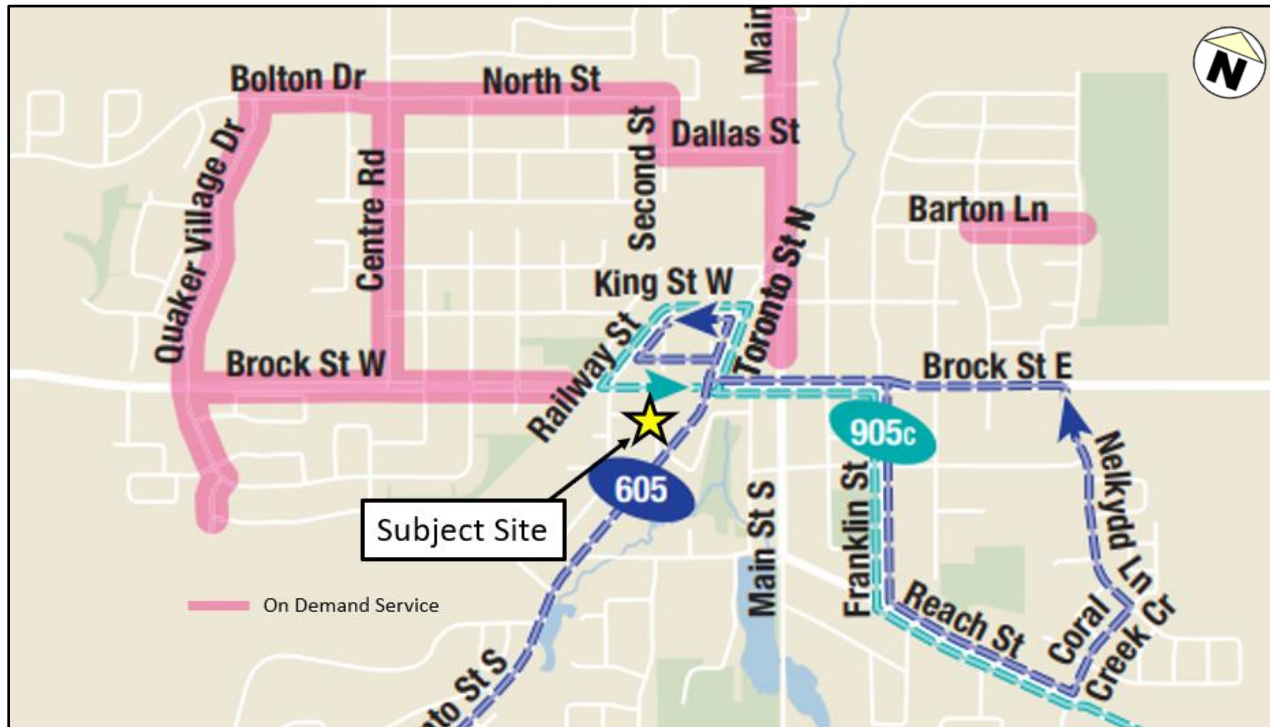
Victoria Drive is a north-south local road within the study area. Victoria Drive operates with a two-lane cross section (one lane per direction). Victoria Drive operates from Toronto Street South in the south towards Brock Street West before converting to Railway Street in the north. Victoria Drive has an assumed speed limit of 40 km/h and on-street parking is permitted during evenings and weekends on the north/east side of the street.

James Hill Court is a north-south private U-shaped road within the study area. James Hill Court operates with a two-lane cross section (one-lane in each direction) along Campbell Drive. James Hill Court has an assumed speed limit of 40 km/h and on-street parking is not permitted.

2.2 EXISTING TRANSIT NETWORK

The subject site is accessible by public transit serviced by Durham Region Transit (DRT) and GO Transit. The existing transit network within the study area is described below and illustrated in **Figure 2-2**.

Figure 2-2: Existing Transit Network



Source: Durham Region Transit, Accessed July 2024

DRT Route 605 is a bus route that operates between Welwood Drive and the area of Nelkydd Lane, generally in a north-south direction along Toronto Street South. The bus route operates with headways of 30 to 60 minutes on weekdays and weekends.

Access Locations: Route 605 is accessible at the intersection of Toronto Street South and Campbell Drive (approximately a 3-minute walk or 200 meters).

GO Bus 70 Uxbridge/Mount Joy is a regional bus service operating from Railway/Albert Street in Uxbridge to Mount Joy GO Station, generally in a north-south direction. GO Bus 70 operates from 10:35 a.m. to 8:40 p.m. from Monday to Friday, and 9:35 a.m. to 7:40 p.m. on Saturdays and Sundays.

Access Locations: GO Bus 70 is accessible at the intersection of Toronto Street South and Mill Street (approximately a 5-minute walk or 350 meters).

GO Bus 71 Stouffville is a regional bus service operating from Railway/Albert Street in Uxbridge to Union Station in Toronto, generally in a north-south direction. GO Bus 71 operates from 3:30 p.m. to 4:20 a.m. from Monday to Friday, and 5:45 a.m. to 4:20 a.m. on Saturdays and Sundays.

Access Locations: GO Bus 71 is accessible at the intersection of Toronto Street South and Mill Street (approximately a 5-minute walk or 350 meters).

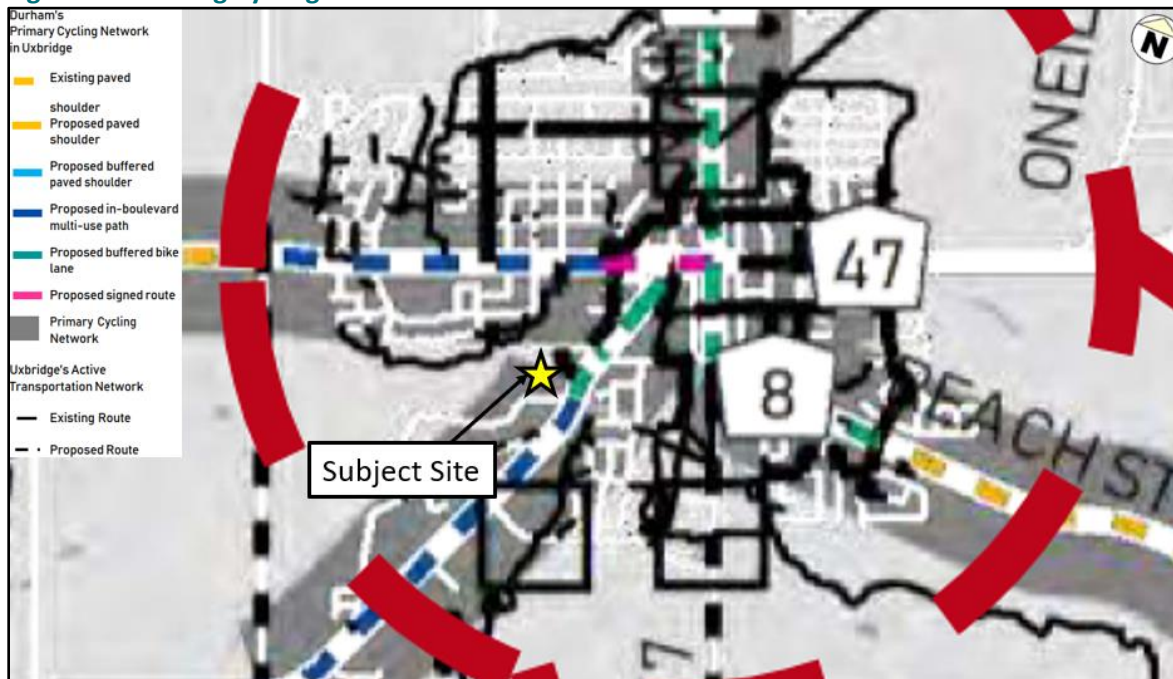
2.3 EXISTING CYCLING NETWORK

Cycling infrastructure in the area surrounding the site includes off-road trails along the South Balsam Trail and the Historic Rotary Trail. The site receives a BikeScore of 31/100, or “somewhat bikeable,” when entered into the WalkScore application, indicating the area currently has minimal bike infrastructure.

As per the Township of Uxbridge Active Transportation Plan (ATP), cycling infrastructure is proposed along Toronto Street South, consisting of an in-boulevard multi-use path (MUP) and buffered bike lane. The Township ATP indicates several planned improvements to cycling infrastructure in the community that will improve bike access to/from the site and nearby neighbourhoods.

The existing and proposed cycling network around the subject site is shown in **Figure 2-3**.

Figure 2-3 Existing Cycling Network



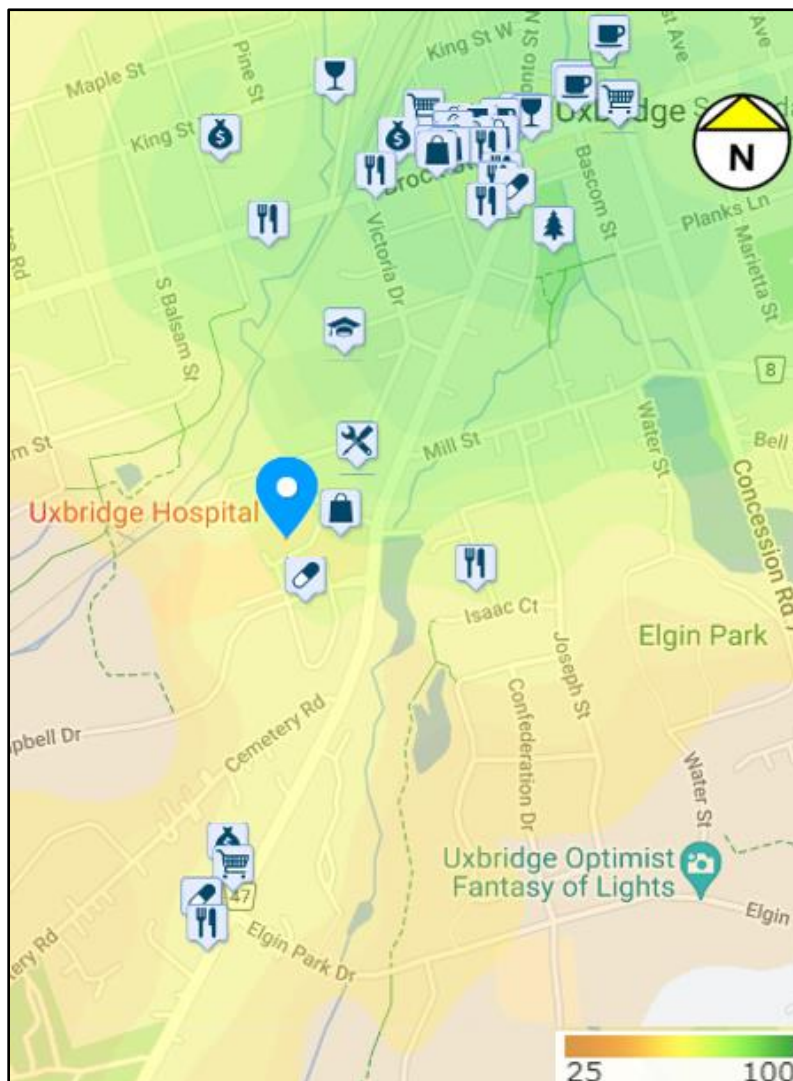
Source: Township of Uxbridge Active Transportation Plan, June 2021

2.4 EXISTING PEDESTRIAN NETWORK

Continuous sidewalks are present on both sides of Toronto Street South and on Victoria Drive leading to the hospital, while on Campbell Drive, sidewalks are only present on the north side. Landscaped buffer between sidewalks and the roadways provide additional protection for pedestrians. At the studied signalized intersection, crosswalks with protected pedestrian phases are present on all approaches.

The site receives a WalkScore of 61/100, or “Somewhat Walkable” when entered into the WalkScore application, indicating the area provides adequate infrastructure to accomplish some errands on foot. As shown in **Figure 2-4**, a 15-minute walk from the subject site could permit an individual to reach many services and amenities such as restaurants, grocery store, retail shops, and parks within Uxbridge’s downtown area.

Figure 2-4: WalkScore Gradient Map



Source: WalkScore.com, Accessed July 2024

2.5 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data in the intersection capacity analysis. LEA collected traffic counts for the unsignalized intersections within the study area on Tuesday July 16th, 2024, during the weekday AM and PM peak periods between 7:30 to 9:30 AM and 4:00 to 6:00 PM, respectively. Signal timing plans and TMC data for the signalized intersection of Toronto Street South and Campbell Drive were obtained from the Regional Municipality of Durham.

Table 2-1 summarizes the traffic data utilized in this study, with detailed TMCs and signal timing plans provided in **Appendix B**.

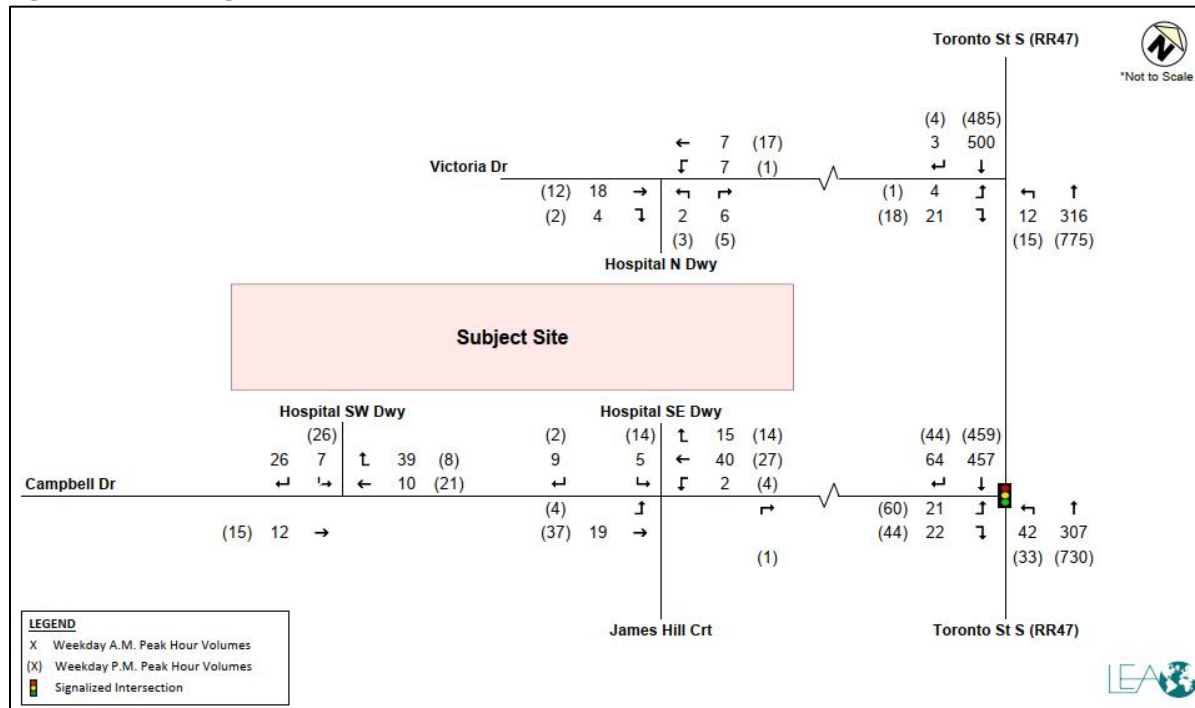
Table 2-1 Traffic Data Collection

Intersection	TMC Date	Source
Toronto Street South & Campbell Drive	Thursday September 21, 2023	Durham Region
Toronto Street South & Victoria Drive	Tuesday July 16, 2024	LEA
Hospital North Driveway & Victoria Drive		
Hospital Southwest Driveway & Campbell Drive		
Hospital Southeast Driveway/James Hill Court Driveway & Campbell Drive		

2.6 EXISTING TRAFFIC VOLUMES

The existing traffic volumes in the study area during the weekday AM and PM peak hours are illustrated in **Figure 2-5**. Traffic volume balancing was conducted for the existing traffic volumes along Toronto Street South & Campbell Drive using historical ATR data from the Region of Durham.

Figure 2-5: Existing Peak Hour Traffic Volumes



3 FUTURE BACKGROUND TRAFFIC CONDITIONS

For the analysis of future background traffic conditions, this study considers an occupancy year of 2027 along with 5- and 10-year post-buildout years of 2032 and 2037 respectively. Future background conditions include traffic added to the network from background developments and general corridor growth. The future background conditions were used as a baseline for evaluating the impact of the proposed expansion.

3.1 FUTURE ROAD NETWORK IMPROVEMENTS

Based on a review of applicable plans and background developments within the study area, no changes to the future road network were identified. Therefore, the future background road network was assumed to remain consistent with the existing road network.

3.2 CORRIDOR GROWTH

Historical counts collected in 2022 and 2023 at the intersection of Toronto Street South and Douglas Road were used to derive corridor growth rates. While historical counts generally indicated negative growth, to be conservative a growth rate of 0.5% per year has been applied to movements along the Toronto Street South corridor in both directions. Corridor growth traffic volumes are provided in **Appendix D**.

3.3 BACKGROUND DEVELOPMENTS

One (1) background development was included in the future background analysis. The background development is summarized in **Table 3-1**. Excerpts from the study providing details of the background development trips are provided in **Appendix D**.

Table 3-1: Background Developments

#	Location	Proposed Development	Source of Traffic Volumes
1	179-181 Toronto Street South	10 residential units	TIS May 20, 2022, CGE Transportation Consulting (Review number of site tips generated and split traffic on Toronto St S based on two-way traffic flow on Toronto St south of Campbell Dr.)

3.4 FUTURE BACKGROUND TRAFFIC VOLUMES

Future background traffic volumes for the weekday AM and PM peak hours under the 2027, 2032, and 2037 horizon years are illustrated in **Figure 3-1**, **Figure 3-2**, and **Figure 3-3**, respectively.

Figure 3-1: 2027 Future Background Traffic Volumes

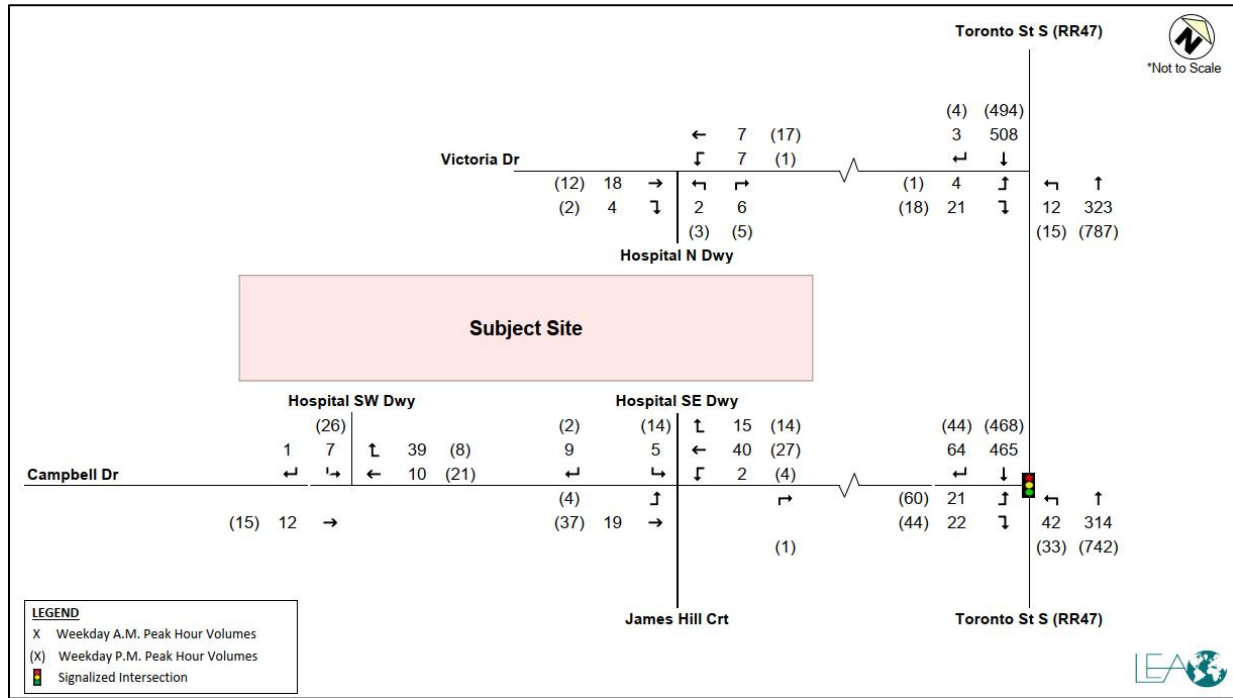


Figure 3-2: 2032 Future Background Traffic Volumes

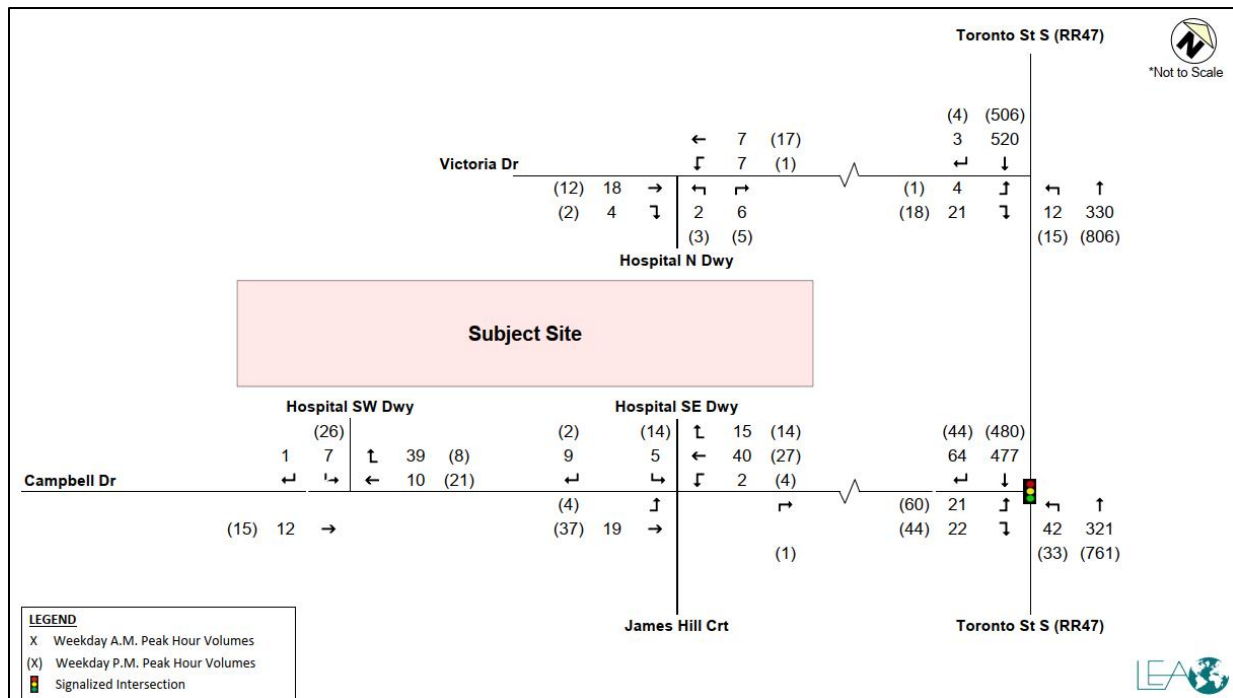
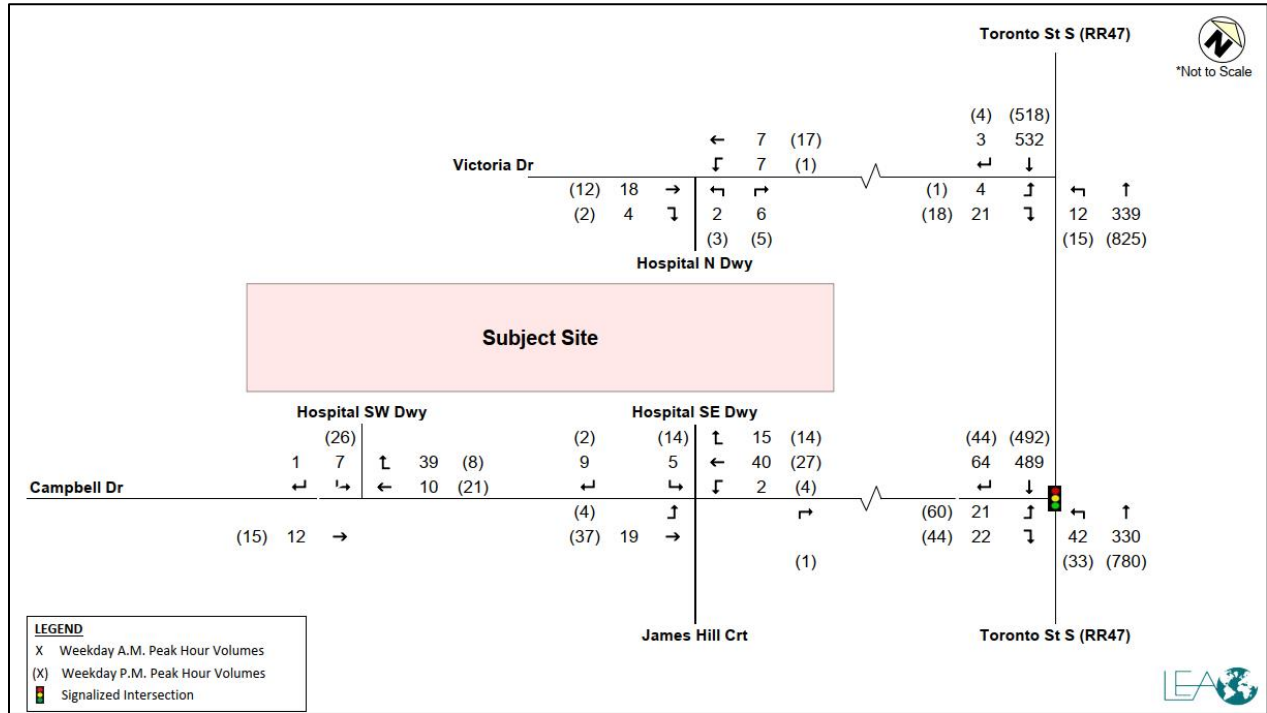


Figure 3-3: 2037 Future Background Traffic Volumes



4 SITE TRIP GENERATION

This section discusses forecasted trips associated with the proposed expansion. Vehicle access to the site will be accommodated via the existing site accesses: two (2) driveways along Campbell Drive and one (1) along Victoria Drive. All accesses permit full movements.

4.1 SITE TRIP GENERATION

Trip generation associated with the proposed hospital expansion was estimated using existing trip generation rates. For the proposed long-term care facility, ITE 11 LUC620 was applied given remoteness of location. **Table 4-1** summarizes the predicted vehicle trip generation.

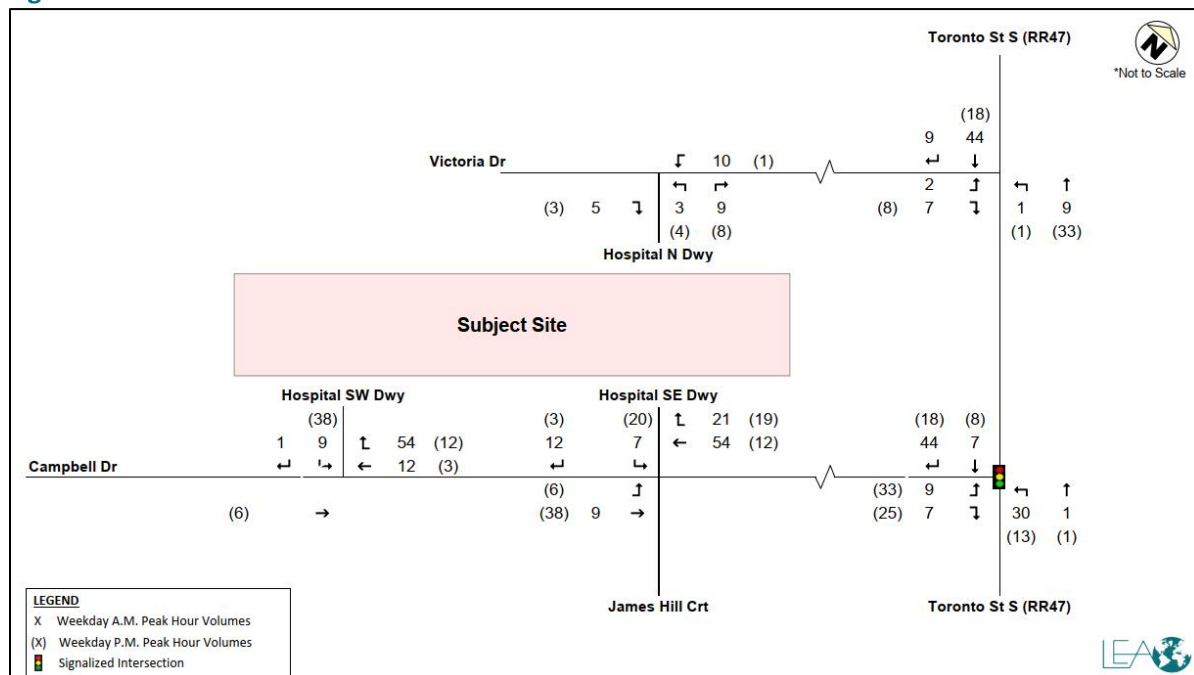
Table 4-1: Site Vehicle Trip Generation

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Hospital (Existing Trip generation rates) 92,209 ft ²	Auto Trip Rate (/1,000 ft ²)	0.78	0.36	1.14	0.35	0.60	0.95
	Total Auto Trips	72	33	105	32	55	87
	Primary External Auto Trips	72	33	105	32	55	87
Long Term Care ITE11 LUC620 Nursing Home (192 Beds)	Auto Trip Rate (/1000 ft ²)	0.10	0.04	0.14	0.05	0.09	0.14
	Total Auto Trips	19	8	27	9	18	27
	Primary External Auto Trips	19	8	27	9	18	27
Total		91	41	132	41	73	114

The proposed expansion is predicted to generate 132 two-way vehicle trips (91 inbound and 41 outbound) during the weekday AM peak hour and 114 two-way vehicle trips (41 inbound and 73 outbound) during the weekday PM peak hour.

Total site traffic volumes during the weekday AM and PM peak hours are illustrated in **Figure 4-1**.

Figure 4-1: Site Traffic Volumes



5 FUTURE TOTAL TRAFFIC CONDITIONS

Future total traffic conditions include the addition of site trips to future background volumes.

5.1 FUTURE TOTAL TRAFFIC VOLUMES

Future total traffic volumes for the weekday AM and PM peak hours during the 2027, 2032, and 2037 horizon year are illustrated in **Figure 5-1**, **Figure 5-2**, and **Figure 5-3**, respectively.

Figure 5-1: 2027 Future Total Traffic Volumes

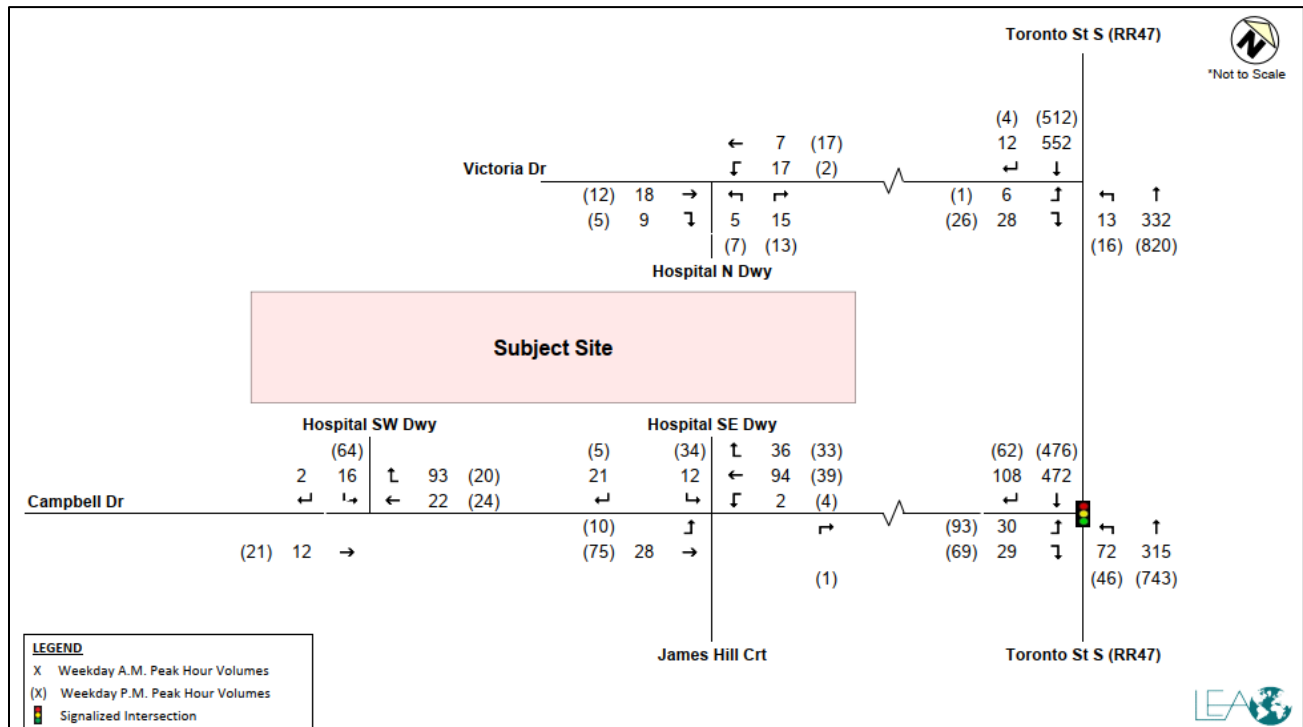


Figure 5-2: 2032 Future Total Traffic Volumes

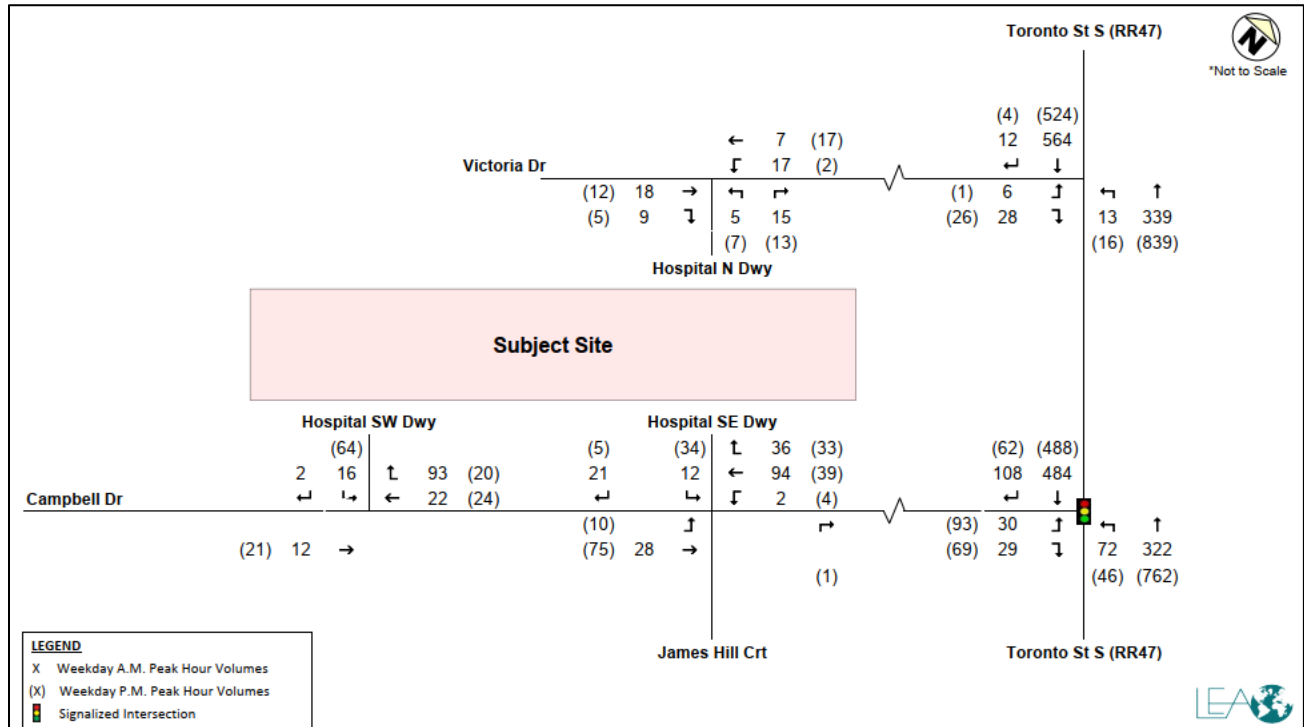
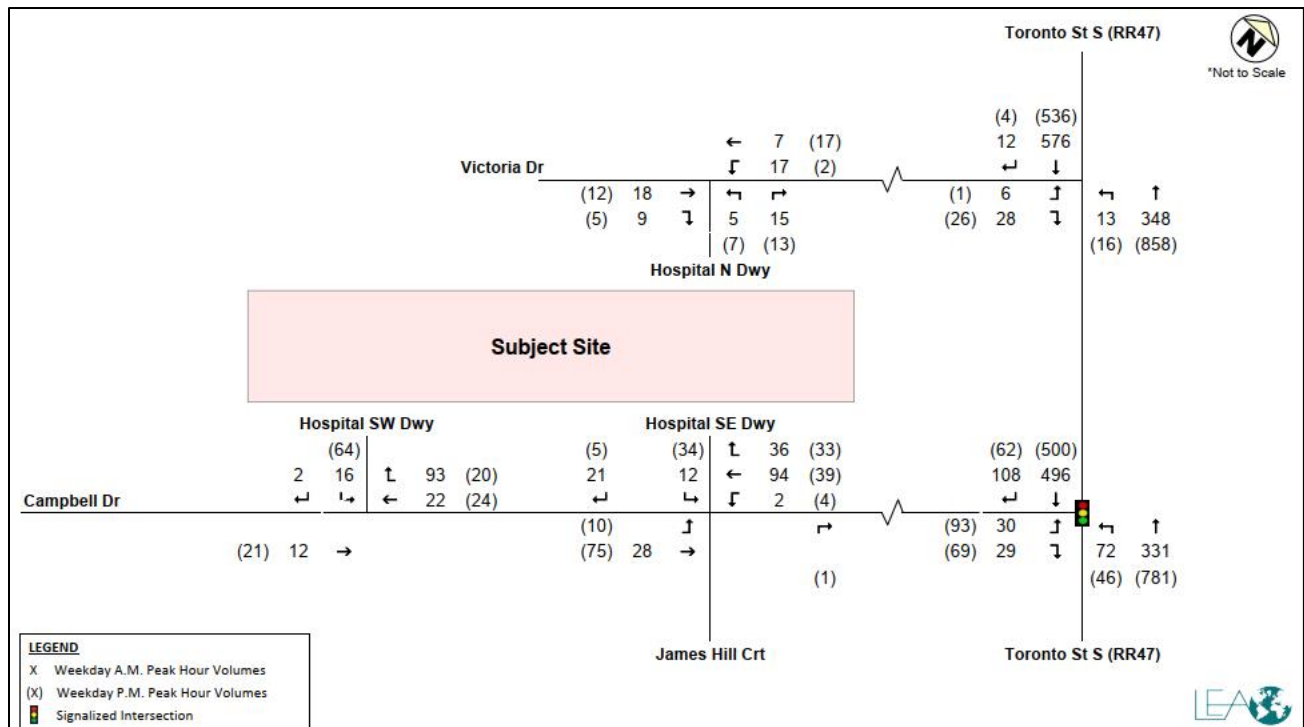


Figure 5-3: 2037 Future Total Traffic Volumes



6 INTERSECTION CAPACITY ANALYSIS

The intersection capacity analysis was undertaken using Synchro 11.0, which is based on the Highway Capacity Manual (2000) methodology and adhering to Durham Region’s Traffic Impact Study Guidelines (October 2011). Peak Hour Factors (PHF) under existing conditions for all intersections were calculated based on available traffic counts. Key movements of interest are those with a Level of Service (LOS) E or worse or a Volume-to-Capacity (V/C) ratio greater than 0.85 for through and right movements and a V/C greater than 0.9 for dedicated left-turn movements.

The sections below outline a comparison of the capacity analysis results under existing, future background and future total conditions. Detailed capacity results are provided in the following appendices:

- ▶ **Appendix E:** Existing Intersection Capacity Analysis;
- ▶ **Appendix F:** 2027 Intersection Capacity Analysis;
- ▶ **Appendix G:** 2032 Intersection Capacity Analysis; and,
- ▶ **Appendix H:** 2037 Intersection Capacity Analysis.

6.1 SIGNALIZED INTERSECTIONS

The results for the studied signalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

6.1.1 Toronto Street South and Campbell Drive

The intersection capacity analysis results at Toronto Street South and Campbell Drive during the AM and PM peak hours are summarized in **Table 6-1** and **Table 6-2**, while the queue analysis is summarized in **Table 6-3** and **Table 6-4**.

Table 6-1: Intersection Capacity Analysis - Toronto Street South and Campbell Drive (Existing & 2027)

AM		Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	
Overall	-	0.32	27	C	-	0.35	11	B	-	0.36	11	B	
EBL	21	0.03	21	C	21	0.05	22	C	30	0.07	23	C	
EBR	22	0.02	20	C	22	0.02	22	C	29	0.02	22	C	
NBL	42	0.20	22	C	42	0.13	8	A	72	0.21	9	A	
NBT	307	0.41	24	C	314	0.34	9	A	315	0.34	9	A	
SBT	457	0.62	31	C	465	0.49	12	B	472	0.50	12	B	
SBR	64	0.10	21	C	64	0.07	8	A	108	0.11	8	A	
PM		Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	
Overall	-	0.52	21	C	-	0.52	21	C	-	0.54	21	C	
EBL	60	0.10	16	B	60	0.10	17	B	85	0.14	17	B	
EBR	44	0.03	16	B	44	0.03	16	B	63	0.04	16	B	
NBL	33	0.11	12	B	33	0.11	12	B	43	0.14	12	B	
NBT	730	0.85	26	C	742	0.85	26	C	743	0.85	26	C	
SBT	459	0.53	15	B	468	0.54	15	B	474	0.55	15	B	
SBR	44	0.05	11	B	44	0.05	11	B	58	0.06	11	B	

Table 6-2: Intersection Capacity Analysis - Toronto Street South and Campbell Drive (2032 & 2037)

AM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
Overall	-	0.36	11	B	-	0.37	11	B	-	0.37	11	B	-	0.38	11	B
EBL	21	0.05	22	C	30	0.07	23	C	21	0.05	22	C	30	0.07	23	C
EBR	22	0.02	22	C	29	0.02	22	C	22	0.02	22	C	29	0.02	22	C
NBL	42	0.13	8	A	72	0.21	9	A	42	0.13	8	A	72	0.22	9	A
NBT	321	0.35	9	A	322	0.35	9	A	330	0.36	9	A	331	0.36	9	A
SBT	477	0.50	12	B	484	0.51	12	B	489	0.52	12	B	496	0.52	12	B
SBR	64	0.07	8	A	108	0.11	8	A	64	0.07	8	A	108	0.11	8	A
PM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS	Vol	V/C	Delay (s)	LOS
Overall	-	0.54	21	C	-	0.55	21	C	-	0.55	21	C	-	0.57	21	C
EBL	60	0.10	17	B	93	0.15	18	B	60	0.10	18	B	93	0.16	18	B
EBR	44	0.03	17	B	69	0.05	17	B	44	0.03	17	B	69	0.05	17	B
NBL	33	0.11	11	B	46	0.15	11	B	33	0.11	11	B	46	0.15	11	B
NBT	761	0.86	27	C	762	0.86	27	C	780	0.87	27	C	781	0.87	27	C
SBT	480	0.54	15	B	488	0.55	15	B	492	0.55	15	B	500	0.56	15	B
SBR	44	0.05	11	B	62	0.06	11	B	44	0.05	10	B	62	0.06	11	B

Table 6-3: Toronto Street South and Campbell Drive (Existing & 2027) Queues

AM	Existing Traffic		Future Background (2027)		Future Total (2027)		
Mvmt	Storage	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue
EBL	30	4	9	3	8	4	10
EBR	0	0	5	0	6	0	6
NBL	30	8	17	3	8	5	12
NBT	0	61	87	27	44	27	44
SBT	0	105	143	45	69	46	71
SBR	15	8	18	2	7	3	10
PM	Existing Traffic		Future Background (2027)		Future Total (2027)		
Mvmt	Storage	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue
EBL	30	6	16	7	16	9	21
EBR	0	0	7	0	7	0	8
NBL	30	3	7	3	7	4	9
NBT	0	95	131	97	135	96	135
SBT	0	48	66	49	68	49	69
SBR	15	1	6	1	6	2	7

Table 6-4: Toronto Street South and Campbell Drive (2032 & 2037) Queues

AM		Future Background (2032)		Future Total (2032)		Future Background (2037)		Future Total (2037)	
Mvmt	Storage	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue
EBL	30	3	8	4	10	3	8	4	10
EBR	0	0	6	0	6	0	6	0	6
NBL	30	3	8	5	12	3	9	5	12
NBT	0	28	45	28	45	29	46	29	46
SBT	0	47	72	48	73	48	74	49	76
SBR	15	2	7	3	10	2	7	3	10
PM		Future Background (2032)		Future Total (2032)		Future Background (2037)		Future Total (2037)	
Mvmt	Storage	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue	50th Queue	95th Queue
EBL	30	7	16	10	21	7	16	10	21
EBR	0	0	7	0	8	0	7	0	8
NBL	30	3	7	4	9	3	7	3	9
NBT	0	98	142	98	142	100	148	100	148
SBT	0	49	70	49	71	50	72	50	74
SBR	15	1	6	2	7	2	6	2	7

Existing Conditions: Under existing conditions, the intersection operates well during both weekday peak hours. During the PM peak period, the northbound through movement operates with a V/C of 0.85 while experiencing acceptable delays and LOS C. No intersection modifications are recommended. All other movements operate with residual capacity and acceptable delays. All existing 95th percentile queues can be accommodated by their available storage lanes.

Future Background Conditions: Under future background conditions, the intersection is expected to generally operate similar to existing conditions with acceptable increases in V/C ratios and delay. No major constraints are noted.

Future Total Conditions: Under future total conditions, the addition of site traffic is expected to have an acceptable impact on intersection operations, with all movements operating similar to future background conditions. As such, no intersection modifications are recommended.

6.2 UNSIGNALIZED INTERSECTIONS

The results for the unsignalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

6.2.1 Toronto Street South and Victoria Drive

The intersection capacity analysis results at Toronto Street South and Victoria Drive during the AM and PM peak hours are summarized in **Table 6-5** and **Table 6-6**.

Table 6-5: Intersection Capacity Analysis - Toronto Street South and Victoria Drive (Existing & 2027)

AM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBL	12	0.02	9	A	12	0.02	9	A	13	0.02	9	A
NBT	316	0.00	0	-	323	0.00	0	-	332	0.00	0	-
EBLR	25	0.07	14	B	25	0.07	14	B	32	0.09	15	B
SBT	500	0.00	0	-	508	0.00	0	-	552	0.00	0	-
SBR	3	0.00	0	-	3	0.00	0	-	10	0.00	0	-
PM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBL	15	0.02	9	A	15	0.02	9	A	16	0.02	9	A
NBT	775	0.00	0	-	787	0.00	0	-	820	0.00	0	-
EBLR	19	0.04	13	B	19	0.04	13	B	27	0.06	13	B
SBT	485	0.00	0	-	494	0.00	0	-	512	0.00	0	-
SBR	4	0.00	0	-	4	0.00	0	-	4	0.00	0	-

Table 6-6: Intersection Capacity Analysis - Toronto Street South and Victoria Drive (2032 & 2037)

AM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBL	12	0.02	9	A	13	0.02	9	A	12	0.02	9	A	13	0.02	9	A
NBT	330	0.00	0	-	339	0.00	0	-	339	0.00	0	-	348	0.00	0	-
EBLR	25	0.07	14	B	34	0.11	15	C	25	0.07	14	B	34	0.11	15	C
SBT	520	0.00	0	-	564	0.00	0	-	532	0.00	0	-	576	0.00	0	-
SBR	3	0.00	0	-	10	0.00	0	-	3	0.00	0	-	12	0.00	0	-
PM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBL	15	0.02	9	A	16	0.02	9	A	15	0.02	9	A	16	0.02	9	A
NBT	806	0.00	0	-	839	0.00	0	-	825	0.00	0	-	858	0.00	0	-
EBLR	19	0.04	13	B	27	0.06	13	B	19	0.04	13	B	27	0.06	13	B
SBT	506	0.00	0	-	524	0.00	0	-	518	0.00	0	-	536	0.00	0	-
SBR	4	0.00	0	-	4	0.00	0	-	4	0.00	0	-	4	0.00	0	-

Existing & Future Conditions: Under existing and future conditions, the intersection of Toronto Street South and Victoria Drive operates well, with no capacity, delay, or queueing issues identified during both weekday peak hours.

6.2.2 Hospital North Driveway and Victoria Drive

The intersection capacity analysis results at Hospital North Driveway and Victoria Drive during the AM and PM peak hours are summarized in **Table 6-7** and **Table 6-8**.

Table 6-7: Intersection Capacity Analysis - Hospital North Driveway and Victoria Drive (Existing & 2027)

AM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLR	8	0.01	9	A	8	0.01	9	A	20	0.03	9	A
EBT	18	0.00	0	-	18	0.00	0	-	18	0.00	0	-
EBR	4	0.00	0	-	4	0.00	0	-	9	0.00	0	-
WBL	7	0.01	7	A	7	0.01	7	A	17	0.02	7	A
WBT	7	0.00	0	A	7	0.00	0	A	7	0.00	0	A
PM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLR	8	0.01	9	A	8	0.01	9	A	20	0.03	9	A
EBT	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-
EBR	2	0.00	0	-	2	0.00	0	-	5	0.00	0	-
WBL	1	0.00	7	A	1	0.00	7	A	2	0.00	7	A
WBT	17	0.00	0	A	17	0.00	0	A	17	0.00	0	A

Table 6-8: Intersection Capacity Analysis - Hospital North Driveway and Victoria Drive (2032 & 2037)

AM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLR	8	0.01	9	A	20	0.03	9	A	8	0.01	9	A	20	0.03	9	A
EBT	18	0.00	0	-	18	0.00	0	-	18	0.00	0	-	18	0.00	0	-
EBR	4	0.00	0	-	9	0.00	0	-	4	0.00	0	-	9	0.00	0	-
WBL	7	0.01	7	A	17	0.02	7	A	7	0.01	7	A	17	0.02	7	A
WBT	7	0.00	0	A	7	0.00	0	A	7	0.00	0	A	7	0.00	0	A
PM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLR	8	0.01	9	A	20	0.03	9	A	8	0.01	9	A	20	0.03	9	A
EBT	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-
EBR	2	0.00	0	-	5	0.00	0	-	2	0.00	0	-	5	0.00	0	-
WBL	1	0.00	7	A	2	0.00	7	A	1	0.00	7	A	2	0.00	7	A
WBT	17	0.00	0	A	17	0.00	0	A	17	0.00	0	A	17	0.00	0	A

Existing & Future Conditions: Under existing and future conditions, the intersection of Hospital North Driveway and Victoria Drive operates well, with no capacity, delay, or queueing issues identified during both weekday peak hours.

6.2.3 Hospital Southwest Driveway and Campbell Drive

The intersection capacity analysis results at Hospital Southwest Driveway and Campbell Drive during the AM and PM peak hours are summarized in **Table 6-9** and **Table 6-10**.

Table 6-9: Intersection Capacity Analysis - Hospital Southwest Driveway and Campbell Drive (Existing & 2027)

AM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-
WBT	10	0.00	0	-	10	0.00	0	-	22	0.00	0	-
WBR	39	0.00	0	-	39	0.00	0	-	93	0.00	0	-
SBLR	33	0.04	9	A	8	0.01	9	A	18	0.03	9	A
PM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	15	0.00	0	-	15	0.00	0	-	21	0.00	0	-
WBT	21	0.00	0	-	21	0.00	0	-	24	0.00	0	-
WBR	8	0.00	0	-	8	0.00	0	-	20	0.00	0	-
SBLR	26	0.04	9	A	26	0.04	9	A	64	0.09	9	A

Table 6-10: Intersection Capacity Analysis - Hospital Southwest Driveway and Campbell Drive (2032 & 2037)

AM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-	12	0.00	0	-
WBT	10	0.00	0	-	22	0.00	0	-	10	0.00	0	-	22	0.00	0	-
WBR	39	0.00	0	-	93	0.00	0	-	39	0.00	0	-	93	0.00	0	-
SBLR	8	0.01	9	A	18	0.03	9	A	8	0.01	9	A	18	0.03	9	A
PM	Future Background (2032)				Future Total (2032)				Future Background (2037)				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	15	0.00	0	-	21	0.00	0	-	15	0.00	0	-	21	0.00	0	-
WBT	21	0.00	0	-	24	0.00	0	-	21	0.00	0	-	24	0.00	0	-
WBR	8	0.00	0	-	20	0.00	0	-	8	0.00	0	-	20	0.00	0	-
SBLR	26	0.04	9	A	64	0.09	9	A	26	0.04	9	A	64	0.09	9	A

Existing & Future Conditions: Under existing and future conditions, the intersection of Hospital Southwest Driveway and Campbell Drive operates well, with no capacity, delay, or queueing issues identified during both weekday peak hours.

6.2.4 James Hill Court/Hospital Southeast Driveway and Campbell Drive

The intersection capacity analysis results at James Hill Court/Hospital Southeast Driveway and Campbell Drive during the AM and PM peak hours are summarized in **Table 6-11** and **Table 6-12**.

Table 6-11: Intersection Capacity Analysis - James Hill Court/Hospital Southeast Driveway and Campbell Drive (Existing & 2027)

AM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
Overall	-	-	2	-	-	-	2	-	-	-	2	-
NBLTR	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	19	0.00	0	-	19	0.00	0	-	28	0.00	0	-
WBL	2	0.00	7	A	2	0.00	7	A	2	0.00	7	A
WBT	40	0.00	0	A	40	0.00	0	A	94	0.00	0	A
WBR	15	0.00	0	-	15	0.00	0	-	36	0.00	0	-
SBLTR	14	0.02	9	A	14	0.02	9	A	33	0.05	9	A
PM	Existing Traffic				Future Background (2027)				Future Total (2027)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
Overall	-	-	2	-	-	-	2	-	-	-	2	-
NBLTR	1	0.00	9	A	1	0.00	9	A	1	0.00	9	A
EBL	4	0.00	7	A	4	0.00	7	A	10	0.01	7	A
EBT	37	0.00	0	A	37	0.00	0	A	75	0.00	0	A
WBL	4	0.00	7	A	4	0.00	7	A	4	0.00	7	A
WBT	27	0.00	0	A	27	0.00	0	A	39	0.00	0	A
WBR	14	0.00	0	-	14	0.00	0	-	33	0.00	0	-
SBLTR	16	0.02	9	A	16	0.02	9	A	39	0.06	10	A

Table 6-12: Intersection Capacity Analysis - James Hill Court/Hospital Southeast Driveway and Campbell (2032 & 2037)

AM	Future Background 2032				Future Total (2032)				Future Background 2037				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLTR	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBL	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A	0	0.00	0	A
EBT	19	0.00	0	-	28	0.00	0	-	19	0.00	0	-	26	0.00	0	-
WBL	2	0.00	7	A	2	0.00	7	A	2	0.00	7	A	2	0.00	7	A
WBT	40	0.00	0	A	94	0.00	0	A	40	0.00	0	A	83	0.00	0	A
WBR	15	0.00	0	-	36	0.00	0	-	15	0.00	0	-	32	0.00	0	-
SBLTR	14	0.02	9	A	33	0.05	9	A	14	0.02	9	A	30	0.05	9	A
PM	Future Background 2032				Future Total (2032)				Future Background 2037				Future Total (2037)			
Mvmt	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS	Vol	V/C	Delay(s)	LOS
NBLTR	1	0.00	9	A	1	0.00	9	A	1	0.00	9	A	1	0.00	9	A
EBL	4	0.00	7	A	10	0.01	7	A	4	0.00	7	A	10	0.01	7	A
EBT	37	0.00	0	A	75	0.00	0	A	37	0.00	0	A	75	0.00	0	A
WBL	4	0.00	7	A	4	0.00	7	A	4	0.00	7	A	4	0.00	7	A
WBT	27	0.00	0	A	39	0.00	0	A	27	0.00	0	A	39	0.00	0	A
WBR	14	0.00	0	-	33	0.00	0	-	14	0.00	0	-	33	0.00	0	-
SBLTR	16	0.02	9	A	39	0.06	10	A	16	0.02	9	A	39	0.06	10	A

Existing & Future Conditions: Under existing and future conditions, the intersection of James Hill Court/Hospital Southeast Driveway and Campbell operates well, with no capacity, delay, or queueing issues identified during both weekday peak hours.

6.3 ANALYSIS SUMMARY

The analysis results indicate that the proposed hospital expansion is expected to have an acceptable impact on road network operations in the surrounding area. No intersection modifications are required within the study area.

7 PARKING AND LOADING REVIEW

This section will review the applicable vehicle and bicycle parking standards for the subject site.

7.1 VEHICLE PARKING REVIEW

The parking requirements contained in By-Law 81-19, as amended, apply to subject site. **Table 7-1** details the applicable parking requirements for the proposed hospital.

Table 7-1: Vehicle Parking Requirements - Zoning By-law 81-19

Land Use	Units	Zoning By-law 81-19		Proposed Supply
		Parking Rate	Parking Spaces	
Hospital (Proposed)	32 Beds 12,355m ² of GFA	The greater of 1 Space/2 beds OR per 38 m ² of GFA	325	303
Long-Term Care (Proposed)	242 Beds	1 space/4 beds	61	
Uxbridge Medical (Existing)	11 Doctors 24 Exam Rooms	5 spaces/practitioner, plus 1 Space/examination room exceeding 5 such rooms per office	153	
	1,578m ² of GFA	1 spaces/ 20 m ² of GFA		
Total			539	303

As detailed in **Table 7-1**, a minimum of 539 parking spaces are required based on the proposed GFA of the hospital expansion. The proposed parking supply of 303 spaces is deficient, resulting in a shortfall of 236 parking spaces. The deficit in parking supply will be resolved through a subsequent Parking Study at a during the following application submission.

7.1.1 Accessible Parking Requirements

The Township of Uxbridge By-Law 2013-184, as amended, requires accessible parking spaces for all new developments. The required accessible parking requirements and proposed supply are detailed in **Table 7-2**.

Table 7-2: Accessible Parking Requirements

Total Parking	Zoning By-law 2013-184	
	Required Rate	Proposed Accessible Parking
303	Between 201 to 400 parking spaces requires a minimum of 5 accessible parking spaces	10 Spaces

The proposed hospital is required to provide a minimum of five (5) accessible parking space as per the latest requirements. The proposed expansion proposes a total of 10 accessible parking spaces, exceeding the by-law requirement.

7.2 BICYCLE PARKING REVIEW

While The Township of Uxbridge By-laws 81-19 or 2013-184 do not specify bicycle parking requirements, a total of 40 bicycle parking spaces are currently proposed for the site to accommodate both employees and visitors, in accordance to LEED V4 guidelines. Per LEED guidelines, a minimum of 2.5% of all peak visitors must be provided for short-term bicycle parking, and at least 5% of regular building occupants must be required for

long-term bicycle parking. As such, it is estimated that 7 short-term and 9 long-term bicycle parking spaces will be required to satisfy LEED requirements.

The proposed bicycle parking supply is summarized in **Table 7-3** and will support cycling as a travel alternative to and from the site. The proposed bicycle parking will also contribute towards an overall TDM strategy for the site that will be further developed through the submission process.

Table 7-3: Proposed Bicycle Parking Supply

Land Use	Beds / GFA	Bicycle Parking Rate	Proposed Bicycle Parking Spaces
Hospital	32 Beds	1.25 spaces/bed	40

The proposed bicycle parking spaces will be located at-grade, within 60m of building entrances to provide convenient access for employees and visitors, satisfying LEED requirements.

7.3 LOADING AND CIRCULATION REVIEW

The applicable loading requirements under By-law 81-19 were reviewed and applied to the proposed hospital, as detailed in **Table 7-4**.

Table 7-4: Loading Space Requirements (By-law 81-19)

Land Use	GFA m ²	Uxbridge ZBL 81-19		
		Required Rate	Required	Proposed Supply
Hospital	13,006	3 spaces plus 1 additional space for each additional 9,200 square metres or fractional part thereof in excess of 7,500 square metres	4	4
Total		-	4	4

As per By-law 81-19, the proposed hospital is required to provide a total of four (4) loading spaces. Per the latest site plan, a total of four (4) loading spaces are proposed, meeting the requirements.

A functional review of the site was completed to confirm that loading and fire services can safely circulate within the site. The lay-bys on the east side of the circular driveway were also reviewed for vehicular functionality. The swept path drawings, Traffic Management and Implementation Plan (TMIP) and sightline analysis are available in **Appendix I**.

8 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a set of initiatives and policies to reduce traffic demand by influencing travel behavior. Effective TDM measures can reduce vehicle usage and encourage people to engage in more sustainable transportation modes including public transit and shared rides, as well as active transportation, such as walking and cycling. The TDM opportunities and proposed TDM measures are described in the following sections.

8.1 CYCLING-BASED STRATEGIES

Provision of bicycle parking supply on-site

The proposed hospital will include 40 bicycle parking spaces consisting of both short-term and long-term spaces. Bicycle parking spaces will be located in highly accessible, weather protected locations, near the building entrances.

Promote and increase cycling awareness

Provide information packages to encourage cycling as a viable opportunity of active transportation. This should include educating employees on the health and environmental benefits of cycling, as well as providing maps of the cycling network and available infrastructure in the surrounding area. The applicant should provide the information packages and communications to be distributed to future employees.

8.2 PEDESTRIAN-BASED STRATEGIES

Safe and attractive walkways linking building entrances with public sidewalks

The proposed pedestrian entrances to the hospital will have sidewalks and pathways that directly connect to the internal driveways and external roadways. The existing sidewalk along the north side of Campbell Drive will connect to an internal sidewalk which will lead pedestrians towards the main entrance of the hospital. These connections to existing streets will provide convenient access for pedestrians, transit users, and cyclists.

Enhanced pedestrian amenities on-site

The site will incorporate enhanced pedestrian amenities on-site, including additional landscaping, and lighting. These features will improve the overall wayfinding experience and provide additional safety measures through higher visibility.

8.3 TRANSIT-BASED STRATEGIES

Enhanced walking routes between main building entrances and transit stops

As mentioned in **Section 2.2**, the hospital is served by existing bus routes operated DRT and GO Transit. Existing sidewalks provided along Campbell Drive and Victoria Drive allow for direct connections to the current transit stops along Toronto Street South. Accessibility to transit will help reduce automobile travel in the area. It should also be noted that there are ongoing discussions with DRT to provide a DSR on-site, as illustrated in **DWG 008** of **Appendix I**. While details are yet to be confirmed, this transit stop is proposed to stop at the entrance of the hospital, allowing for improved access to the hospital.

Weather-protected waiting areas

Weather-protected transit stops are provided by DRT at the existing transit stops along Toronto Street South. This amenity will benefit users and increase the attractiveness of travelling to the site via transit.

Presto Cards with pre-loaded value shall be provided to all new tenants.

As Presto becomes a dominant form of payment for transit throughout the Greater Toronto Area, it is recommended that Presto Cards with a pre-loaded value be provided to employees of the hospital to encourage use of the transit services in their community. This provides an opportunity for employees to experience the benefits of using transit and induce transit behaviour to new users.

Transit information and travel planning resources on-site and adjacent to bus stops

For hospital employees to take advantage of the transit services surrounding the subject site (DRT & GO Transit), it is recommended that information packages and communications be provided to increase transit awareness and multi-modal transport by encouraging active transportation and different travel demand management programs. The information packages should contain public transit information such as route maps and timetables.

8.4 PARKING AND TRAVEL-BASED STRATEGIES

Enforced paid public parking

Paid parking for visitors reduces parking demand and discourages auto use. Parking fees should be priced higher than a two-way transit fare, making non-auto modes a more cost-effective option. A single trip adult fare for DRT using Presto costs \$3.60. As per the Victoria Transport Policy Institute paper on Transportation Elasticities, the introduction of a \$6 parking fee was associated with a 21% decline in the share of commuting trips by private vehicle (Todd Litman, "Understanding Transport Demands and Elasticities", 2017).

Smart Commute Durham

Smart Commute Durham is an online forum that promotes healthy and sustainable travel options for commuters within the GTHA. Different modes of transportation such as carpooling, cycling, walking and public transportation are included within the Smart Commute program. It is recommended that Uxbridge Hospital register as a participating workplace with Smart Commute to provide employees with carpooling opportunities, leading to a reduction in SOVs.

8.5 TDM CONCLUSIONS

The goal of the above recommendations is to create a development that reduces single occupant vehicle trips and utilizes the multi-modal transportation infrastructure available to tenants to create a healthier, happier, and more efficient community. The Transportation Demand Management checklist is presented in **Table 8-1**.

Table 8-1: Transportation Demand Management Checklist

TDM Category	TDM Measure	Cost
Cycling	Provide bicycle parking supply on-site	Included in Site Plan
	Provide showers on-site	
Pedestrian	Walkway linkages between building entrances and sidewalks	
	Provide enhanced on-site amenities that would encourage walking and pedestrian activity	
Transit	Connection to transit networks through enhanced walking routes and weather-protected waiting areas	
	Weather protected waiting areas	
	Communication strategy and transit information provision	To be confirmed
	Presto Cards for Employees	
Parking and Travel	Provision of paid parking	Existing

9 CONCLUSIONS

- ▶ The proposed expansion will expand the existing hospital to accommodate a total of 32 beds and 12,355m² of GFA, while maintaining the existing Uxbridge Medical building. A total of 242 long-term care beds have also been included in the analysis as part of future development plans. The proposal contains 303 parking spaces at-grade. Site accesses will remain unchanged from existing conditions.
- ▶ The subject site is approximately 200 meters of DRT and GO Transit bus services along Toronto Street South. There are ongoing discussions with DRT for an additional transit stop on-site, which is proposed at the main entrance of the hospital.
- ▶ The subject site is in an area which is accessible to the existing cycling and pedestrian network. The surrounding cycling network offers access to/from the subject site. The study area provides a adequate pedestrian network with convenient access to a wide range of retail, restaurants, institutions, services, and recreational uses within convenient walking distance.
- ▶ The proposed hospital is predicted to generate 105 two-way vehicle trips (72 inbound and 33 outbound) during the weekday AM peak hour and 87 two-way vehicle trips (32 inbound 57 outbound) during the weekday PM peak hour.
- ▶ Under existing and future conditions, the signalized intersection of Toronto Street South and Campbell Drive is operating well during both weekday peak hours. During the PM peak period, the northbound through movement operates with a V/C of 0.85 while experiencing acceptable delays and LOS C. No intersection modifications are recommended. All other movements operate with residual capacity and acceptable delays. All existing 95th percentile queues can be accommodated by their available storage lanes.
- ▶ The intersection capacity analysis results indicate that the proposed hospital is expected to have an acceptable impact on road network operations in the surrounding area.
- ▶ The proposed vehicle parking supply of 303 spaces is deficient of Zoning By-law 81-19 requirements by 236 spaces. The parking supply will be resolved in the subsequent application.
- ▶ As per By-law 81-19, the proposed hospital is required to provide a total of four (4) loading spaces. A total of four (4) loading spaces are proposed, meeting the requirements.
- ▶ A number of TDM measures have been recommended to reduce single-occupant vehicle trips and encourage alternate means of travel including pedestrian connections, provision of Presto Cards and bicycle parking. A total of 40 bicycle parking will be provided.



APPENDIX A

Terms of Reference



July 23, 2024

Reference Number: 24138.00.200

Doug Robertson
Project Manager - Transportation Infrastructure
Regional Municipality of Durham, Works
Department
605 Rossland Road East, Level 5
PO Box 623, Whitby, ON L1N 6A3
Email: Doug.Robertson@Durham.ca

RE: Terms of Reference – Proposed Uxbridge Redevelopment

Dear Mr. Robertson:

We wish to confirm the following work plan for a Transportation Impact Study (TIS) for a replacement of the Oak Valley Hospital at 4 Campbell Dr, Uxbridge. The lands are situated on the northwest corner of Toronto St S and Campbell Dr. The site location is illustrated below in Figure 1.

Figure 1: Site Location



Based on the information provided to us, it is our understanding that the redevelopment is to replace the north building. The existing building contain 20 beds with an approximate size of 42,350 sq. ft. with a 2,680 sq. ft. EMS area. The replacement proposes to house 32 beds with an approximate size of 140,000 sq. ft.



The following work plan is informed by the requirements set out by *The Regional Municipality of Durham Traffic Impact Study Guidelines* dated October 2011.

STUDY AREA & TRAFFIC DATA

LEA will review the existing conditions of the surrounding area, including the existing road network (lane configuration and turning restrictions), pedestrian and cycling network, and transit network.

The study will assess the weekday AM and PM peak hours. The proposed study area will include the analysis of the following intersections:

- ▶ Toronto Street S (RR47) and Campbell Drive (Signalized);
- ▶ Toronto Street S (RR47) and Victoria Dr (Unsignalized);
- ▶ Hospital North Driveway at Victoria Drive (Unsignalized);
- ▶ West Driveway and Campbell Drive (Unsignalized); and
- ▶ South Driveway at Campbell Drive (Unsignalized).

LEA will use the most recent turning movement count (TMC) data available for the study area intersections.

TRAFFIC ASSESSMENT & STUDY HORIZON YEAR

The study will analyze weekday AM and PM peak hour traffic operations. Synchro version 12 will be used to assess intersection operations based on the HCM 2000 methodology during the peak hours. Three proposed planning horizons for analysis is 2029 (include: opening day, five (5) years and 10 years from the opening date).

BACKGROUND TRAFFIC

General Corridor Growth Rate: LEA will consult with the review agencies on assumptions for general corridor growth rate, LEA will consult with the Region on assumptions for general corridor growth rates and/or historical intersection AADT data will be reviewed of intersections in the study area to determine corridor growth rates.

Road Network Improvements: LEA will note any road network improvements identified within the study area and account for any traffic diversions associated with these improvements within our analysis.

Background Development Traffic: LEA will consult with the review agencies on background development to be considered within the study. The following background developments have been identified:

- ▶ 179-181 Toronto Street South – 10 Residential Dwelling units;
- ▶ Maple Bridge Subdivision (Phase 2) – 154 single detached dwelling units and 82 townhouse units;
- ▶ Northeast corner of Denland Lane and Brock Street East – 70 Townhouses, 12 semi-bungalow and 86 apartment units and 449.82 m².



Should no TIS be available, Trip generation will be based on ITE Trip Generation Manual 11th Edition will be applied to the proposed development. Trips from the proposed development will be assigned to the road network based on the local modal split and trip distribution based on observations of traffic patterns, and existing turn permissions/prohibitions.

TRIP GENERATION, DISTRIBUTION, & ASSIGNMENT

Trip generation will be estimated using subject site trip generation. The general trip distribution will be based on a review of existing traffic patterns. Trip assignment will be completed accordingly to reflect the configuration of site accesses, turning restrictions, and logical routings.

FUTURE TRAFFIC SCENARIOS

Future background and future total analyses for the intersections within the study area will be conducted for 2029.

REMEDIAL MEASURES

Any movements at the studied intersections that exceed a V/C ratio of 1.00 under future total conditions will be identified. If remedial actions such as signal optimization are unsuccessful, this will also be identified. If remedial measures are to be employed, a scenario will be provided demonstrating the change in intersection operations.

PARKING & LOADING

The site is currently subject to Corporation of the Township of the Township of Uxbridge Schedule A1 and A2, CF-1 (Community Facility Zone). If a shortfall in parking or loading is proposed, LEA will conduct a parking justification study to assess the appropriateness of the parking supply for the development. Loading requirements will be reviewed to ensure that the zoning by-law requirements are met.

TRANSPORTATION DEMAND MANAGEMENT

A TDM plan will be prepared and provide recommendations to promote alternate modes of travel.

Should you have any comments with our assumptions or have any concerns, please contact the undersigned at (905) 470-0015 x322 (JDoran@LEA.ca).

Yours truly,
LEA CONSULTING LTD.

Joseph Doran, B. Eng., E.I.T.
Project Coordinator

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APPENDIX B

Traffic Data & Signal Timing Plan



INTERSECTION SIGNAL TIMING REPORT

Location	Toronto St. and Campbell Dr.		
Date	2024-07-23	C&E No.	59999254
Prepared for	Lea Consulting	Prepared by	M. Patel

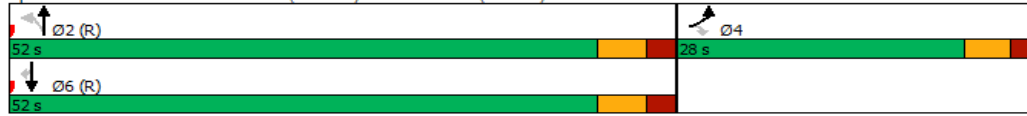
AM Peak (6:00-9:00)



Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	52	28	52
Maximum Split (%)	65.0%	35.0%	65.0%
Minimum Split (s)	32.2	23.5	32.2
Yellow Time (s)	3.9	3.6	3.9
All-Red Time (s)	2.3	1.9	2.3
Minimum Initial (s)	20	8	20
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	19	11	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 72.8 (91%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 350: TORONTO (HWY 47)/TORONTO ST (HWY47) & CAMPBELL



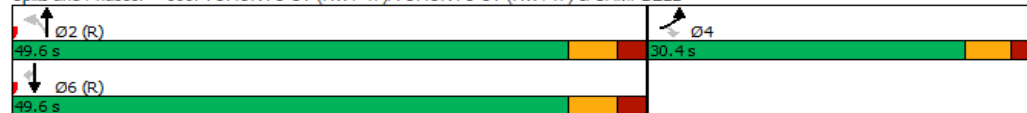
PM Peak (15:00-20:00)



Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	49.6	30.4	49.6
Maximum Split (%)	62.0%	38.0%	62.0%
Minimum Split (s)	32.2	23.5	32.2
Yellow Time (s)	3.9	3.6	3.9
All-Red Time (s)	2.3	1.9	2.3
Minimum Initial (s)	20	8	20
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	19	11	19

Intersection Summary	
Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 45.6 (57%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 350: TORONTO ST (HWY 47)/TORONTO ST (HWY47) & CAMPBELL



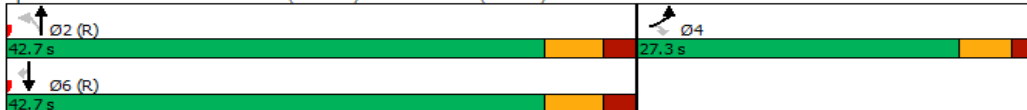
Weekend Peak (9:00-19:00)



Phase Number	2	4	6
Movement	NBTL	EBL	SBT
Lead/Lag			
Lead-Lag Optimize			
Recall Mode	C-Max	None	C-Max
Maximum Split (s)	42.7	27.3	42.7
Maximum Split (%)	61.0%	39.0%	61.0%
Minimum Split (s)	32.2	23.5	32.2
Yellow Time (s)	3.9	3.6	3.9
All-Red Time (s)	2.3	1.9	2.3
Minimum Initial (s)	20	8	20
Vehicle Extension (s)	3	3	3
Minimum Gap (s)	3	3	3
Time Before Reduce (s)	0	0	0
Time To Reduce (s)	0	0	0
Walk Time (s)	7	7	7
Flash Dont Walk (s)	19	11	19

Intersection Summary	
Cycle Length	70
Control Type	Actuated-Coordinated
Natural Cycle	60
Offset: 25.9 (37%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	

Splits and Phases: 350: TORONTO (HWY 47)/TORONTO ST (HWY47) & CAMPBELL

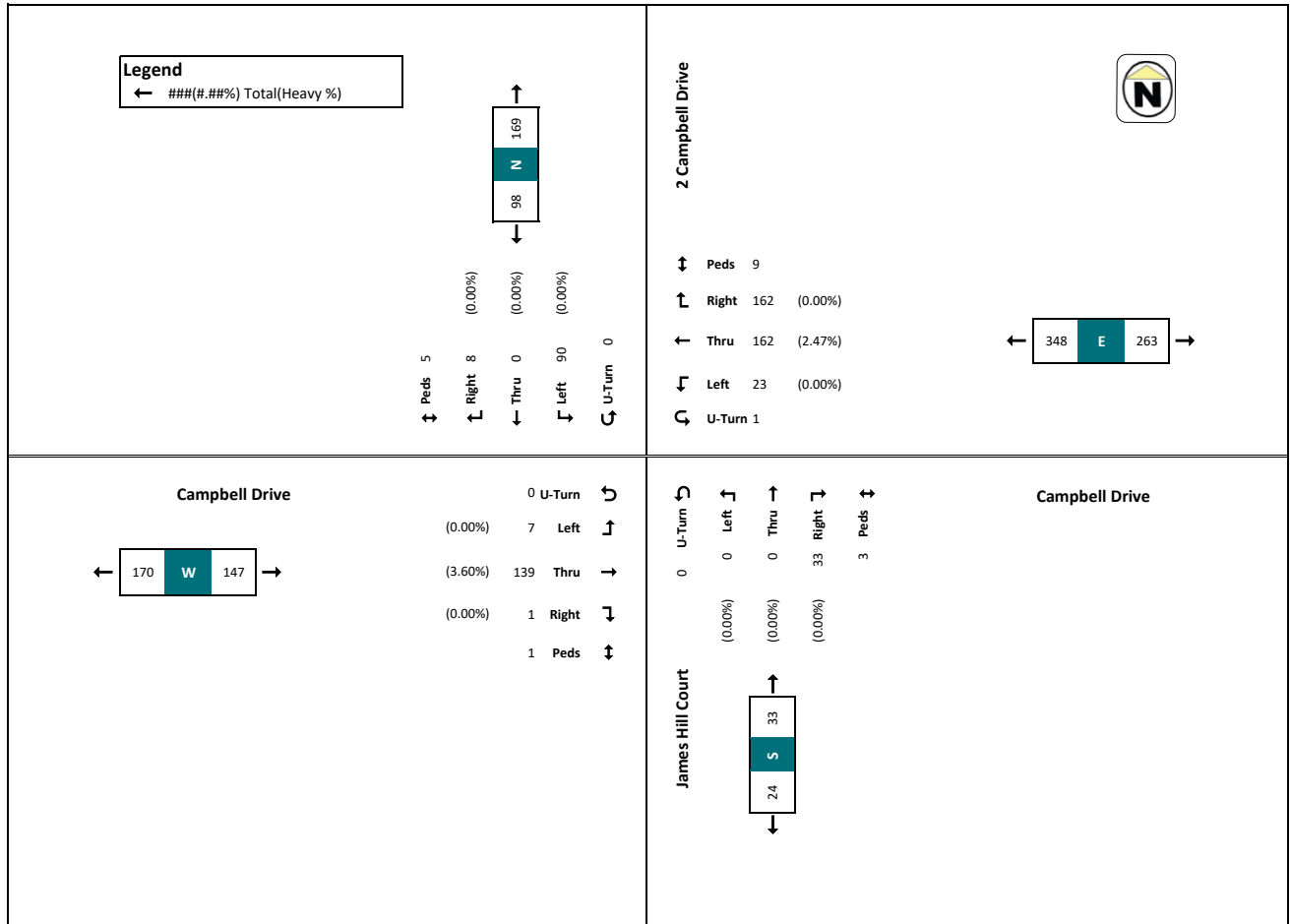


**Please note a concerted effort has been made to ensure the accuracy and completeness of the data provided, however, inadvertent errors or omissions can still occur. Please bring any errors or omissions to the Region's attention.*



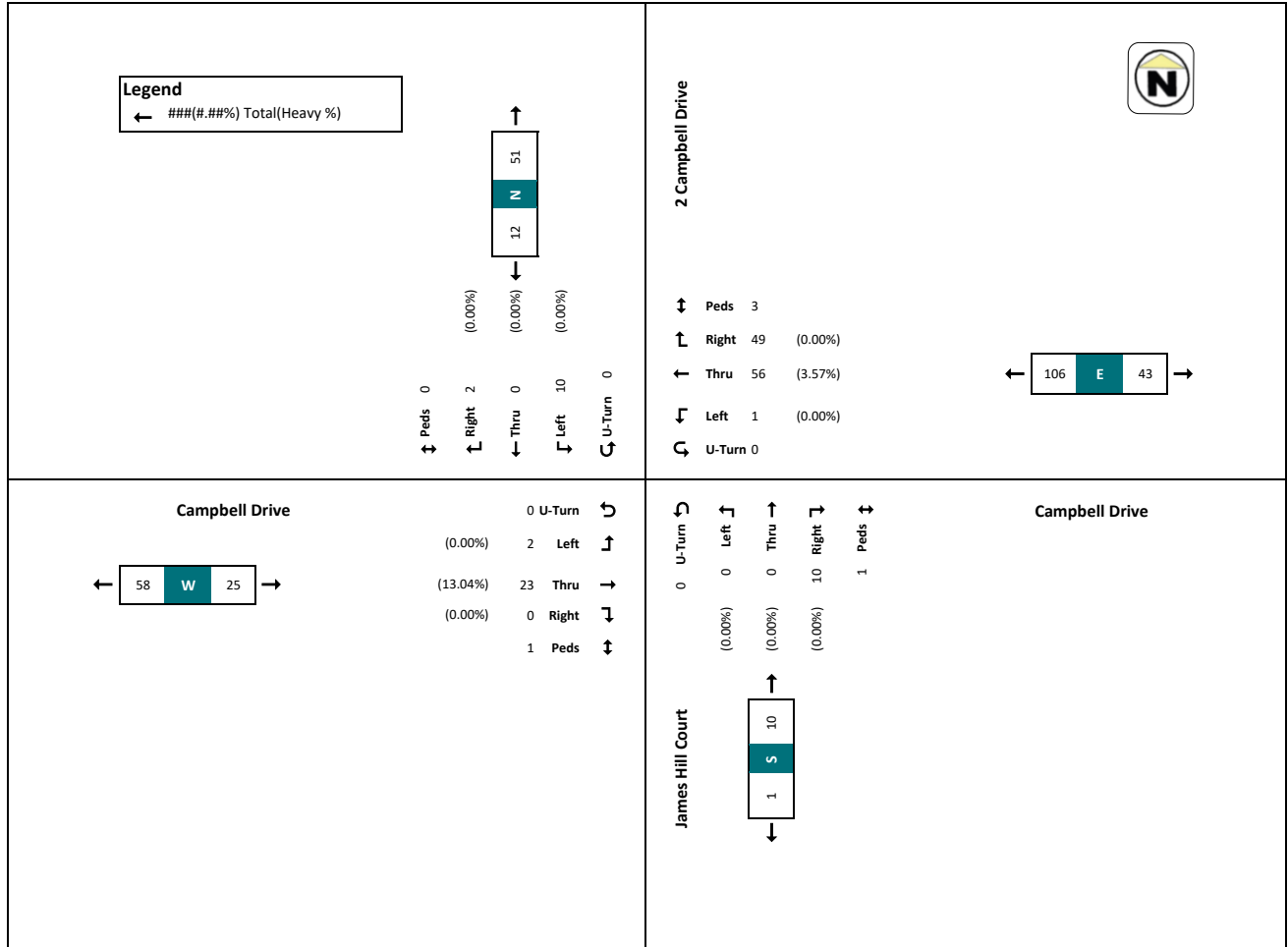
Turning Movement Count - James Hill Court & Campbell Drive

Start Time	2 Campbell Drive Southbound					Campbell Drive Westbound					James Hill Court Northbound					Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
7:30	0	0	0	0	1	0	0	0	5	6	1	11	0	0	0	2	0	2	0	0	0	0	0	5	18	
7:45	0	1	0	0	2	1	0	2	13	15	2	30	0	0	0	1	0	1	0	0	3	0	0	3	35	
Hourly Total	0	1	0	0	3	1	0	3	28	24	3	55	0	0	0	4	0	4	0	0	15	0	0	15	75	
8:00	0	2	0	1	0	3	0	0	7	10	0	17	0	0	0	2	0	2	0	0	4	0	0	4	26	
8:15	0	1	0	0	0	1	0	0	13	10	0	23	0	0	0	3	0	3	0	0	8	0	0	8	35	
8:30	0	1	0	1	0	2	0	0	15	11	1	26	0	0	0	1	0	1	0	2	5	0	0	7	36	
8:45	0	6	0	0	0	6	0	1	21	18	2	40	0	0	0	4	1	4	0	0	6	0	1	6	56	
Hourly Total	0	10	0	2	0	12	0	1	56	49	3	106	0	0	0	10	1	10	0	2	23	0	1	25	153	
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* Break *																										
16:00	0	11	0	1	0	12	0	1	10	5	2	16	0	0	0	4	1	4	0	0	17	0	0	17	49	
16:15	0	8	0	0	0	8	0	6	9	8	0	23	0	0	0	5	0	5	0	1	15	0	0	16	52	
16:30	0	13	0	1	0	14	0	3	9	4	1	16	0	0	0	1	0	1	0	0	11	1	0	12	43	
16:45	0	9	0	3	0	12	0	1	7	11	0	19	0	0	0	1	1	1	0	0	7	0	0	7	39	
Hourly Total	0	41	0	5	1	46	0	11	35	28	3	74	0	0	0	11	2	11	0	1	50	1	0	52	183	
17:00	0	17	0	1	0	18	0	3	14	1	0	18	0	0	0	2	0	2	0	0	15	0	0	15	53	
17:15	0	9	0	0	0	9	0	2	10	7	0	19	0	0	0	0	0	0	0	0	13	0	0	13	41	
17:30	0	7	0	0	1	7	0	2	11	3	0	16	0	0	0	3	0	3	0	0	8	0	0	8	34	
17:45	0	5	0	0	0	5	1	1	8	8	0	18	0	0	0	3	0	3	0	2	15	0	0	17	43	
Hourly Total	0	38	0	1	1	39	1	8	43	19	0	71	0	0	0	8	0	8	0	2	51	0	0	53	171	
Grand Total	0	90	0	8	5	98	1	23	162	120	9	306	0	0	0	33	3	33	0	5	139	1	1	145	582	
Approach %	0.0%	91.8%	0.0%	8.2%	-	-	0.3%	7.5%	52.9%	39.2%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	3.4%	95.9%	0.7%	-	-	-	
Total %	0.0%	15.5%	0.0%	1.4%	-	16.8%	0.2%	4.0%	27.8%	20.6%	-	52.6%	0.0%	0.0%	0.0%	5.7%	0.0%	5.7%	0.0%	0.9%	23.9%	0.2%	-	24.9%	-	
Lights	0	90	0	8	-	98	1	23	158	120	-	302	0	0	0	33	-	33	0	5	134	1	-	140	573	
% Lights	-	100.0%	-	100.0%	-	100.0%	100.0%	100.0%	97.5%	100.0%	-	98.7%	-	-	-	100.0%	-	100.0%	-	100.0%	96.4%	100.0%	-	-	96.6%	98.5%
Buses	0	0	0	0	0	0	-	0	0	0	-	0	0	0	0	0	-	0	-	0	0	0	-	0	0	
% Buses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	-	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	0.0%	
Trucks	0	0	0	0	0	0	-	0	0	0	-	0	0	0	0	0	-	0	-	0	0	0	-	0	0	
% Trucks	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	2.5%	0.0%	-	1.3%	-	-	-	0.0%	-	0.0%	-	0.0%	3.6%	0.0%	-	3.4%	1.5%	
Bicycles	-	-	-	-	0	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pedestrians	-	-	-	-	5	-	-	-	11	-	9	-	-	-	-	3	-	-	-	-	-	-	1	-	18	



AM Peak Hour - James Hill Court & Campbell Drive

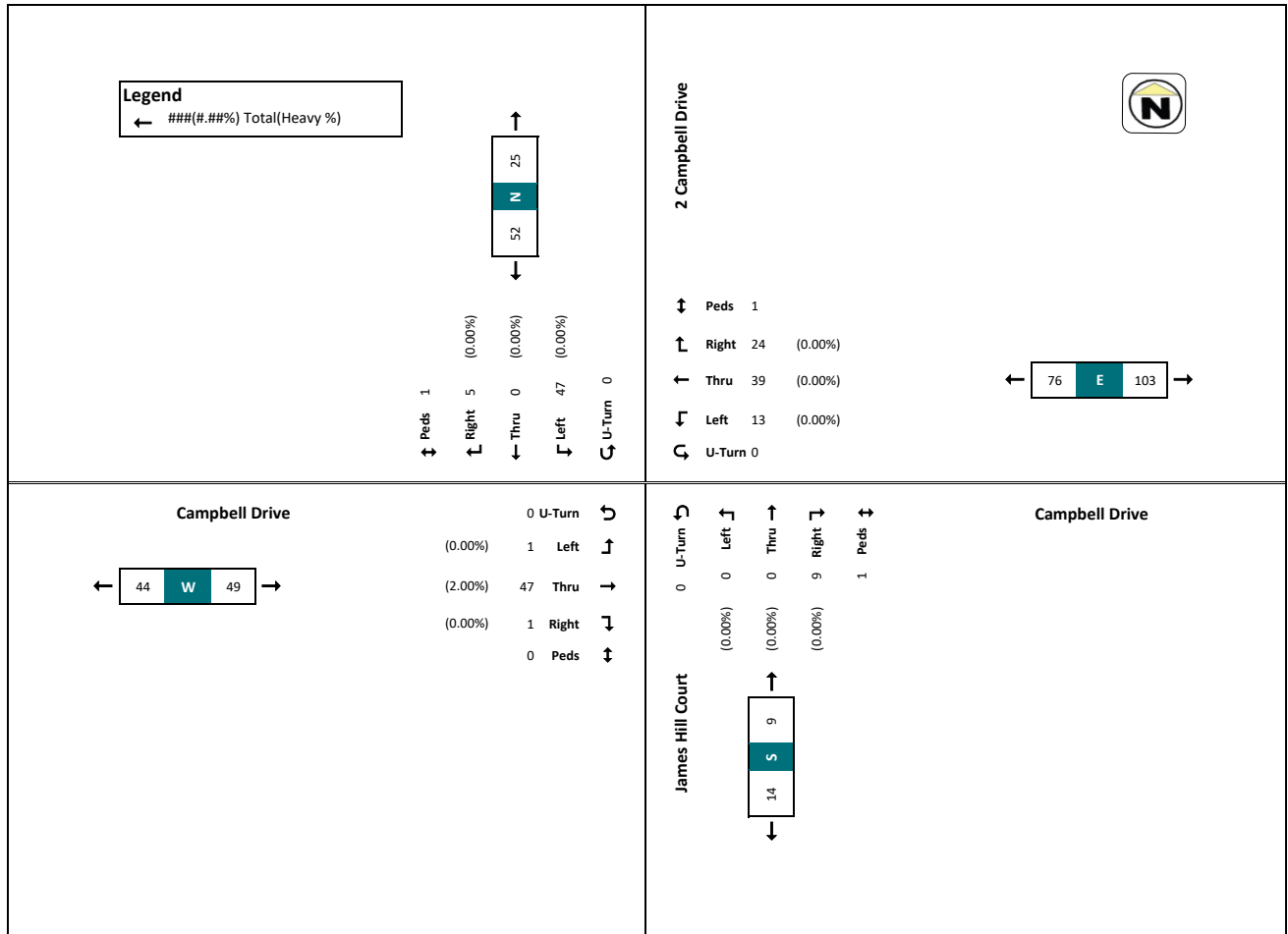
Start Time	2 Campbell Drive Southbound					Campbell Drive Westbound					James Hill Court Northbound				Campbell Drive Eastbound					Grand Total						
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total								
8:00	0	2	0	1	0	3	0	0	7	10	0	17	0	0	0	2	0	2	0	0	4	0	0	4	26	
8:15	0	1	0	0	0	1	0	0	13	10	0	23	0	0	0	3	0	0	0	0	8	0	0	8	35	
8:30	0	1	0	1	0	2	0	0	15	11	1	26	0	0	1	0	2	5	0	0	0	0	0	7	36	
8:45	0	6	0	0	0	6	0	1	21	18	2	40	0	0	0	4	1	4	0	0	6	0	1	6	56	
Hourly Total	0	10	0	2	0	12	0	1	56	49	3	106	0	0	0	10	1	10	0	2	23	0	1	25	153	
Approach %	0.0%	83.3%	0.0%	16.7%	-	-	0.0%	0.9%	52.8%	46.2%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	8.0%	92.0%	0.0%	-	-	-	
Total %	0.0%	6.5%	0.0%	1.3%	7.8%	0.0%	0.7%	36.6%	32.0%	-	69.3%	0.0%	0.0%	6.5%	0.0%	1.3%	15.0%	0.0%	-	16.3%	15.0%	0.0%	-	16.3%	-	
PHF	0	0.42	0	0.5	0.5	0	0.25	0.67	0.68	-	0.66	0	0	0	0.63	0.63	0	0.25	0.72	0	-	0.78	0.68	0.68	-	
% Lights	0	10	0	2	0	12	0	1	54	49	-	104	0	0	10	10	0	2	20	0	-	22	168	168	-	
% Lights	-	100.0%	-	100.0%	-	100.0%	-	100.0%	96.4%	100.0%	-	98.1%	-	-	100.0%	-	100.0%	87.0%	-	-	88.0%	96.7%	-	-	96.7%	-
% Buses	-	0.0%	-	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	-	0.0%	-	0.0%	0.0%	-	-	0.0%	0.0%	-	0.0%	0.0%	-
% Trucks	-	0.0%	-	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	-	0.0%	-	0.0%	0.0%	-	-	0.0%	0.0%	-	0.0%	0.0%	-
% Bicycles	-	0.0%	-	0.0%	0.0%	-	0.0%	3.6%	0.0%	-	1.9%	-	-	-	0.0%	-	0.0%	-	-	-	13.0%	-	-	12.0%	3.3%	-
Pedestrians	-	-	-	-	0	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	4	-





PM Peak Hour - James Hill Court & Campbell Drive

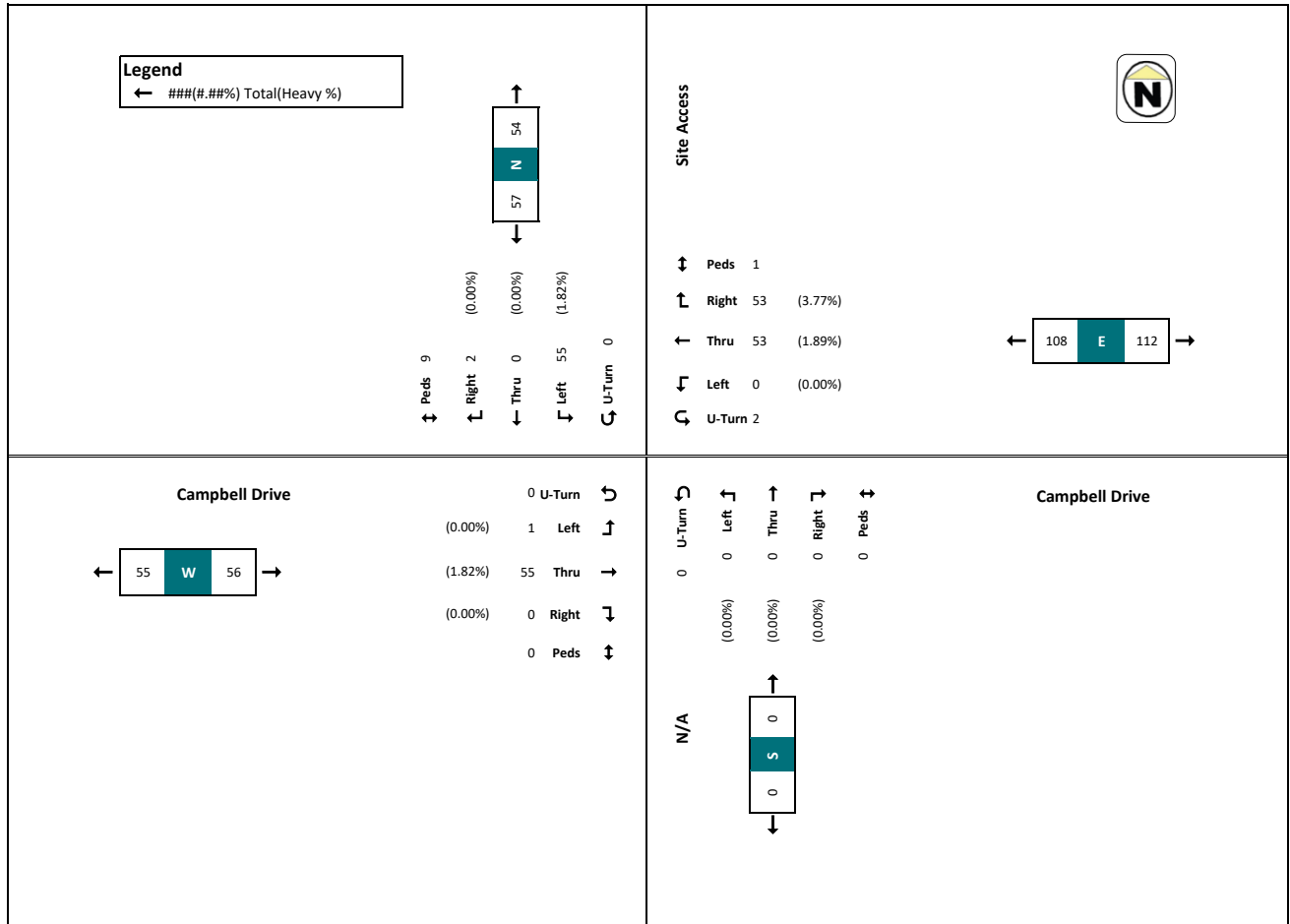
Start Time	2 Campbell Drive Southbound					Campbell Drive Westbound					James Hill Court Northbound					Campbell Drive Eastbound					Grand Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
16:15	0	8	0	0	1	9	0	6	9	8	0	23	0	0	0	5	0	5	0	1	15	0	0	16	52
16:30	0	13	0	0	0	14	0	3	9	4	1	16	0	0	0	1	0	1	0	0	11	0	0	12	43
16:45	0	9	0	3	0	12	0	1	7	11	0	19	0	0	0	1	1	1	0	0	7	0	0	7	39
17:00	0	17	0	1	0	18	0	3	14	1	0	18	0	0	0	2	0	2	0	0	15	0	0	15	53
Hourly Total	0	47	0	5	1	52	0	13	39	24	1	76	0	0	0	9	1	9	0	1	48	1	0	50	187
Approach %	0.0%	90.4%	0.0%	9.6%	-	-	0.0%	17.1%	53.3%	31.6%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	2.0%	96.0%	2.0%	-	-	
Total %	0.0%	25.1%	0.0%	2.7%	-	27.8%	0.0%	8.5%	25.5%	12.8%	-	40.6%	0.0%	0.0%	0.0%	9.9%	-	4.8%	0.0%	0.7%	31.4%	0.7%	-	26.7%	
PIV	0	0.69	0	0.42	-	0.72	0	0.54	0.7	0.55	-	0.83	0	0	0	0.45	-	0.45	0	0.25	0.8	0.25	-	0.78	
Lights	0	47	0	5	-	52	0	13	38	24	-	75	0	0	0	9	-	9	0	1	47	1	-	49	
% Lights	-	100.0%	-	100.0%	-	100.0%	-	100.0%	97.4%	100.0%	-	98.7%	-	-	-	100.0%	-	100.0%	-	100.0%	97.9%	100.0%	-	-	98.0%
Buses	0	0	0	0	-	0	-	0	0	0	-	0	0	0	0	0	-	0	-	0	0	0	-	0	
% Buses	0.0%	0.0%	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	-	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%
Trucks	-	0	0	0	-	0	-	0	1	1	-	1	-	-	-	0	-	0	-	0	1	0	-	1	
% Trucks	-	0.0%	-	0.0%	-	0.0%	-	0.0%	2.6%	0.0%	-	1.3%	-	-	-	0.0%	-	0.0%	-	0.0%	2.1%	0.0%	-	-	1.1%
Bicycles	-	-	-	0	0	-	-	-	-	-	0	0	-	-	-	0	0	-	0	-	-	0	0	-	0
Pedestrians	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	1





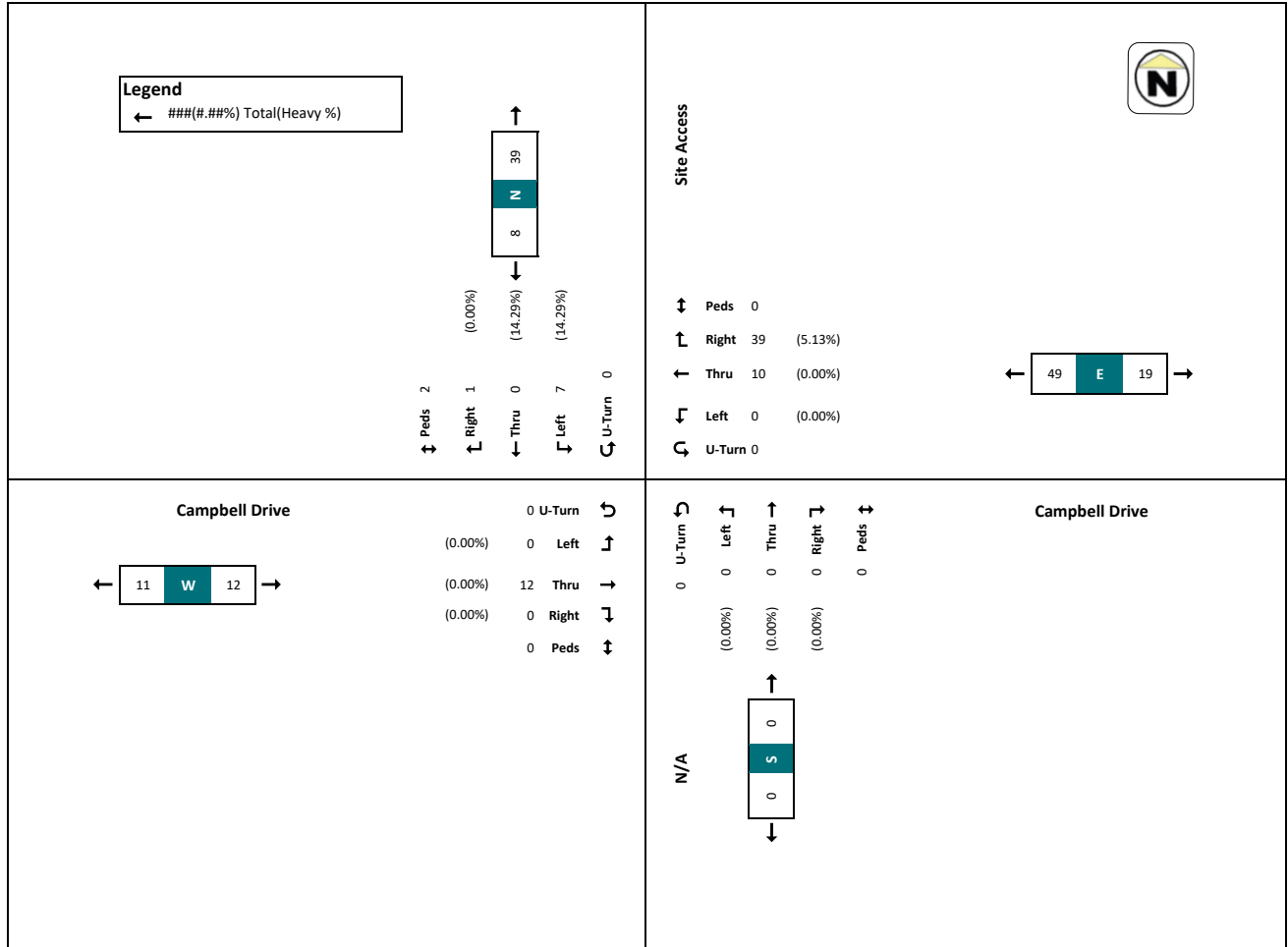
Turning Movement Count - Site Access & Campbell Drive

Start Time	Site Access Southbound						Campbell Drive Westbound						N/A Northbound						Campbell Drive Eastbound						Grand Total												
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total													
7:30	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:45	0	0	0	0	1	0	0	0	0	2	11	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	14
Hourly Total	0	1	0	0	2	1	0	0	0	2	11	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	14
8:00	0	1	0	1	0	2	0	0	2	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15	0	3	0	0	0	3	0	0	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30	0	1	0	0	0	1	0	0	4	11	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
8:45	0	2	0	0	2	2	0	0	4	13	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Hourly Total	0	7	0	1	2	8	0	0	10	39	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* Break *																																					
16:00	0	6	0	1	1	7	1	0	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9	0	0	0	10	27
16:15	0	6	0	0	0	6	0	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
16:30	0	6	0	0	0	6	0	0	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
16:45	0	2	0	0	0	2	1	0	5	4	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hourly Total	0	20	0	1	3	21	2	0	17	7	1	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	0	0	0	23	70
17:00	0	12	0	0	0	12	0	0	7	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17:15	0	5	0	0	0	5	0	0	6	2	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
17:30	0	2	0	0	0	2	0	0	5	2	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
17:45	0	5	0	0	0	5	0	0	2	5	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Hourly Total	0	24	0	0	0	24	0	0	20	11	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Grand Total	0	55	0	2	9	57	2	0	53	79	1	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	55	0	0	0	56	247
Approach %	0.0%	96.5%	0.0%	3.5%	-	-	1.5%	0.0%	39.6%	59.0%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	0.0%	1.8%	98.2%	0.0%	-	-	-	-	-	-	-		
Total %	0.0%	22.3%	0.0%	0.8%	-	23.1%	0.8%	0.0%	21.5%	32.0%	-	54.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	22.3%	0.0%	-	22.7%	-	-	-	-	22.7%		
Lights	0	54	0	2	-	56	2	0	52	77	-	131	0	0	0	0	0	0	0	0	0	0	0	0	0	1	54	0	-	55	-	-	-	-	-	242	
% Lights	-	98.2%	-	100.0%	-	98.2%	100.0%	-	98.1%	97.5%	-	97.8%	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0%	98.2%	-	-	98.2%	-	-	-	-	-	98.0%	
% Buses	-	0	0	0	0	0	-	0	0	0	-	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	-	0	-	-	-	-	-	0	
% Buses	-	0.0%	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	-	-	-	0.0%		
% Trucks	-	1	0	0	0	1	-	0	1	2	-	3	-	0	0	0	0	-	0	0	0	0	-	0	0	0	1	0	-	1	-	-	-	-	-	1	
% Trucks	-	1.8%	-	0	-	1.8%	-	0	1.9%	2.5%	-	2.2%	-	0	0	0	0	-	0	0	0	0	-	0	0	0.0%	3.8%	-	-	1.8%	-	-	-	-	-	2.0%	
Bicycles	-	-	-	-	-	0	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	-	-	-	-	-	0	
Pedestrians	-	-	-	-	9	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	10	



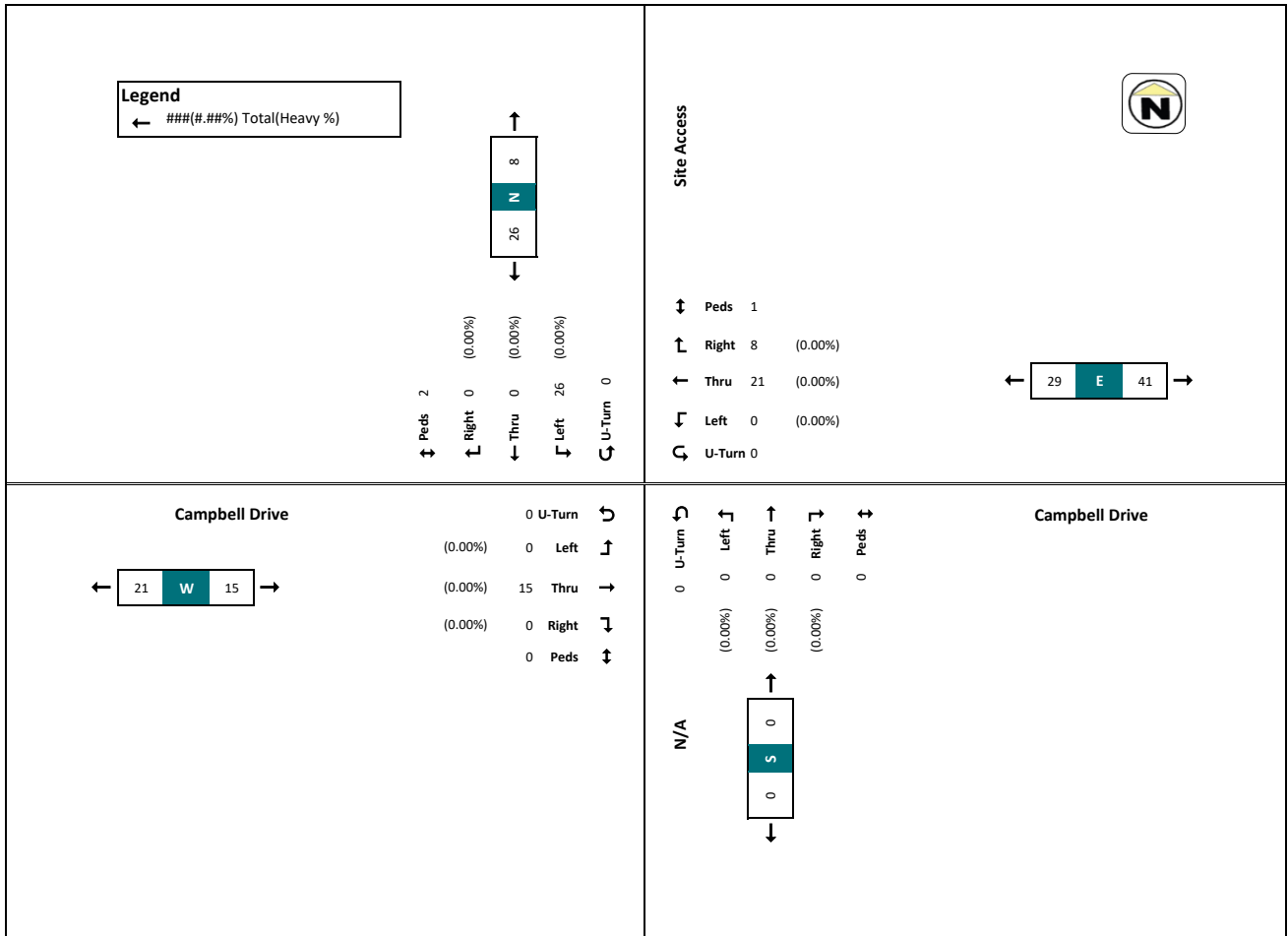
AM Peak Hour - Site Access & Campbell Drive

Start Time	Site Access Southbound					Campbell Drive Westbound					N/A Northbound				Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn		Left	Thru	Right	Peds	App. Total
8:00	0	1	0	1	0	2	0	0	2	6	0	8	0	0	0	0	0	0	0	0	3	0	0	3	13
8:15	0	3	0	0	0	3	0	0	0	9	0	9	0	0	0	0	0	0	0	0	3	0	0	3	15
8:30	0	1	0	0	0	1	0	0	4	11	0	15	0	0	0	0	0	0	0	0	2	0	0	2	18
8:45	0	2	0	0	2	2	0	0	4	13	0	17	0	0	0	0	0	0	0	0	4	0	0	4	23
Hourly Total	0	7	0	1	2	8	0	0	10	39	0	49	0	0	0	0	0	0	0	12	0	0	12	69	
Approach %	0.0%	87.5%	0.0%	12.5%	-	-	0.0%	0.0%	20.4%	79.6%	-	-	-	-	-	-	-	-	0.0%	0.0%	100.0%	0.0%	-	-	
Total %	0.0%	10.1%	0.0%	1.4%	11.6%	0.0%	0.0%	14.5%	56.5%	-	71.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.4%	0.0%	-	17.4%	0.0%	-	17.4%		
PIV	0	0.58	0	0.25	0.67	0	0	0.63	0.75	-	0.72	0	0	0	0	0	0.75	0	-	0.75	0	-	0.75		
% Lights	0	6	0	1	7	0	0	10	17	-	17	0	0	0	0	0	12	0	-	12	0	-	12		
% Lights	-	85.7%	-	100.0%	-	-	-	87.5%	-	100.0%	-	94.9%	-	-	-	-	100.0%	-	-	-	100.0%	-	-	95.7%	
% Buses	-	0	0	0	0	-	-	0	0	-	0	-	-	-	-	-	0	-	-	0	0	-	0		
% Buses	-	0.0%	-	0.0%	0.0%	-	-	0.0%	0.0%	-	0.0%	-	-	-	-	-	0.0%	-	-	0.0%	0.0%	-	0.0%		
% Trucks	-	1	0	0	1	-	-	0	2	-	2	-	-	-	-	0	0	-	-	0	0	-	0		
% Trucks	-	14.3%	-	0.0%	12.5%	-	-	0.0%	5.1%	-	4.1%	-	-	-	-	0.0%	-	-	-	0.0%	0.0%	-	4.3%		
% Bicycles	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	0	-	0		
% Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	2		



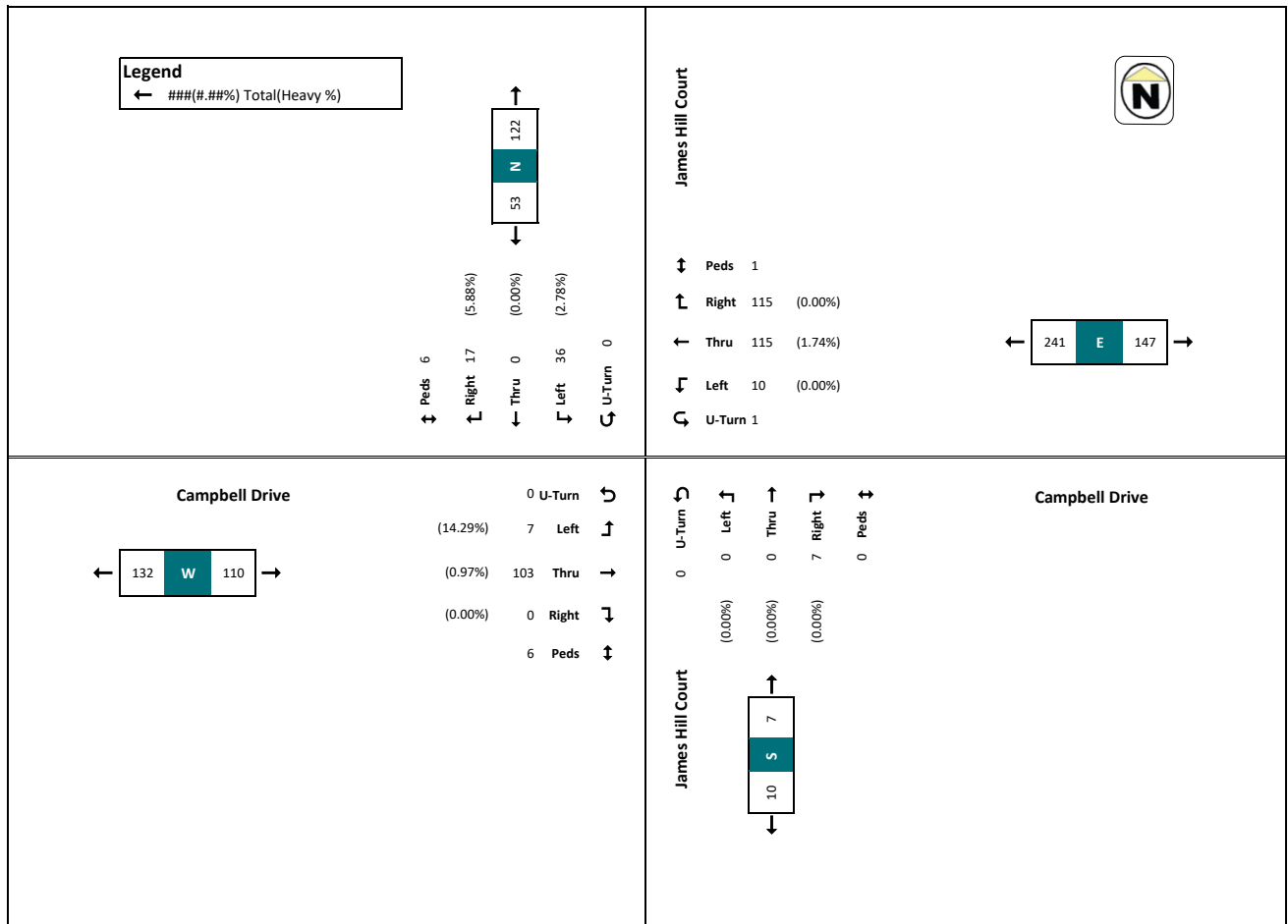
PM Peak Hour - Site Access & Campbell Drive

Start Time	Site Access Southbound					Campbell Drive Westbound					N/A Northbound					Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
16:15	0	6	0	0	0	6	0	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	0	0	5	17
16:30	0	6	0	0	0	6	0	0	5	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	3	14
16:45	0	2	0	0	0	2	1	0	5	4	0	10	0	0	0	0	0	0	0	0	0	0	0	0	5	17
17:00	0	12	0	0	0	12	0	0	7	2	0	9	0	0	0	0	0	0	0	0	0	0	0	0	2	23
Hourly Total	0	26	0	0	2	26	1	0	21	8	1	30	0	0	0	0	0	0	0	0	0	0	0	0	15	71
Approach %	0.0%	100.0%	0.0%	0.0%	-	3.3%	0.0%	70.0%	26.7%	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.1%	-
Total %	0.0%	36.6%	0.0%	0.0%	-	36.6%	1.4%	0.0%	29.4%	11.3%	-	42.3%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.7%	0.0%
PIF	0	0.54	0	0	-	0.54	0.25	0	0.25	0.5	-	0.75	0	0	0	0	0	0.75	0	0	0	0	0	0	0.75	0.77
Lights	0	26	0	0	-	26	1	0	20	8	-	29	0	0	0	0	0	0	0	0	0	0	0	0	15	70
% Lights	-	100.0%	-	-	-	100.0%	-	-	95.2%	100.0%	-	96.7%	-	-	-	-	-	100.0%	-	-	-	-	-	-	100.0%	98.6%
Buses	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	0	0
% Buses	-	0.0%	-	-	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%
Trucks	-	0	0	0	-	0	-	0	1	0	-	1	-	0	0	0	-	0	-	0	0	0	-	0	0	0
% Trucks	-	0.0%	-	-	-	0.0%	-	4.8%	0.0%	0.0%	-	3.3%	-	-	-	-	-	0.0%	-	-	-	-	-	0.0%	-	1.4%
Bicycles	-	-	-	-	0	0	-	-	-	0	0	0	-	-	-	-	0	0	-	-	-	-	0	0	0	0
Pedestrians	-	-	-	-	2	2	-	-	-	1	-	1	-	-	-	0	-	0	-	-	-	0	-	0	-	3



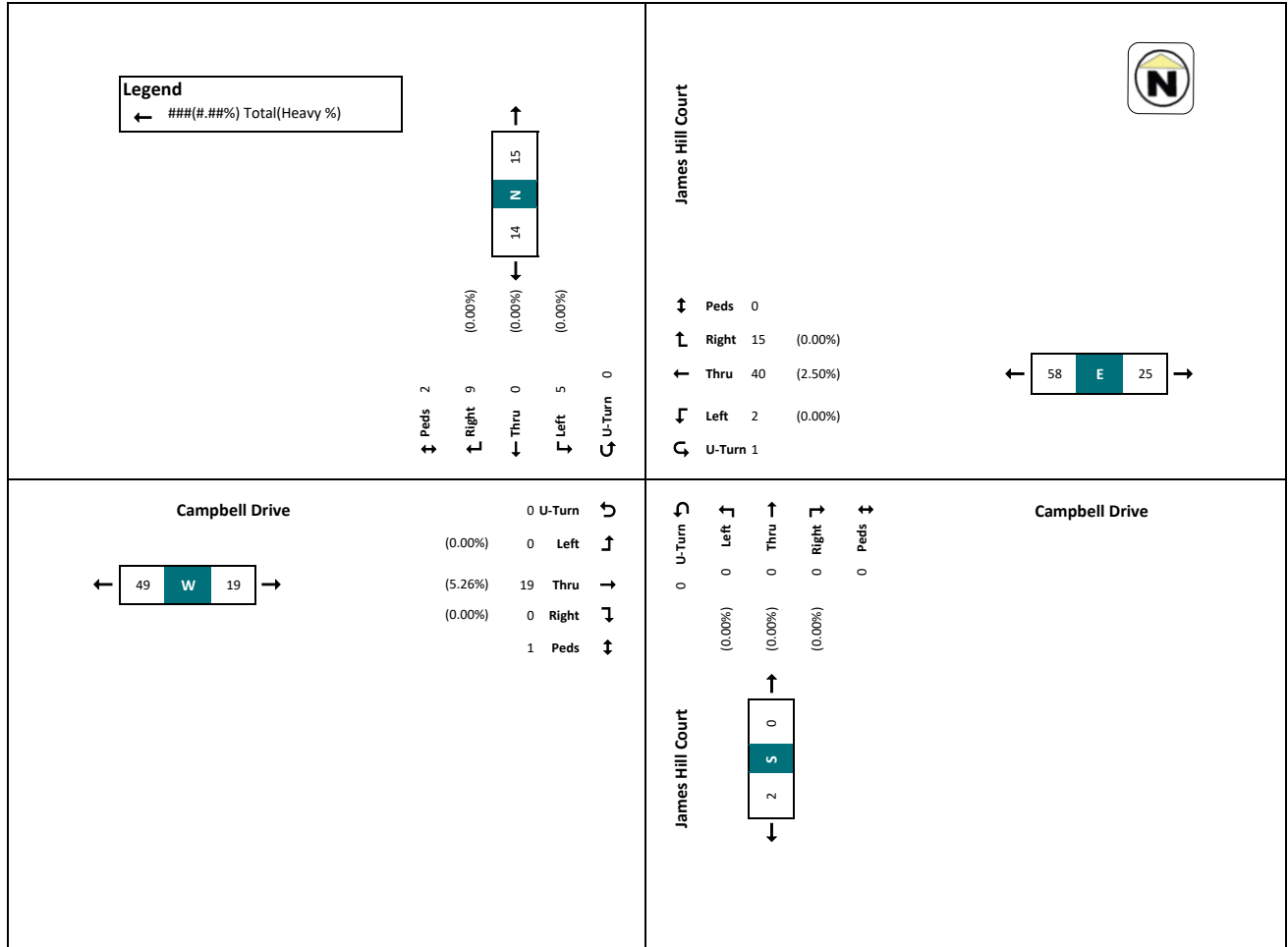
Turning Movement Count - James Hill Court & Campbell Drive

Start Time	James Hill Court Southbound					Campbell Drive Westbound					James Hill Court Northbound					Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
7:30	0	0	0	0	1	0	0	0	0	5	0	0	0	0	0	1	0	0	1	0	0	4	0	0	4	10
7:45	0	1	0	0	2	1	0	0	13	1	0	14	0	0	0	1	0	1	0	0	0	1	0	0	1	17
Hourly Total	0	3	0	0	3	5	0	0	26	3	0	29	0	0	0	2	0	2	0	0	0	2	0	0	2	46
8:00	0	0	0	1	0	1	0	0	7	3	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	15
8:15	0	2	0	1	0	3	0	1	8	1	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	19
8:30	0	3	0	4	0	7	1	1	11	4	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	27
8:45	0	0	0	3	2	3	0	0	14	7	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	30
Hourly Total	0	5	0	9	2	14	1	2	40	15	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	91
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
* Break *																										
16:00	0	1	0	0	1	1	0	3	4	3	1	10	0	0	0	1	0	1	0	0	0	15	0	0	15	27
16:15	0	7	0	1	0	8	0	1	5	4	0	10	0	0	0	0	0	0	0	0	0	11	0	0	11	29
16:30	0	3	0	0	0	3	0	1	5	4	0	10	0	0	0	1	0	1	0	2	7	0	0	2	9	23
16:45	0	2	0	1	0	3	0	0	8	2	0	10	0	0	0	0	0	0	0	2	5	0	0	0	7	20
Hourly Total	0	13	0	2	1	15	0	5	22	13	1	40	0	0	0	2	0	2	0	4	38	0	0	2	42	99
17:00	0	2	0	0	0	2	0	2	9	4	0	15	0	0	0	0	0	0	0	0	14	0	0	0	14	31
17:15	0	5	0	0	0	7	0	0	6	4	0	10	0	0	0	1	0	0	0	1	8	0	0	0	9	27
17:30	0	2	0	0	2	0	0	1	7	3	0	11	0	0	0	0	0	0	0	2	5	0	0	0	7	20
17:45	0	6	0	2	0	8	0	0	5	5	0	10	0	0	0	2	0	2	0	0	9	0	0	1	9	29
Hourly Total	0	15	0	4	0	19	0	3	27	16	0	46	0	0	0	3	0	3	0	3	36	0	0	1	39	107
Grand Total	0	36	0	17	6	53	1	10	115	47	1	173	0	0	0	7	0	7	0	7	103	0	0	6	110	343
Approach %	0.0%	67.9%	0.0%	32.1%	-	-	0.6%	5.8%	66.5%	27.2%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	6.4%	93.6%	0.0%	-	-	-	
Total %	0.0%	10.5%	0.0%	5.0%	-	15.5%	0.3%	2.9%	33.5%	13.7%	-	50.4%	0.0%	0.0%	0.0%	2.0%	-	2.0%	0.0%	2.0%	30.0%	0.0%	-	32.1%	-	
Lights	0	35	0	16	-	51	1	10	113	47	-	171	0	0	0	7	-	7	0	6	102	0	-	108	337	
% Lights	-	97.2%	-	94.1%	-	96.2%	100.0%	100.0%	98.3%	100.0%	-	98.8%	-	-	-	100.0%	-	100.0%	-	85.7%	99.0%	-	-	98.2%	98.3%	
% Buses	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	0	
% Buses	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	-	0.0%	-	0	0	0	-	0.0%	-	0.0%	0.0%	-	-	0.0%	0.0%	
% Trucks	-	1	0	1	-	2	-	0	2	0	-	2	-	0	0	0	-	0	-	1	1	0	-	2	2	
% Trucks	2.8%	-	-	3.8%	-	3.8%	-	0.0%	1.7%	0.0%	-	1.2%	-	-	-	0.0%	-	0.0%	-	14.3%	3.0%	-	-	1.8%	1.7%	
Bicycles	-	-	-	0	-	0	-	-	0	0	-	0	-	-	-	0	-	0	-	-	0	-	-	0	0	
Pedestrians	-	-	-	6	-	-	-	-	7	-	1	-	-	-	-	-	-	-	-	2	-	-	6	-	13	



AM Peak Hour - James Hill Court & Campbell Drive

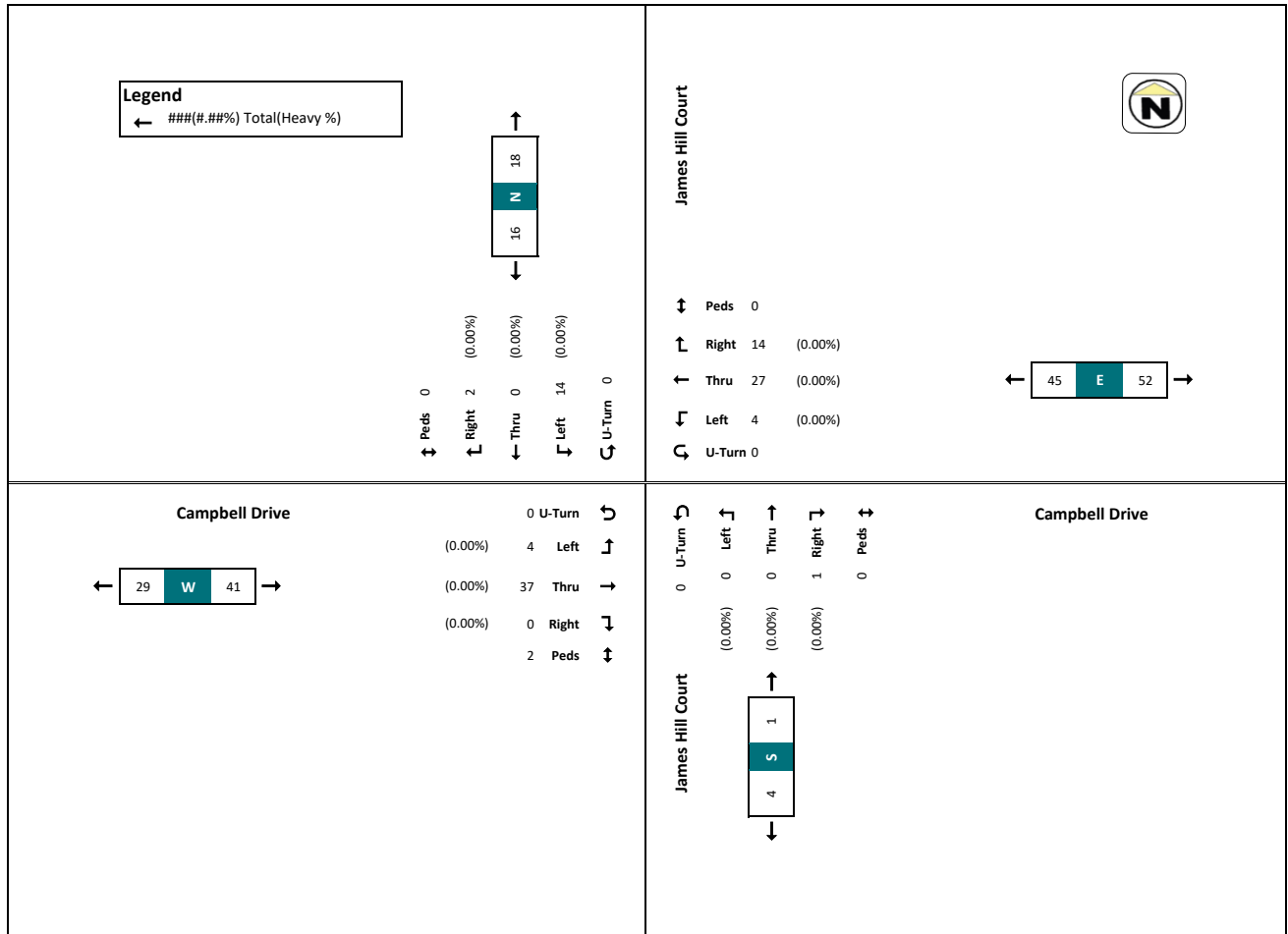
Start Time	James Hill Court Southbound					Campbell Drive Westbound					James Hill Court Northbound					Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
8:00	0	0	0	1	0	1	0	0	7	3	0	10	0	0	0	0	0	0	0	0	0	4	0	0	4	15
8:15	0	2	0	1	0	3	0	1	8	1	0	10	0	0	0	0	0	0	0	0	0	6	0	0	6	19
8:30	0	3	0	4	0	7	1	1	11	4	0	17	0	0	0	0	0	0	0	0	0	3	0	0	3	27
8:45	0	0	0	3	2	3	0	0	14	7	0	21	0	0	0	0	0	0	0	0	0	6	0	1	6	30
Hourly Total	0	5	0	9	2	14	1	2	40	15	0	58	0	0	0	0	0	0	0	0	19	0	1	19	91	
Approach %	0.0%	35.7%	0.0%	64.3%	-	-	1.7%	3.4%	69.0%	25.9%	-	-	-	-	-	-	-	-	0.0%	0.0%	100.0%	0.0%	-	-	-	
Total %	0.0%	5.5%	0.0%	9.9%	-	15.4%	1.1%	2.2%	44.0%	16.5%	-	63.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.9%	0.0%	-	20.9%	-	
Ped	0	0.42	0	0.56	-	0.5	0.25	0.5	0.71	0.54	-	0.69	0	0	0	0	0	0	0	0	0.79	0	-	0.79	0.76	
Lights	0	5	0	8	-	13	1	2	39	15	-	57	0	0	0	0	0	0	0	0	18	0	-	18	18	
% Lights	-	100.0%	-	88.9%	-	92.9%	-	100.0%	97.5%	100.0%	-	96.3%	-	-	-	-	-	-	-	-	94.7%	0	-	-	94.7%	96.7%
% Buses	-	0.0%	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	-	-	-	-	-	-	-	0.0%	0	-	-	0.0%	0.0%
% Trucks	-	0	0	1	-	1	-	0	1	0	-	1	-	0	0	0	0	0	0	0	1	0	-	1	3	
% Bicycles	-	0.0%	-	11.1%	-	7.1%	-	0.0%	2.5%	0.0%	-	1.7%	-	-	-	-	-	-	-	-	5.3%	-	-	5.3%	3.3%	
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	1	-	-	3	





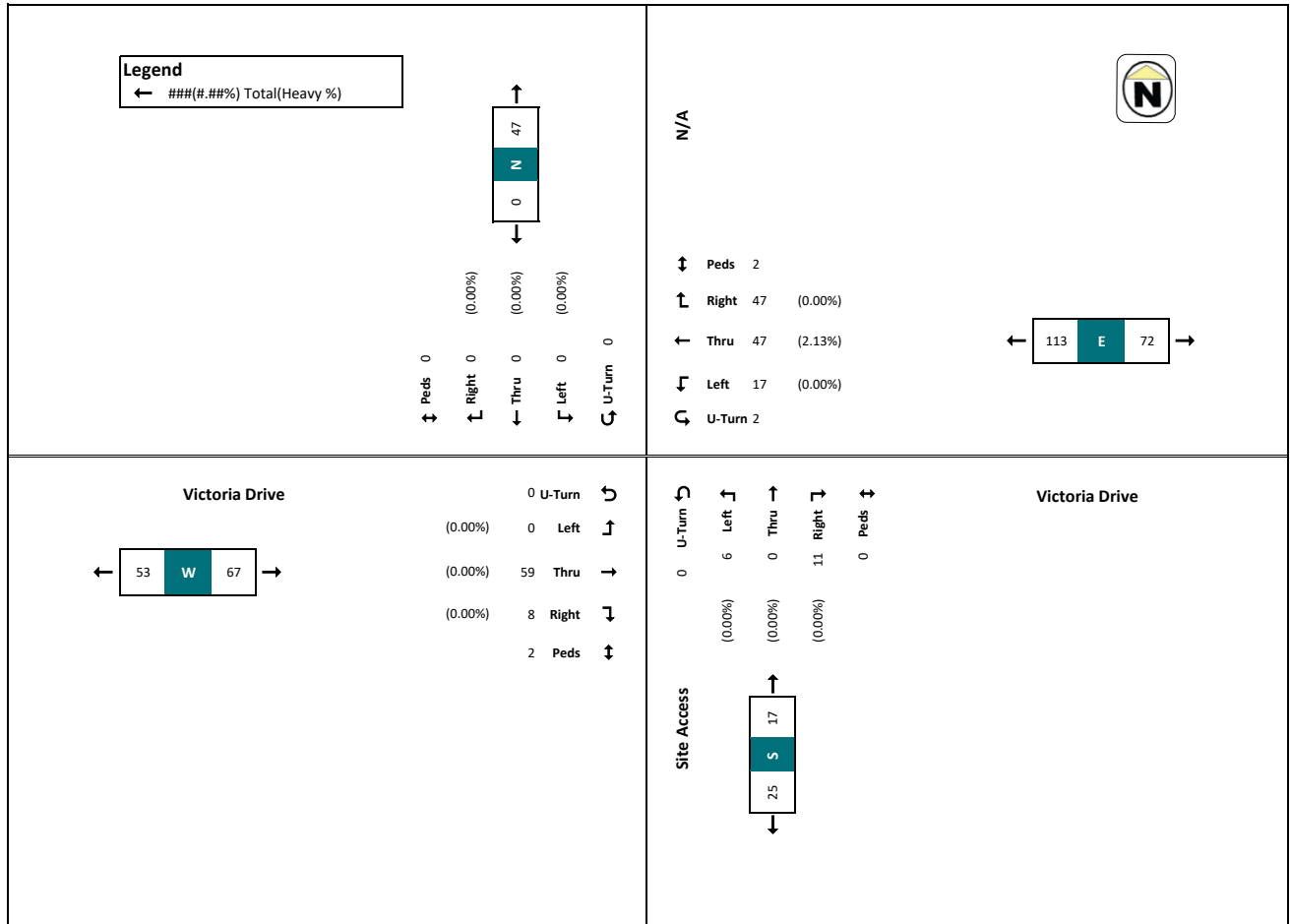
PM Peak Hour - James Hill Court & Campbell Drive

Start Time	James Hill Court Southbound					Campbell Drive Westbound					James Hill Court Northbound					Campbell Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
16:15	0	7	0	1	0	8	0	1	5	4	0	10	0	0	0	0	0	0	0	0	11	0	0	11	29	
16:30	0	3	0	0	0	3	0	1	5	4	0	10	0	0	0	0	0	0	0	0	2	7	0	2	9	
16:45	0	2	0	1	0	3	0	0	8	2	0	10	0	0	0	0	0	0	0	2	5	0	0	7	20	
17:00	0	2	0	0	0	2	0	2	9	4	0	15	0	0	0	0	0	0	0	0	14	0	0	14	31	
Hourly Total	0	14	0	2	0	16	0	4	27	14	0	45	0	0	0	1	0	1	0	4	37	0	2	41	103	
Approach %	0.0%	87.5%	0.0%	12.5%	-	-	0.0%	8.9%	60.0%	31.1%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	9.8%	81.2%	0.0%	-	-	-	
Total %	0.0%	13.6%	0.0%	1.9%	-	15.5%	0.0%	4.4%	29.7%	13.0%	-	43.7%	0.0%	0.0%	0.0%	2.1%	-	1.0%	0.0%	4.4%	40.7%	0.0%	-	39.8%	-	
PIV	0	0.5	0	0.5	-	0.5	0	0.5	0.88	0.88	-	0.75	0	0	0.25	-	0.25	0	0.25	0	0.5	0.65	0	0.73	0.88	
Lights	0	14	0	2	-	16	0	4	26	14	-	44	0	0	0	1	-	1	0	4	37	0	-	41	102	
% Lights	-	100.0%	-	100.0%	-	100.0%	-	100.0%	96.3%	100.0%	-	97.8%	-	-	-	100.0%	-	100.0%	-	100.0%	100.0%	-	-	-	100.0%	99.0%
Buses	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	-	0	0	0	-	0	0	
% Buses	-	0.0%	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	
Trucks	-	0	0	0	-	0	-	0	1	1	-	1	-	0	0	0	-	0	-	0	0	0	-	0	1	
% Trucks	-	0.0%	-	0.0%	-	0.0%	-	0.0%	3.7%	0.0%	-	2.2%	-	-	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	-	0.0%	1.0%	
Bicycles	-	-	-	-	0	0	-	-	-	0	-	0	-	-	-	0	-	0	-	-	-	-	-	0	0	
Pedestrians	-	-	-	-	0	0	-	-	-	0	-	0	-	-	-	0	-	0	-	-	-	-	-	0	0	



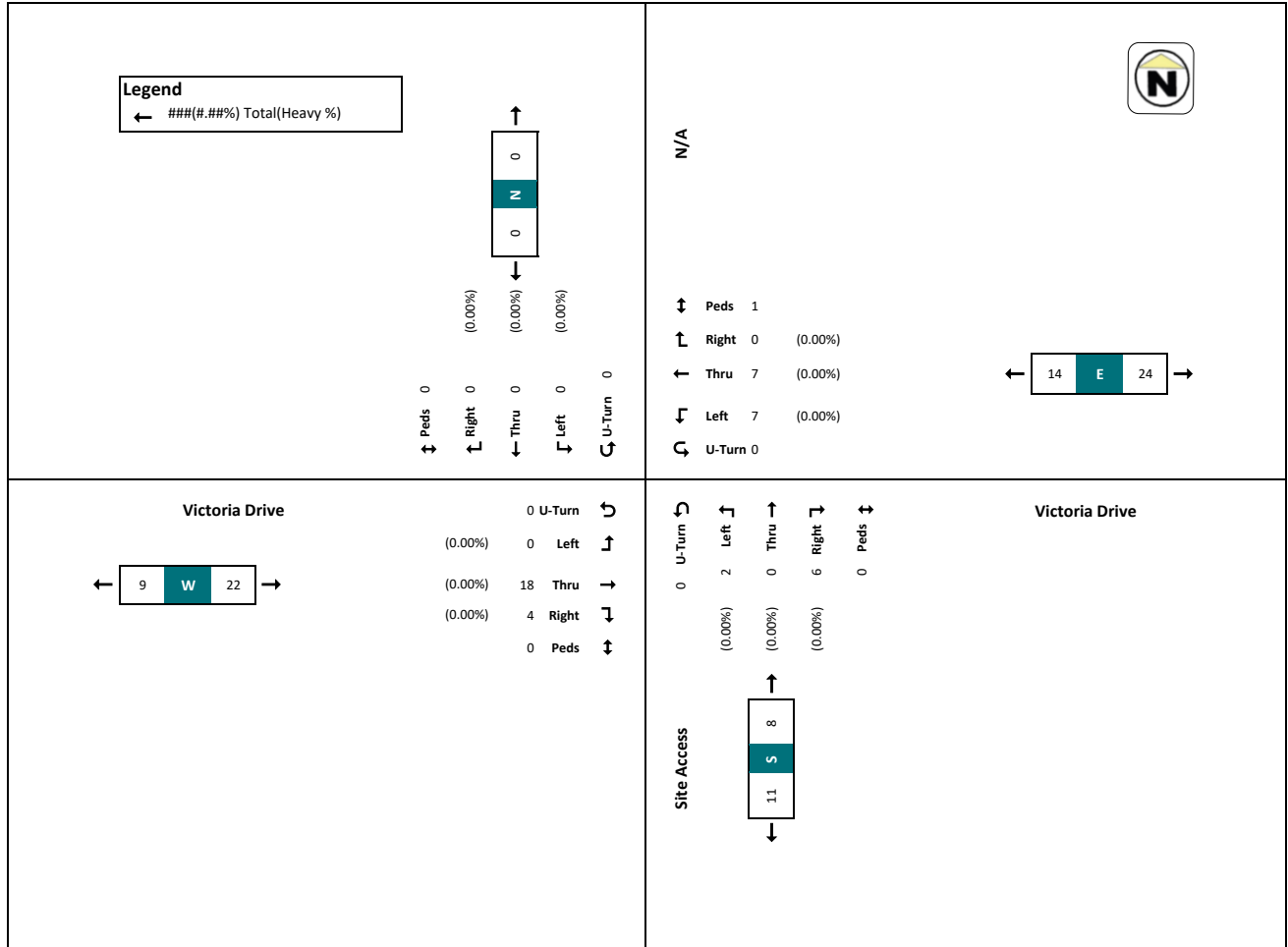
Turning Movement Count - Site Access & Victoria Drive

Start Time	N/A						Victoria Drive Westbound						Site Access Northbound						Victoria Drive Eastbound						Grand Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:30	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	3	5
7:45	0	0	0	0	0	0	0	4	1	0	0	5	0	0	0	0	0	0	0	0	9	0	0	9	14
Hourly Total	0	0	0	0	0	0	0	6	3	0	0	9	0	1	0	0	1	0	0	15	0	0	15	25	
8:00	0	0	0	0	0	0	0	1	2	0	0	3	0	1	0	1	0	2	0	0	2	0	0	2	7
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	3	0	3	4
8:30	0	0	0	0	0	0	0	3	3	0	1	6	0	1	0	2	0	2	0	0	6	3	0	9	17
8:45	0	0	0	0	0	0	0	3	2	0	0	5	0	0	0	3	0	3	0	0	7	1	0	8	16
Hourly Total	0	0	0	0	0	0	0	7	7	0	1	14	0	2	0	6	0	8	0	9	18	4	0	22	44
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* Break *																									
16:00	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	0	3	0	0	3	9	
16:15	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	1	0	1	0	4	2	1	6	14	
16:30	0	0	0	0	0	0	0	0	6	0	1	6	0	2	0	0	0	2	0	0	4	0	0	4	12
16:45	0	0	0	0	0	0	1	1	1	0	0	3	0	1	0	2	0	3	0	0	2	0	1	2	8
Hourly Total	0	0	0	0	0	0	1	2	19	0	1	22	0	3	0	3	0	6	0	0	13	2	2	15	43
17:00	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	2	0	2	0	0	2	0	0	2	7
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	1	0	8	0	0	9	0	0	0	0	0	0	0	4	0	0	4	13	
17:45	0	0	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	0	2	1	0	3	8	
Hourly Total	0	0	0	0	0	0	1	2	18	0	0	21	0	0	0	2	0	2	0	0	13	2	0	15	38
Grand Total	0	0	0	0	0	0	2	17	47	0	2	66	0	6	0	11	0	17	0	0	59	8	2	67	150
Approach %	-	-	-	-	-	-	3.0%	25.8%	71.2%	0.0%	-	44.0%	0.0%	35.3%	0.0%	64.7%	-	-	0.0%	0.0%	88.1%	11.9%	-	-	
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	11.3%	31.3%	0.0%	-	44.0%	0.0%	4.0%	0.0%	7.3%	-	-	11.3%	0.0%	39.3%	5.3%	-	44.7%	
Lights	0	0	0	0	0	0	2	17	46	0	-	65	0	6	0	11	-	-	17	0	0	59	8	67	
% Lights	-	-	-	-	-	-	100.0%	100.0%	97.9%	-	-	98.5%	-	100.0%	-	100.0%	-	-	100.0%	-	100.0%	100.0%	-	100.0%	
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Buses	-	-	-	-	-	-	0.0%	0.0%	0.0%	-	-	0.0%	-	0.0%	-	0.0%	-	-	0.0%	-	0.0%	0.0%	-	0.0%	
Trucks	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
% Trucks	-	-	-	-	-	-	0.0%	2.1%	2.1%	-	-	1.5%	-	0.0%	-	0.0%	-	-	0.0%	-	0.0%	0.0%	-	0.0%	
Bicycles	-	-	-	-	-	-	1	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	2	-	-	-	-	0	-	-	-	-	-	2	-	



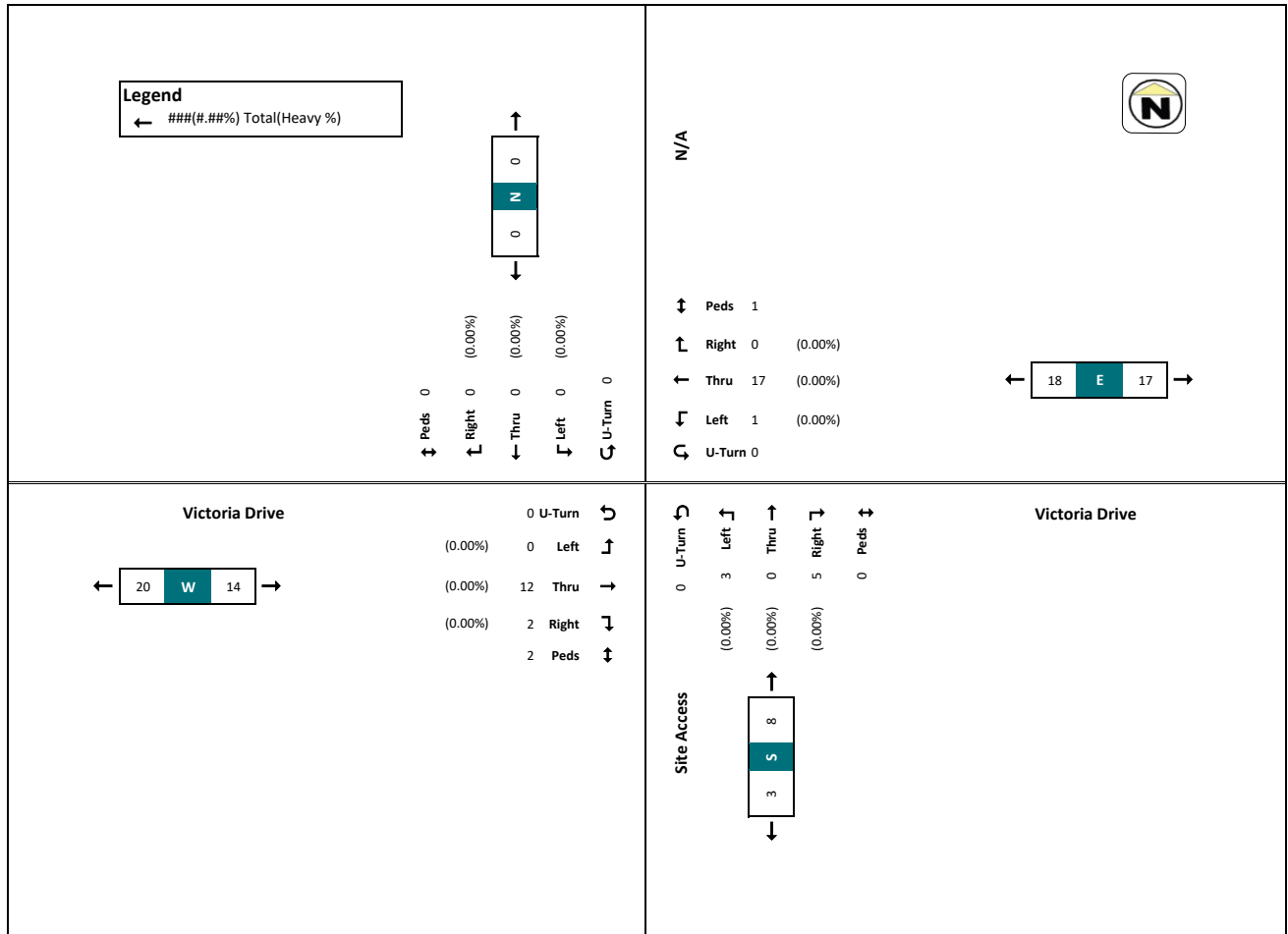
AM Peak Hour - Site Access & Victoria Drive

Start Time	N/A Southbound					Victoria Drive Westbound					Site Access Northbound					Victoria Drive Eastbound					Grand Total					
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total	
8:00	0	0	0	0	0	0	0	1	2	0	0	3	0	1	0	1	0	2	0	0	2	0	0	2	7	7
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	0	0	3	4	4
8:30	0	0	0	0	0	0	0	3	3	0	1	6	0	1	0	1	0	2	0	0	6	3	0	9	17	17
8:45	0	0	0	0	0	0	0	3	2	0	0	5	0	0	0	3	0	3	0	0	7	1	0	8	16	16
Hourly Total	0	0	0	0	0	0	0	7	7	0	1	14	0	2	0	6	0	8	0	0	18	4	0	22	44	44
Approach %	-	-	-	-	-	-	0.0%	50.0%	50.0%	0.0%	-	-	0.0%	25.0%	0.0%	75.0%	-	-	0.0%	0.0%	81.8%	18.2%	-	-	-	-
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.9%	15.9%	0.0%	-	31.8%	0.0%	4.5%	0.0%	13.6%	-	-	18.2%	0.0%	40.9%	9.1%	-	50.0%	-	50.0%
% PkV	0	0	0	0	0	0	0	0.58	0.58	0	-	0.58	0	0.5	0	0.5	-	-	0.67	0	0.64	0.33	-	0.61	0.65	0.65
% Lights	0	0	0	0	0	0	0	7	7	0	-	14	0	2	0	6	-	-	8	0	18	4	-	22	44	44
% Buses	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	0	0	0	0	-	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	0	0	0	0	-	0	0	0
% Bicycles	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	0	0	0	0	-	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	-	0	0	0	0	-	0	0	0



PM Peak Hour - Site Access & Victoria Drive

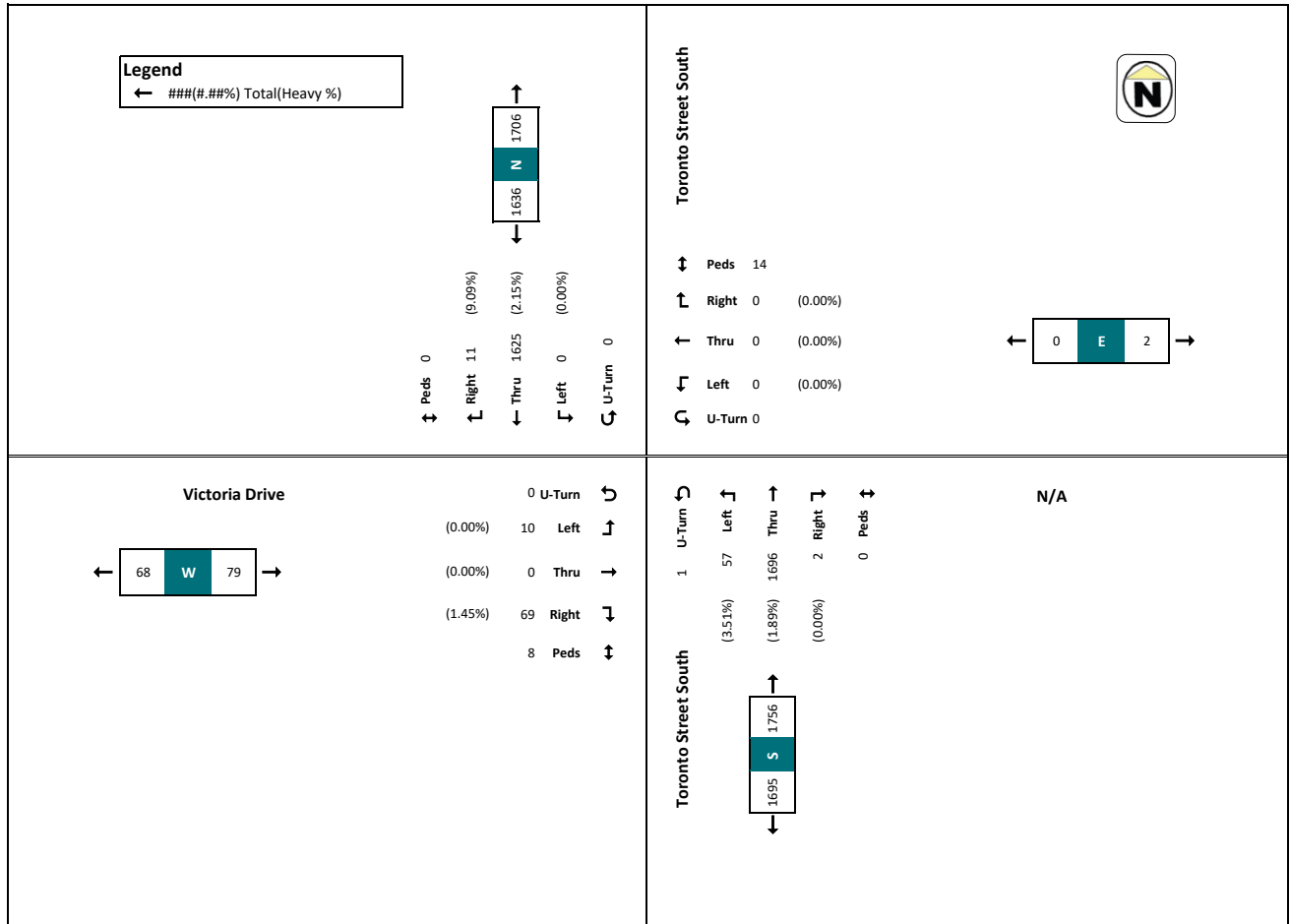
Start Time	N/A Southbound					Victoria Drive Westbound					Site Access Northbound					Victoria Drive Eastbound					Grand Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
16:15	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	1	0	1	0	0	4	2	1	5	14
16:30	0	0	0	0	0	0	0	0	8	0	1	6	0	2	0	0	0	2	0	0	4	0	0	4	12
16:45	0	0	0	0	0	0	1	1	1	0	0	3	0	1	0	2	0	3	0	0	2	0	1	2	8
17:00	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	2	0	2	0	0	2	0	0	2	7
Hourly Total	0	0	0	0	0	0	1	1	17	0	1	19	0	3	0	5	0	8	0	0	12	2	2	14	41
Approach %	-	-	-	-	-	-	5.3%	5.3%	89.5%	0.0%	-	0.0%	17.5%	0.0%	0.0%	62.5%	-	0.0%	0.0%	0.0%	85.7%	14.3%	-	-	-
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	2.3%	38.6%	0.0%	-	46.3%	6.8%	0.0%	11.4%	19.5%	0.0%	27.3%	4.5%	-	34.1%	-	-	34.1%	-
PIF	0	0	0	0	0	0	0.25	0.25	0.63	0	-	0.68	0	0.38	0	0.63	-	0.67	0	0	0.75	0.25	-	0.58	0.73
% Lights	0	0	0	0	0	0	1	1	17	0	-	19	0	3	0	5	-	8	0	0	12	2	-	14	41
% Buses	-	-	-	-	-	-	-	-	100.0%	100.0%	-	100.0%	-	-	-	100.0%	-	100.0%	-	-	100.0%	100.0%	-	100.0%	100.0%
% Trucks	-	-	-	-	-	-	-	-	0.0%	0.0%	-	0.0%	-	-	-	0.0%	-	0.0%	-	-	0.0%	0.0%	-	0.0%	0.0%
% Pedestrians	-	-	-	-	1	1	-	-	0.0%	0.0%	-	0.0%	-	-	-	0.0%	-	0.0%	-	-	0.0%	0.0%	-	0.0%	0.0%
Bicycles	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	0	0	-	-	-	-	3	3	6
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	1





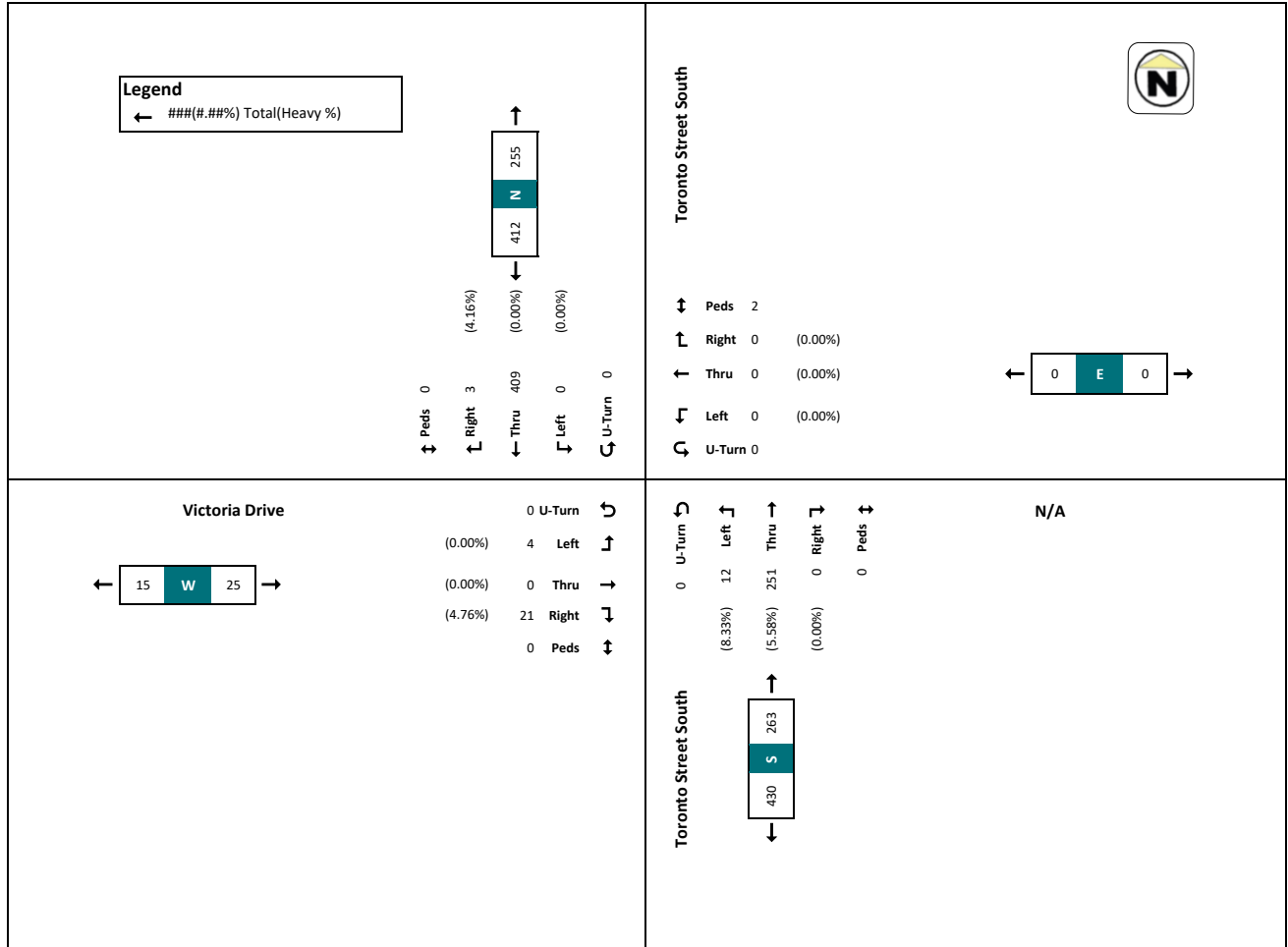
Turning Movement Count - Toronto Street South & Victoria Drive

Start Time	Toronto Street South Southbound					N/A Westbound					Toronto Street South Northbound					Victoria Drive Eastbound					Grand Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
7:30	0	0	97	0	0	97	0	0	0	0	0	0	0	1	34	0	0	35	0	0	0	3	0	3	135
7:45	0	0	115	0	0	115	0	0	0	0	0	0	0	5	52	0	0	57	0	0	0	9	0	9	181
Hourly Total	0	0	372	1	0	374	0	0	0	0	2	0	0	8	156	2	0	166	0	0	0	15	0	15	555
8:00	0	0	85	0	0	85	0	0	0	0	0	0	0	3	63	0	0	66	0	2	0	1	0	3	154
8:15	0	0	107	0	0	107	0	0	0	0	0	0	0	0	51	0	0	51	0	0	0	5	0	5	163
8:30	0	0	107	2	0	109	0	0	0	0	1	0	0	4	55	0	0	59	0	0	0	7	0	7	175
8:45	0	0	110	1	0	111	0	0	0	0	1	0	0	5	82	0	0	87	0	2	0	8	0	10	208
Hourly Total	0	0	409	3	0	412	0	0	0	0	2	0	0	12	251	0	0	263	0	4	0	21	0	25	700
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
* Break *																									
16:00	0	0	110	1	0	111	0	0	0	0	0	0	0	5	162	0	0	167	0	0	0	4	1	4	282
16:15	0	0	95	1	0	96	0	0	0	0	0	0	0	6	170	0	0	176	0	0	0	5	0	5	277
16:30	0	0	117	1	0	118	0	0	0	0	0	0	0	5	147	0	0	152	0	0	0	4	0	4	274
16:45	0	0	97	2	0	99	0	0	0	0	0	0	1	2	164	0	0	167	0	1	0	4	2	5	271
Hourly Total	0	0	419	5	0	424	0	0	0	0	0	0	1	18	643	0	0	662	0	1	0	17	3	18	1104
17:00	0	0	100	0	0	100	0	0	0	0	1	0	0	2	182	0	0	184	0	0	0	5	3	5	289
17:15	0	0	102	0	0	104	0	0	0	0	8	0	0	2	147	0	0	149	0	1	0	4	2	5	258
17:30	0	0	113	0	0	113	0	0	0	0	1	0	0	9	173	0	0	182	0	0	0	2	0	2	287
17:45	0	0	109	0	0	109	0	0	0	0	0	0	0	6	144	0	0	150	0	0	0	5	0	5	264
Hourly Total	0	0	424	2	0	426	0	0	0	0	10	0	0	19	646	0	0	665	0	1	0	16	5	17	1108
Grand Total	0	0	1625	11	0	1636	0	0	0	0	14	0	1	57	1696	2	0	1756	0	6	0	69	8	75	3467
Approach %	0.0%	0.0%	99.3%	0.7%	-	-	-	-	-	-	-	-	0.1%	3.2%	96.6%	0.1%	-	-	0.0%	8.0%	0.0%	92.0%	-	-	-
Total %	0.0%	0.0%	46.9%	0.3%	-	47.2%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	1.6%	48.9%	0.1%	-	-	50.6%	0.0%	0.2%	0.0%	2.0%	-	2.2%
Lights	0	0	1590	10	-	1600	0	0	0	0	-	-	1	55	1664	2	-	-	1722	0	6	0	68	-	74
% Lights	-	-	97.8%	90.9%	-	97.8%	-	-	-	-	-	-	100.0%	96.5%	98.1%	100.0%	-	-	98.1%	-	100.0%	98.6%	-	-	98.7%
Buses	-	-	6	0	-	6	-	-	0	0	-	-	0	0	7	0	-	-	7	-	0	0	0	-	0
% Buses	-	-	0.4%	0.0%	-	0.4%	-	-	-	-	-	-	-	-	0.0%	0.0%	-	-	0.4%	-	0.0%	0.0%	-	-	0.0%
Trucks	-	-	29	1	-	30	-	-	0	0	-	-	0	2	25	0	-	-	27	-	0	0	1	-	1
% Trucks	-	-	1.8%	0.0%	-	1.8%	-	-	-	-	-	-	-	3.5%	1.5%	0.0%	-	-	1.5%	-	0.0%	1.4%	-	-	1.3%
Bicycles	-	-	0	0	-	0	-	-	-	-	2	-	-	-	-	-	-	-	0	-	-	3	3	-	3
Pedestrians	-	-	-	-	-	0	-	-	-	-	14	-	-	-	-	-	-	-	0	-	-	8	-	-	8



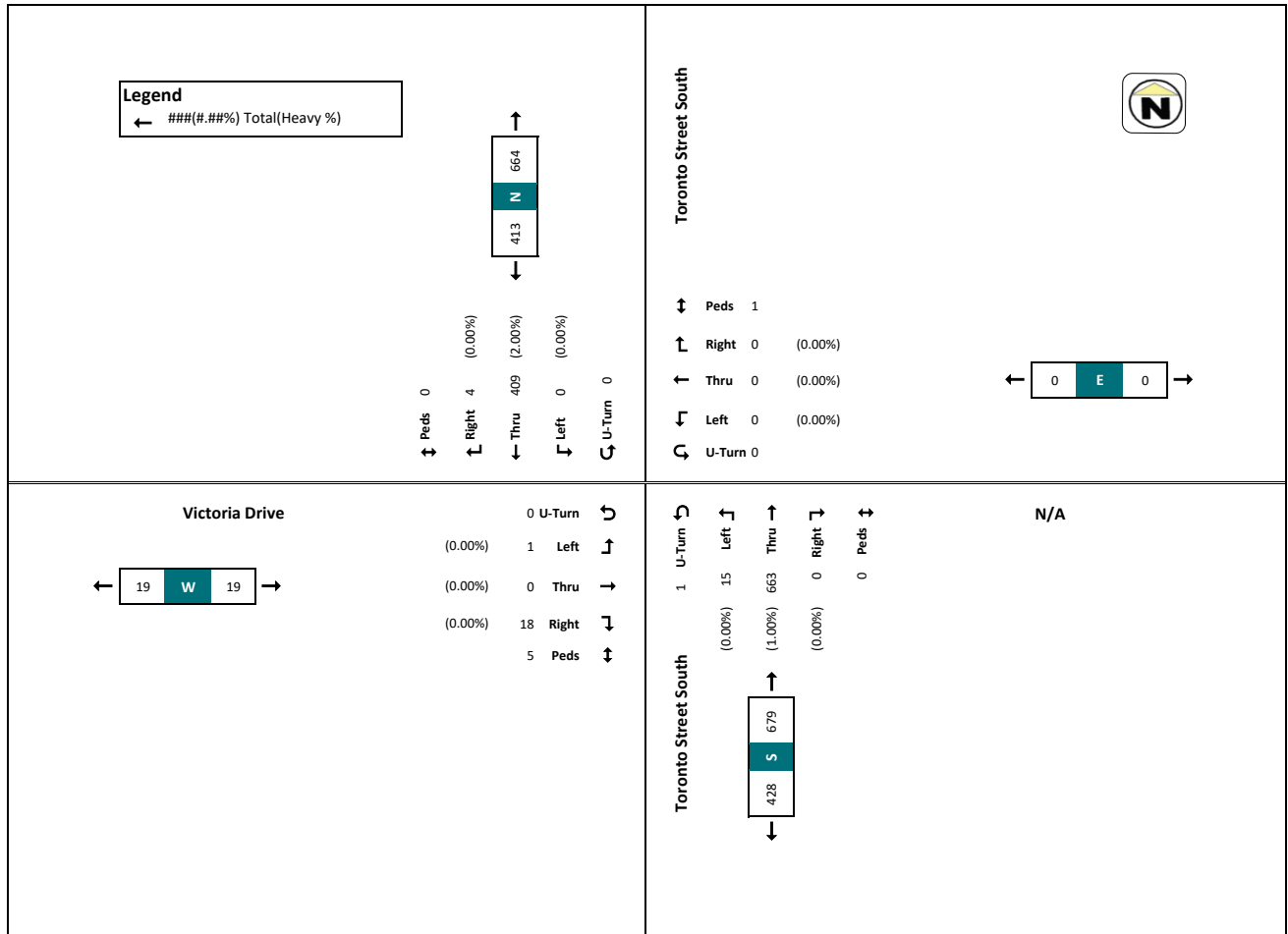
AM Peak Hour - Toronto Street South & Victoria Drive

Start Time	Toronto Street South Southbound					N/A Westbound					Toronto Street South Northbound					Victoria Drive Eastbound					Grand Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
8:00	0	0	85	0	0	85	0	0	0	0	0	0	0	3	63	0	0	66	0	2	0	1	0	3	154
8:15	0	0	107	0	0	107	0	0	0	0	0	0	0	0	51	0	0	51	0	0	0	3	0	5	163
8:30	0	0	107	2	0	109	0	0	0	0	1	0	0	4	55	0	0	59	0	0	0	7	0	7	175
8:45	0	0	110	1	0	111	0	0	0	0	1	0	0	5	82	0	0	87	0	2	0	8	0	10	208
Hourly Total	0	0	409	3	0	412	0	0	0	0	2	0	0	12	251	0	0	263	0	4	0	21	0	25	700
Approach %	0.0%	0.0%	99.3%	0.7%	-	-	-	-	-	-	-	-	0.0%	4.6%	95.4%	0.0%	-	-	0.0%	16.0%	0.0%	84.0%	-	-	-
Total %	0.0%	0.0%	58.4%	0.4%	-	58.9%	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	1.7%	35.9%	0.0%	-	37.6%	0.0%	0.6%	0.0%	3.0%	-	3.6%	-
PHF	0	0	0.93	0.38	-	0.93	0	0	0	0	-	0	0	0.6	0.77	0	-	0.76	0	0.5	0	0.66	-	0.63	0.84
% Lights	0	0	392	2	0	394	0	0	0	0	0	0	0	11	237	0	0	248	0	4	0	20	0	24	666
% Lights	-	-	95.8%	66.7%	-	95.6%	-	-	-	-	-	-	-	0	93.7%	94.4%	-	94.3%	-	100.0%	-	95.2%	-	96.0%	95.1%
% Buses	0	2	0	0	2	-	0	0	0	-	0	-	0	2	0	0	-	2	-	0	0	0	-	0	4
% Buses	-	0.5%	0.0%	0.5%	-	-	-	-	-	-	-	-	0.0%	0.8%	0.8%	-	-	0.8%	-	0.0%	0.0%	0.0%	-	0.0%	0.6%
% Trucks	0	15	1	16	0	16	0	0	0	0	0	0	1	12	0	0	13	-	0	0	1	1	-	1	30
% Trucks	-	3.7%	33.3%	3.9%	-	3.9%	-	-	-	-	-	-	8.3%	4.8%	-	-	4.9%	-	0.0%	-	4.8%	-	4.0%	-	4.3%
% Bicycles	-	-	0	0	-	-	-	-	-	-	-	-	0	0	0	0	-	0	-	0	0	0	-	0	0
% Pedestrians	-	-	0	0	-	-	-	-	-	2	-	-	-	-	-	-	-	0	-	-	-	0	-	0	2



PM Peak Hour - Toronto Street South & Victoria Drive

Start Time	Toronto Street South Southbound					N/A Westbound					Toronto Street South Northbound					Victoria Drive Eastbound					Grand Total				
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left		Thru	Right	Peds	App. Total
16:15	0	0	95	1	0	96	0	0	0	0	0	0	0	6	170	0	0	176	0	0	0	5	0	5	277
16:30	0	0	117	1	0	118	0	0	0	0	0	0	0	5	147	0	0	152	0	0	0	4	0	4	274
16:45	0	0	97	2	0	99	0	0	0	0	0	0	1	2	164	0	0	167	0	1	0	4	2	5	271
17:00	0	0	100	0	0	100	0	0	0	0	1	0	0	2	182	0	0	184	0	0	0	5	3	5	289
Hourly Total	0	0	409	4	0	413	0	0	0	0	1	0	1	15	663	0	0	679	0	1	0	18	5	19	1111
Approach %	0.0%	0.0%	99.0%	1.0%	-	-	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.1%	2.2%	97.6%	0.0%	-	0.0%	0.0%	5.3%	0.0%	94.7%	-	-	-
Total %	0.0%	0.0%	36.8%	0.4%	-	37.2%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.1%	2.1%	94.7%	0.0%	-	61.1%	0.0%	0.1%	0.0%	2.9%	-	1.7%	0.96
PHF	0	0	0.87	0.5	-	0.88	0	0	0	0	-	0	0	0.63	0.91	0	-	0.92	0	0.25	0	0.9	-	0.95	0.96
Lights	0	0	402	4	-	406	0	0	0	0	-	0	1	15	659	0	-	675	0	1	0	18	-	19	1100
% Lights	-	-	98.3%	100.0%	-	98.3%	-	-	-	-	-	-	100.0%	99.4%	-	-	-	99.4%	-	100.0%	-	100.0%	-	-	99.0%
Buses	0	0	2	0	-	2	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	0	0	3
% Buses	-	-	0.5%	0.0%	-	0.5%	-	-	-	-	-	-	0.0%	0.2%	0.0%	0.0%	-	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Trucks	0	0	4	0	-	4	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	0	0	7
% Trucks	-	-	1.0%	0.0%	-	1.0%	-	-	-	-	-	-	0.0%	0.5%	-	-	-	0.4%	-	0.0%	-	0.0%	-	-	0.6%
Bicycles	-	-	-	0	0	-	-	-	-	2	2	-	-	-	0	0	-	-	-	-	-	-	1	1	3
Pedestrians	-	-	-	0	-	-	-	-	-	0	0	-	-	-	1	-	-	-	-	-	-	0	-	-	1





APPENDIX C

Trip Generation Calculations

TURNING MOVEMENT COUNT

Project #: 24138.00.200.02

Source: LEA
Date: Thurs. Sept. 21, 2023

N/S Street: Hospital Site Dwys (3)
E/W Street: Victoria Dr & Campbell Dr

Municipality: Uxbridge
Province: Ontario

Time Start	North Dwy+Victoria Dr				Southwest Dwy+Campbell Dr				Southeast Dwy/James Hill Cr + Campbell Dr						Total			
	In		Out		In		Out		In			Out			In	Out	All	Hourly
	Left	Right	Left	Right	Left	Right	Left	Right	Left	Thru'	Right	Left	Thru'	Right				
7:00	0	0	0	0	0	4	1	0	0	0	2	1	0	1	6	3	9	
7:15	1	0	0	0	0	3	2	0	0	0	0	1	0	1	4	4	8	
7:30	1	0	1	0	0	4	1	0	0	0	0	0	0	0	5	2	7	
7:45	4	0	0	0	0	11	0	0	0	0	1	1	0	0	16	1	17	41
8:00	1	0	1	1	0	6	1	1	0	0	3	0	0	1	10	5	15	47
8:15	0	0	0	1	0	9	3	0	0	0	1	2	0	1	10	7	17	56
8:30	3	3	1	1	0	11	1	0	0	0	4	3	0	4	21	10	31	80
8:45	3	1	0	3	0	13	2	0	0	0	7	0	0	3	24	8	32	95
16:00	1	0	0	0	1	1	6	1	0	0	3	1	0	0	6	8	14	
16:15	0	2	0	1	0	2	6	0	0	0	4	7	0	1	8	15	23	
16:30	0	0	2	0	0	0	6	0	2	0	4	3	0	0	6	11	17	
16:45	1	0	1	2	0	4	2	0	2	0	2	2	0	1	9	8	17	71
17:00	0	0	0	2	0	2	12	0	0	0	4	2	0	0	6	16	22	79
17:15	1	1	0	0	0	2	5	0	1	0	4	5	0	2	9	12	21	77
17:30	0	0	0	0	0	2	2	0	2	0	3	2	0	0	7	4	11	71
17:45	1	1	0	0	0	5	5	0	0	0	5	6	0	2	12	13	25	79
Total	17	8	6	11	1	79	55	2	7	0	47	36	0	17	159	127	286	343
AM Peak	7	4	2	6	0	39	7	1	0	0	15	5	0	9	65	30	95	406
PM Peak	1	2	3	5	0	8	26	0	4	0	14	14	0	2	29	50	79	460

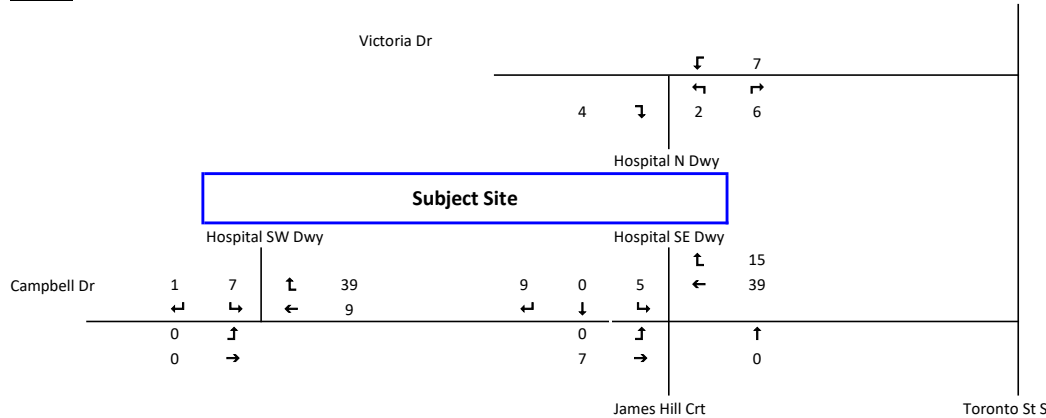
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<-- Peak Hour

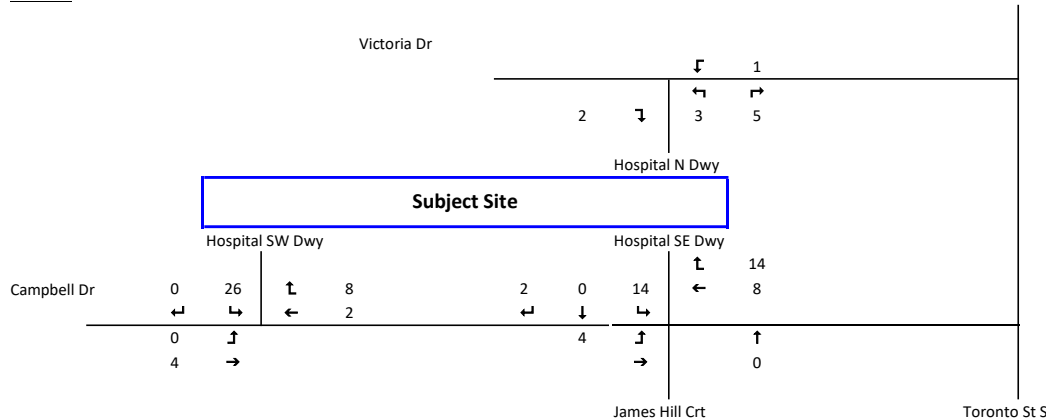
Notes: Subject site has a total approximate building size of 82,930 sf (North: 45,030 sf, South: 37,900 sf)

Peak Hour	Two-way Site Trips			Trip Rate		
	In	Out	Total	In	Out	Total
AM	65	30	95	0.78	0.36	1.14
PM	29	50	79	0.35	0.60	0.95

AM Peak



PM Peak



TURNING MOVEMENT COUNT

Project #: 24138.00.200.02

Source: LEA
Date: Thurs. Sept. 21, 2023

N/S Street: Hospital Site Dwys (3)
E/W Street: Victoria Dr & Campbell Dr

Municipality: Uxbridge
Province: Ontario

Time Start	North Dwy+Victoria Dr				Southwest Dwy+Campbell Dr				Southeast Dwy/James Hill Cr + Campbell Dr				Total					
	In		Out		In		Out		In		Out		In	Out	All	Hourly		
	Left	Right	Left	Right	Left	Right	Left	Right	Left	Thru'	Right	Left					Thru'	Right
7:00	0	0	0	0	0	4	1	0	0	0	2	1	0	1	6	3	9	
7:15	1	0	0	0	0	3	2	0	0	0	0	1	0	1	4	4	8	
7:30	1	0	1	0	0	4	1	0	0	0	0	0	0	0	5	2	7	
7:45	4	0	0	0	0	11	0	0	0	0	1	1	0	0	16	1	17	41
8:00	1	0	1	1	0	6	1	1	0	0	3	0	0	1	10	5	15	47
8:15	0	0	0	1	0	9	3	0	0	0	1	2	0	1	10	7	17	56
8:30	3	3	1	1	0	11	1	0	0	0	4	3	0	4	21	10	31	80
8:45	3	1	0	3	0	13	2	0	0	0	7	0	0	3	24	8	32	95
16:00	1	0	0	0	1	1	6	1	0	0	3	1	0	0	6	8	14	
16:15	0	2	0	1	0	2	6	0	0	0	4	7	0	1	8	15	23	
16:30	0	0	2	0	0	0	6	0	2	0	4	3	0	0	6	11	17	
16:45	1	0	1	2	0	4	2	0	2	0	2	2	0	1	9	8	17	71
17:00	0	0	0	2	0	2	12	0	0	0	4	2	0	0	6	16	22	79
17:15	1	1	0	0	0	2	5	0	1	0	4	5	0	2	9	12	21	77
17:30	0	0	0	0	0	2	2	0	2	0	3	2	0	0	7	4	11	71
17:45	1	1	0	0	0	5	5	0	0	0	5	6	0	2	12	13	25	79
Total	17	8	6	11	1	79	55	2	7	0	47	36	0	17	159	127	286	343
AM Peak	7	4	2	6	0	39	7	1	0	0	15	5	0	9	65	30	95	406
PM Peak	1	2	3	5	0	8	26	0	4	0	14	14	0	2	29	50	79	460

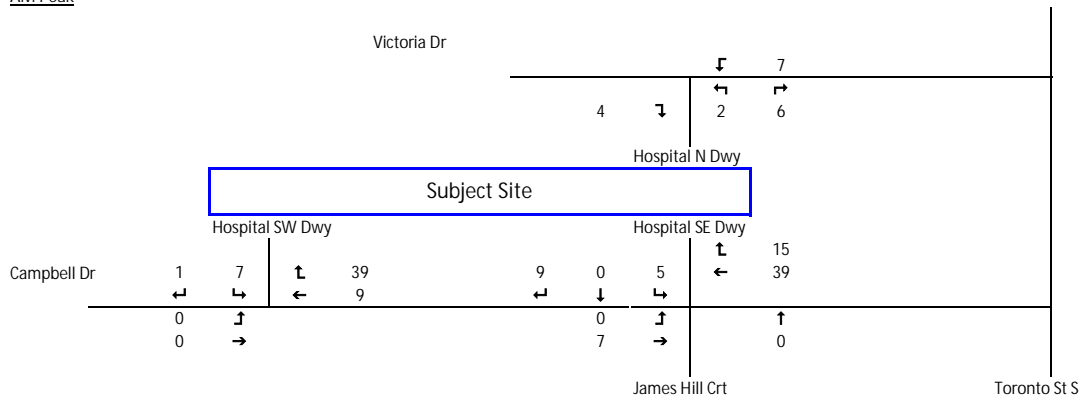
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<-- Peak Hour

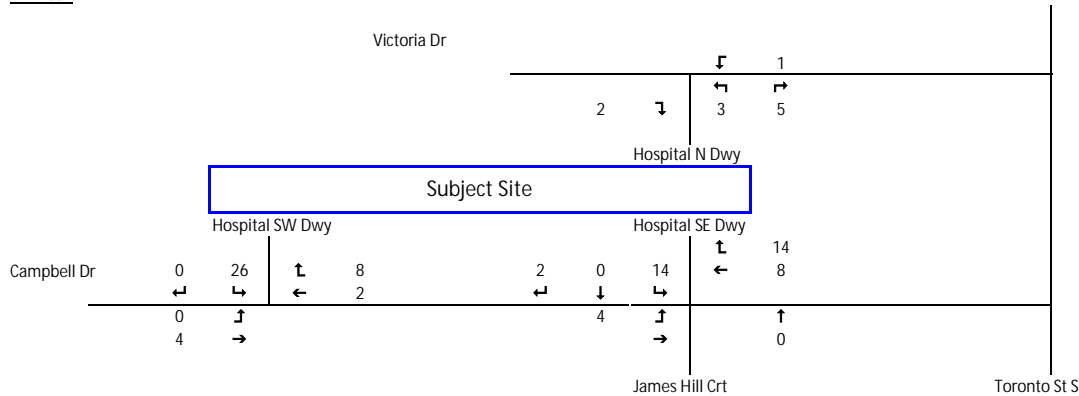
Notes: Subject site has a total approximate building size of 82,930 sf (North: 45,030 sf, South: 37,900 sf)

Peak Hour	Two-way Site Trips			Trip Rate		
	In	Out	Total	In	Out	Total
AM	65	30	95	0.78	0.36	1.14
PM	29	50	79	0.35	0.60	0.95

AM Peak



PM Peak



TURNING MOVEMENT COUNT

Project #: 24138.00.200.02

Source: LEA
Date: Thurs. Sept. 21, 2023

N/S Street: Hospital Site Dwys (3)
E/W Street: Victoria Dr & Campbell Dr

Municipality: Uxbridge
Province: Ontario

Time Start	North Dwy+Victoria Dr				Southwest Dwy+Campbell Dr				Southeast Dwy/James Hill Cr + Campbell Dr				Total					
	In		Out		In		Out		In		Out		In	Out	All	Hourly		
	Left	Right	Left	Right	Left	Right	Left	Right	Left	Thru'	Right	Left					Thru'	Right
7:00	0	0	0	0	0	4	1	0	0	0	2	1	0	1	6	3	9	
7:15	1	0	0	0	0	3	2	0	0	0	0	1	0	1	4	4	8	
7:30	1	0	1	0	0	4	1	0	0	0	0	0	0	0	5	2	7	
7:45	4	0	0	0	0	11	0	0	0	0	1	1	0	0	16	1	17	41
8:00	1	0	1	1	0	6	1	1	0	0	3	0	0	1	10	5	15	47
8:15	0	0	0	1	0	9	3	0	0	0	1	2	0	1	10	7	17	56
8:30	3	3	1	1	0	11	1	0	0	0	4	3	0	4	21	10	31	80
8:45	3	1	0	3	0	13	2	0	0	0	7	0	0	3	24	8	32	95
16:00	1	0	0	0	1	1	6	1	0	0	3	1	0	0	6	8	14	
16:15	0	2	0	1	0	2	6	0	0	0	4	7	0	1	8	15	23	
16:30	0	0	2	0	0	0	6	0	2	0	4	3	0	0	6	11	17	
16:45	1	0	1	2	0	4	2	0	2	0	2	2	0	1	9	8	17	71
17:00	0	0	0	2	0	2	12	0	0	0	4	2	0	0	6	16	22	79
17:15	1	1	0	0	0	2	5	0	1	0	4	5	0	2	9	12	21	77
17:30	0	0	0	0	0	2	2	0	2	0	3	2	0	0	7	4	11	71
17:45	1	1	0	0	0	5	5	0	0	0	5	6	0	2	12	13	25	79
Total	17	8	6	11	1	79	55	2	7	0	47	36	0	17	159	127	286	343
AM Peak	7	4	2	6	0	39	7	1	0	0	15	5	0	9	65	30	95	406
PM Peak	1	2	3	5	0	8	26	0	4	0	14	14	0	2	29	50	79	460

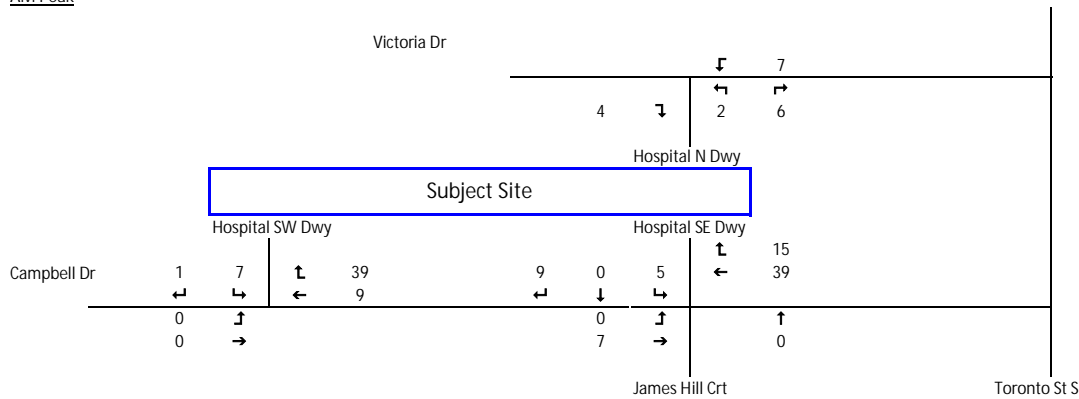
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<-- Peak Hour

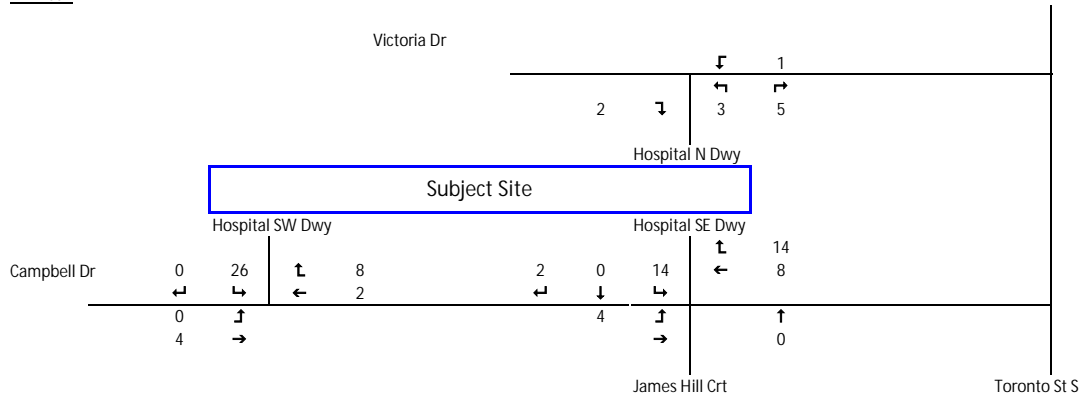
Notes: Subject site has a total approximate building size of 82,930 sf (North: 45,030 sf, South: 37,900 sf)

Peak Hour	Two-way Site Trips			Trip Rate		
	In	Out	Total	In	Out	Total
AM	65	30	95	0.78	0.36	1.14
PM	29	50	79	0.35	0.60	0.95

AM Peak



PM Peak



Existing Trip Rate

Peak Hour	Trip Rate		
	In	Out	Total
AM	0.78	0.36	1.14
PM	0.35	0.6	0.95

	sq ft	
Existing	45,030	
Future	140,000	
EMS Remove	2,680	
Net increase	92,290	130,190

New Site trips

Peak Hour	Two-way Trips		
	In	Out	Total
AM	72	33	105
PM	32	55	87

ITE

Beds
Existing 20

	In	Out	Total	Trip rate	% IB
AM	26	10	36	1.79	72%
PM	11	23	34	1.69	33%

Future 32

	In	Out	Total	Trip rate	% IB
AM	41	16	57	1.79	72%
PM	18	36	54	1.69	33%

Square footage
Existing (sf) 45,030

	In	Out	Total	Trip rate	% IB
AM	25	12	37	0.82	67%
PM	14	25	39	0.86	35%

Future (sf) 140,000

	In	Out	Total	Trip rate	% IB
AM	77	38	115	0.82	67%
PM	42	78	120	0.86	35%

MODAL SPLIT CALCULATIONS

Subject Site is in TTS Zone 1318

DISCRETIONARY

Fri Jul 26 2024 10:16:02 GMT-0400 (Eastern Daylight Time) - Run Time: 3016ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest

Column: Primary travel mode of trip - mode_prime

Filters:

(2006 GTA zone of destination - gta06_dest In 1317-1318, and

Start time of trip - start_time 700-1900, and

Primary travel mode of trip - mode_prime In B,C,D,G,J,M,O,P,S,T,U,W, and
Regional municipality of household - region_hhld In 3)

Trip 2016

ROW : gta06_dest

COLUMN : mode_prime

gta06_dest	mode_prime	total
1317	D	296
1317	M	21
1317	P	72
1318	D	622
1318	P	123
1318	S	22

Raw Data

Zone of Origin	Mode	Total
1317	D	296
1317	M	21
1317	P	72
1318	D	622
1318	P	123
1318	S	22
Total		1,156

Sorted

Zone of Origin	Mode	Total
1317	D	296
1318	D	622
1317	M	21
1317	P	72
1318	P	123
1318	S	22
Total		1,156

Summary

Travel Mode	TTS Code	Value	Percent
Auto Driver	D+M	939	81%
Auto Passenger	P+T+U	195	17%
Transit	B+G+J+S	22	2%
Walk	W	0	0%
Cycle	C	0	0%
Other	O	0	0%
Total		1,156	100%



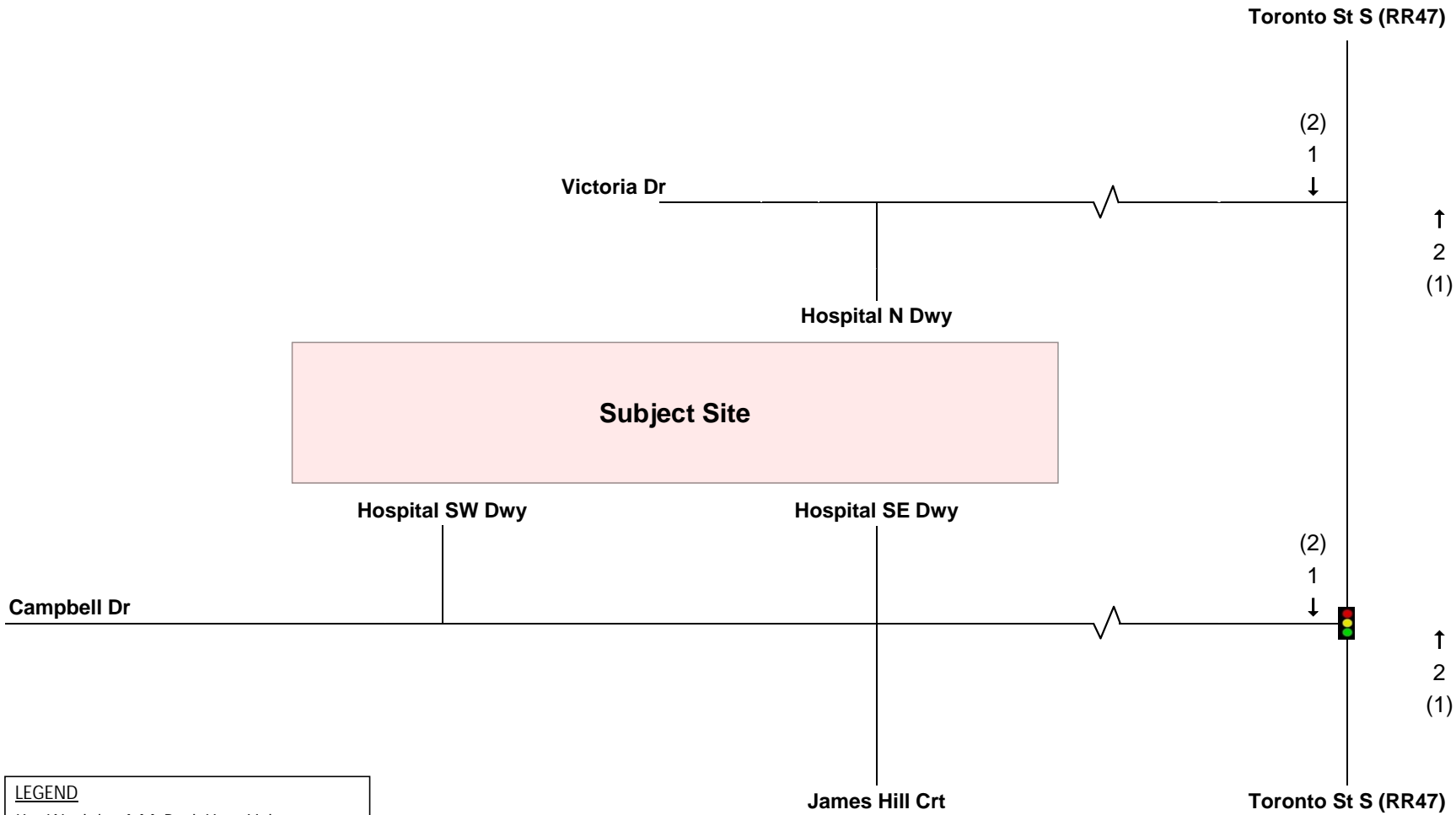


APPENDIX D

Background Developments



*Not to Scale



LEGEND	
X	Weekday A.M. Peak Hour Volumes
(X)	Weekday P.M. Peak Hour Volumes
	Signalized Intersection



179-181 TORONTO ST SITE TRAFFIC
 Proposed Mixed-Use Development
 4 Campbell Dr (Uxbridge)



Corridor Growth



*Not to Scale

Toronto St S (RR47)

(7)
7
↓

↑
5
(11)

Victoria Dr

Hospital N Dwy



Subject Site

Hospital SW Dwy

Hospital SE Dwy

(7)
7
↓

↑
5
(11)

Campbell Dr



James Hill Crt

Toronto St S (RR47)

LEGEND

- X Weekday A.M. Peak Hour Volumes
- (X) Weekday P.M. Peak Hour Volumes
- Signalized Intersection



CORRIDOR GROWTH (2027)
 Proposed Mixed-Use Development
 4 Campbell Dr (Uxbridge)



*Not to Scale

Toronto St S (RR47)

(19)
19
↓

↑
12
(30)

Victoria Dr

Hospital N Dwy



Subject Site

Hospital SW Dwy

Hospital SE Dwy

(19)
19
↓

↑
12
(30)

Campbell Dr



James Hill Crt

Toronto St S (RR47)

LEGEND

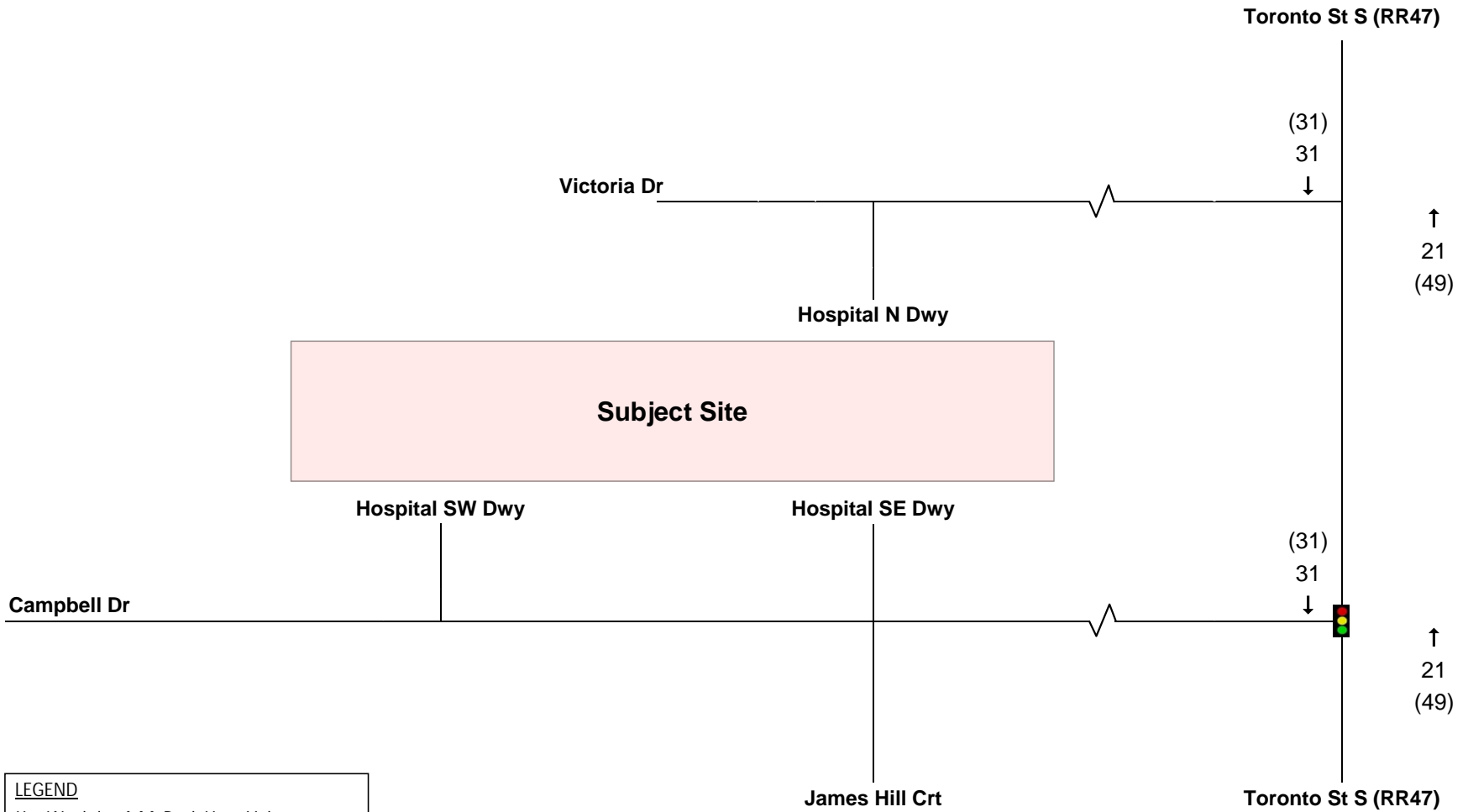
- X Weekday A.M. Peak Hour Volumes
- (X) Weekday P.M. Peak Hour Volumes
- Signalized Intersection



CORRIDOR GROWTH (2032)
 Proposed Mixed-Use Development
 4 Campbell Dr (Uxbridge)



*Not to Scale



LEGEND	
X	Weekday A.M. Peak Hour Volumes
(X)	Weekday P.M. Peak Hour Volumes
	Signalized Intersection



CORRIDOR GROWTH (2037)
 Proposed Mixed-Use Development
 4 Campbell Dr (Uxbridge)



APPENDIX E

Existing Intersection Capacity Analysis

Queues
1: Toronto St S (RR47) & Campbell Dr

Existing Traffic
Weekday AM Peak

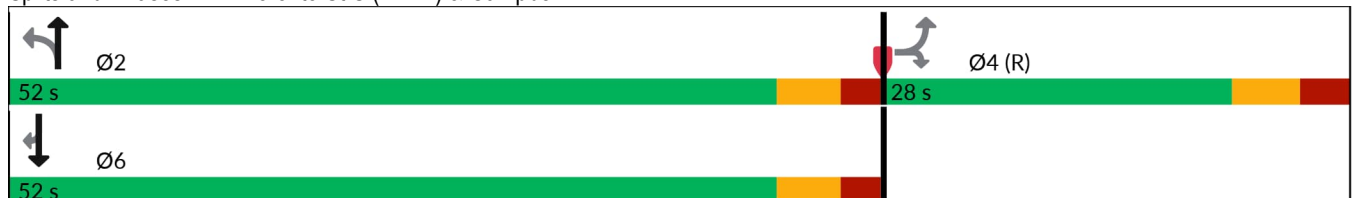


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	307	457	64
Future Volume (vph)	21	22	42	307	457	64
Lane Group Flow (vph)	23	24	47	341	508	71
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.05	0.06	0.12	0.33	0.48	0.09
Control Delay (s/veh)	22.6	9.9	8.9	10.2	12.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	9.9	8.9	10.2	12.0	4.3
Queue Length 50th (m)	2.8	0.0	3.2	26.4	44.0	1.9
Queue Length 95th (m)	8.4	5.6	8.4	42.4	67.7	7.2
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	387	381	1024	1054	829
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.12	0.33	0.48	0.09

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Existing Traffic
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	307	457	64
Future Volume (vph)	21	22	42	307	457	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1410	1578	1789	1842	1417
Flt Permitted	0.95	1.00	0.40	1.00	1.00	1.00
Satd. Flow (perm)	1725	1410	666	1789	1842	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	24	47	341	508	71
RTOR Reduction (vph)	0	18	0	0	0	18
Lane Group Flow (vph)	23	6	47	341	508	53
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	7%	9%	5%	2%	6%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	370	381	1024	1054	811
v/s Ratio Prot				0.19	c0.28	
v/s Ratio Perm	c0.01	0.00	0.07			0.04
v/c Ratio	0.05	0.02	0.12	0.33	0.48	0.07
Uniform Delay, d1	22.1	21.9	7.9	9.0	10.1	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.1	0.2	1.6	0.2
Delay (s)	22.3	21.9	8.0	9.2	11.7	7.7
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.1			9.1	11.2	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 6th TWSC
2: Toronto St S (RR47) & Victoria Dr

Existing Traffic
Weekday AM Peak

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	4	21	12	316	500	3
Future Vol, veh/h	4	21	12	316	500	3
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	5	8	6	4	33
Mvmt Flow	5	25	14	376	595	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1004	597	599	0	-	0
Stage 1	597	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Critical Hdwy	6.4	6.25	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.345	2.272	-	-	-
Pot Cap-1 Maneuver	270	497	949	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	266	497	949	-	-	-
Mov Cap-2 Maneuver	266	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.9	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	949	-	436	-	-
HCM Lane V/C Ratio	0.015	-	0.068	-	-
HCM Control Delay (s/veh)	8.9	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	h			4	Y	
Traffic Vol, veh/h	18	4	7	7	2	6
Future Vol, veh/h	18	4	7	7	2	6
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	6	11	11	3	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	34	0	64 32
Stage 1	-	-	-	-	31 -
Stage 2	-	-	-	-	33 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1591	-	947 1048
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	995 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1591	-	940 1047
Mov Cap-2 Maneuver	-	-	-	-	940 -
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	3.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1591	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s/veh)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

HCM 6th TWSC
4: Campbell Dr & Hospital SW Dwy

Existing Traffic
Weekday AM Peak

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		Y	
Traffic Vol, veh/h	0	12	10	39	7	26
Future Vol, veh/h	0	12	10	39	7	26
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	5	14	0
Mvmt Flow	0	16	13	52	9	35

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	57 41
Stage 1	-	-	-	-	41 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.54 6.2
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	2.2	-	-	-	3.626 3.3
Pot Cap-1 Maneuver	1547	-	-	-	921 1036
Stage 1	-	-	-	-	952 -
Stage 2	-	-	-	-	977 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	919 1035
Mov Cap-2 Maneuver	-	-	-	-	919 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	976 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	1008
HCM Lane V/C Ratio	-	-	-	-	0.044
HCM Control Delay (s/veh)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

HCM 6th TWSC
5: James Hill Ct./Hospital SE Dwy & Campbell Dr

Existing Traffic
Weekday AM Peak

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Future Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	11
Mvmt Flow	0	25	0	3	53	20	0	0	0	7	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	25	0	0	100	104	26	95	94	63
Stage 1	-	-	-	-	-	-	25	25	-	69	69	-
Stage 2	-	-	-	-	-	-	75	79	-	26	25	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.399
Pot Cap-1 Maneuver	1540	-	-	1603	-	-	886	790	1056	893	800	977
Stage 1	-	-	-	-	-	-	998	878	-	946	841	-
Stage 2	-	-	-	-	-	-	939	833	-	997	878	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1603	-	-	874	788	1055	891	798	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	874	788	-	891	798	-
Stage 1	-	-	-	-	-	-	998	878	-	946	839	-
Stage 2	-	-	-	-	-	-	926	831	-	996	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.3	0	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1540	-	-	1603	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.02
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	8.9
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.1

Queues
1: Toronto St S (RR47) & Campbell Dr

Existing Traffic
Weekday PM Peak

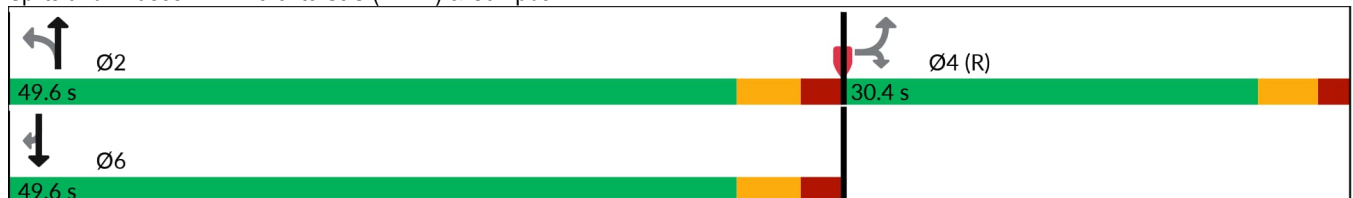


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	730	459	44
Future Volume (vph)	60	44	33	730	459	44
Lane Group Flow (vph)	61	45	34	745	468	45
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.10	0.08	0.11	0.85	0.53	0.06
Control Delay (s/veh)	19.2	7.0	10.6	28.0	16.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.2	7.0	10.6	28.0	16.4	5.4
Queue Length 50th (m)	6.4	0.0	2.7	95.4	47.9	1.4
Queue Length 95th (m)	15.6	7.1	6.9	131.0	66.2	5.8
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	637	559	366	999	999	787
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.09	0.75	0.47	0.06

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Existing Traffic
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	730	459	44
Future Volume (vph)	60	44	33	730	459	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1691	1410	1669	1842	1842	1429
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1691	1410	676	1842	1842	1429
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	45	34	745	468	45
RTOR Reduction (vph)	0	28	0	0	0	14
Lane Group Flow (vph)	61	17	34	745	468	31
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	2%	7%	3%	2%	2%	5%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	30.1	30.1	38.2	38.2	38.2	38.2
Effective Green, g (s)	30.1	30.1	38.2	38.2	38.2	38.2
Actuated g/C Ratio	0.38	0.38	0.48	0.48	0.48	0.48
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	636	530	322	879	879	682
v/s Ratio Prot				c0.40	0.25	
v/s Ratio Perm	c0.04	0.01	0.05			0.02
v/c Ratio	0.10	0.03	0.11	0.85	0.53	0.05
Uniform Delay, d1	16.1	15.8	11.5	18.3	14.6	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	7.6	0.6	0.0
Delay (s)	16.4	15.9	11.6	26.0	15.3	11.2
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	16.2			25.3	14.9	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	18	15	775	485	4
Future Vol, veh/h	1	18	15	775	485	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	19	16	807	505	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1356	514	515	0	-	0
Stage 1	513	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	166	564	1061	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	162	561	1057	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	424	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1057	-	497	-	-
HCM Lane V/C Ratio	0.015	-	0.04	-	-
HCM Control Delay (s/veh)	8.5	-	12.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			4	4	
Traffic Vol, veh/h	12	2	1	17	3	5
Future Vol, veh/h	12	2	1	17	3	5
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	3	1	24	4	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	20	0	50 23
Stage 1	-	-	-	-	19 -
Stage 2	-	-	-	-	31 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1609	-	964 1060
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	997 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1609	-	959 1057
Mov Cap-2 Maneuver	-	-	-	-	959 -
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	992 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1609	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

HCM 6th TWSC
4: Campbell Dr & Hospital SW Dwy

Existing Traffic
Weekday PM Peak

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	15	21	8	26	0
Future Vol, veh/h	0	15	21	8	26	0
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	5	0	0	0
Mvmt Flow	0	20	28	11	34	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	41	0	-	0	58 36
Stage 1	-	-	-	-	36 -
Stage 2	-	-	-	-	22 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1581	-	-	-	954 1042
Stage 1	-	-	-	-	992 -
Stage 2	-	-	-	-	1006 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1579	-	-	-	952 1041
Mov Cap-2 Maneuver	-	-	-	-	952 -
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	1005 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	952
HCM Lane V/C Ratio	-	-	-	-	0.036
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

HCM 6th TWSC
5: James Hill Ct./Hospital SE Dwy & Campbell Dr

Existing Traffic
Weekday PM Peak

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Future Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	5	45	0	5	33	17	0	0	1	17	0	2

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	50	0	0	45	0	0	108	115	45	108	107	42
Stage 1	-	-	-	-	-	-	55	55	-	52	52	-
Stage 2	-	-	-	-	-	-	53	60	-	56	55	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1570	-	-	1576	-	-	876	779	1031	876	787	1034
Stage 1	-	-	-	-	-	-	962	853	-	966	856	-
Stage 2	-	-	-	-	-	-	965	849	-	961	853	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1570	-	-	1576	-	-	870	774	1031	871	782	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	870	774	-	871	782	-
Stage 1	-	-	-	-	-	-	959	850	-	963	853	-
Stage 2	-	-	-	-	-	-	960	846	-	957	850	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.7	0.6	8.5	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1031	1570	-	-	1576	-	-	889
HCM Lane V/C Ratio	0.001	0.003	-	-	0.003	-	-	0.022
HCM Control Delay (s/veh)	8.5	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1



APPENDIX F

2027 Intersection Capacity Analysis



Future Background

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2027
Weekday AM Peak

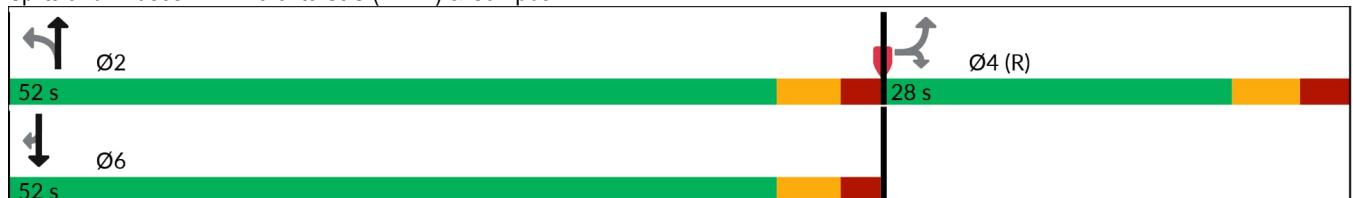


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	314	465	64
Future Volume (vph)	21	22	42	314	465	64
Lane Group Flow (vph)	23	24	47	349	517	71
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.05	0.06	0.13	0.34	0.49	0.09
Control Delay (s/veh)	22.6	9.9	9.0	10.3	12.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	9.9	9.0	10.3	12.2	4.3
Queue Length 50th (m)	2.8	0.0	3.2	27.2	45.1	1.9
Queue Length 95th (m)	8.4	5.6	8.4	43.5	69.3	7.2
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	387	374	1024	1054	829
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.13	0.34	0.49	0.09

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2027
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	314	465	64
Future Volume (vph)	21	22	42	314	465	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1410	1578	1789	1842	1417
Flt Permitted	0.95	1.00	0.39	1.00	1.00	1.00
Satd. Flow (perm)	1725	1410	655	1789	1842	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	24	47	349	517	71
RTOR Reduction (vph)	0	18	0	0	0	18
Lane Group Flow (vph)	23	6	47	349	517	53
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	7%	9%	5%	2%	6%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	370	374	1024	1054	811
v/s Ratio Prot				0.20	c0.28	
v/s Ratio Perm	c0.01	0.00	0.07			0.04
v/c Ratio	0.05	0.02	0.13	0.34	0.49	0.07
Uniform Delay, d1	22.1	21.9	7.9	9.1	10.2	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.2	0.2	1.6	0.2
Delay (s)	22.3	21.9	8.0	9.3	11.8	7.7
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.1			9.1	11.3	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	4	21	12	323	508	3
Future Vol, veh/h	4	21	12	323	508	3
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	5	8	6	4	33
Mvmt Flow	5	25	14	385	605	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1023	607	609	0	-	0
Stage 1	607	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Critical Hdwy	6.4	6.25	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.345	2.272	-	-	-
Pot Cap-1 Maneuver	263	491	941	-	-	-
Stage 1	548	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	259	491	941	-	-	-
Mov Cap-2 Maneuver	259	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	941	-	429	-	-
HCM Lane V/C Ratio	0.015	-	0.069	-	-
HCM Control Delay (s/veh)	8.9	-	14	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	h			4	Y	
Traffic Vol, veh/h	18	4	7	7	2	6
Future Vol, veh/h	18	4	7	7	2	6
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	6	11	11	3	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	34	0	64 32
Stage 1	-	-	-	-	31 -
Stage 2	-	-	-	-	33 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1591	-	947 1048
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	995 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1591	-	940 1047
Mov Cap-2 Maneuver	-	-	-	-	940 -
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	3.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1591	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s/veh)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		Y	
Traffic Vol, veh/h	0	12	10	39	7	1
Future Vol, veh/h	0	12	10	39	7	1
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	5	14	0
Mvmt Flow	0	16	13	52	9	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	57 41
Stage 1	-	-	-	-	41 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.54 6.2
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	2.2	-	-	-	3.626 3.3
Pot Cap-1 Maneuver	1547	-	-	-	921 1036
Stage 1	-	-	-	-	952 -
Stage 2	-	-	-	-	977 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	919 1035
Mov Cap-2 Maneuver	-	-	-	-	919 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	976 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	932
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Future Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	11
Mvmt Flow	0	25	0	3	53	20	0	0	0	7	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	25	0	0	100	104	26	95	94	63
Stage 1	-	-	-	-	-	-	25	25	-	69	69	-
Stage 2	-	-	-	-	-	-	75	79	-	26	25	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.399
Pot Cap-1 Maneuver	1540	-	-	1603	-	-	886	790	1056	893	800	977
Stage 1	-	-	-	-	-	-	998	878	-	946	841	-
Stage 2	-	-	-	-	-	-	939	833	-	997	878	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1603	-	-	874	788	1055	891	798	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	874	788	-	891	798	-
Stage 1	-	-	-	-	-	-	998	878	-	946	839	-
Stage 2	-	-	-	-	-	-	926	831	-	996	878	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.3			0			8.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1540	-	-	1603	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.02
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	8.9
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.1

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2027
Weekday PM Peak

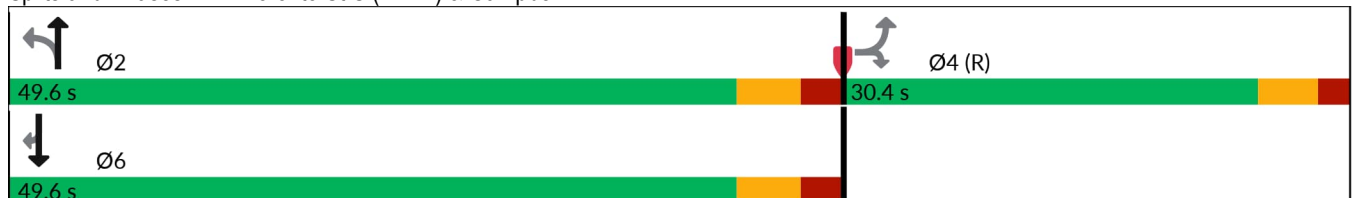


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	742	468	44
Future Volume (vph)	60	44	33	742	468	44
Lane Group Flow (vph)	61	45	34	757	478	45
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.10	0.08	0.11	0.85	0.54	0.06
Control Delay (s/veh)	19.4	7.0	10.5	28.3	16.3	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.4	7.0	10.5	28.3	16.3	5.3
Queue Length 50th (m)	6.5	0.0	2.7	96.7	48.5	1.4
Queue Length 95th (m)	15.6	7.1	6.9	135.1	68.0	5.8
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	629	553	360	999	999	787
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.09	0.76	0.48	0.06

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2027
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	742	468	44
Future Volume (vph)	60	44	33	742	468	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1691	1410	1669	1842	1842	1429
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1691	1410	664	1842	1842	1429
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	45	34	757	478	45
RTOR Reduction (vph)	0	28	0	0	0	14
Lane Group Flow (vph)	61	17	34	757	478	31
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	2%	7%	3%	2%	2%	5%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	29.8	29.8	38.5	38.5	38.5	38.5
Effective Green, g (s)	29.8	29.8	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.37	0.37	0.48	0.48	0.48	0.48
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	629	525	319	886	886	687
v/s Ratio Prot				c0.41	0.26	
v/s Ratio Perm	c0.04	0.01	0.05			0.02
v/c Ratio	0.10	0.03	0.11	0.85	0.54	0.05
Uniform Delay, d1	16.3	15.9	11.3	18.3	14.5	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	8.1	0.6	0.0
Delay (s)	16.6	16.1	11.5	26.3	15.2	11.0
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	16.4			25.7	14.8	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	18	15	787	494	4
Future Vol, veh/h	1	18	15	787	494	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	19	16	820	515	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1379	524	525	0	-	0
Stage 1	523	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	161	557	1052	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	554	1048	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	418	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.7	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1048	-	489	-	-
HCM Lane V/C Ratio	0.015	-	0.04	-	-
HCM Control Delay (s/veh)	8.5	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			4	4	
Traffic Vol, veh/h	12	2	1	17	3	5
Future Vol, veh/h	12	2	1	17	3	5
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	3	1	24	4	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	20	0	50 23
Stage 1	-	-	-	-	19 -
Stage 2	-	-	-	-	31 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1609	-	964 1060
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	997 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1609	-	959 1057
Mov Cap-2 Maneuver	-	-	-	-	959 -
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	992 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1609	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	15	21	8	26	0
Future Vol, veh/h	0	15	21	8	26	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	20	28	11	34	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	41	0	-	0	57 36
Stage 1	-	-	-	-	36 -
Stage 2	-	-	-	-	21 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1581	-	-	-	955 1042
Stage 1	-	-	-	-	992 -
Stage 2	-	-	-	-	1007 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1579	-	-	-	953 1041
Mov Cap-2 Maneuver	-	-	-	-	953 -
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	1006 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	953
HCM Lane V/C Ratio	-	-	-	-	0.036
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Future Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	5	45	0	5	33	17	0	0	1	17	0	2

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	50	0	0	45	0	0	108	115	45	108	107	42
Stage 1	-	-	-	-	-	-	55	55	-	52	52	-
Stage 2	-	-	-	-	-	-	53	60	-	56	55	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1570	-	-	1576	-	-	876	779	1031	876	787	1034
Stage 1	-	-	-	-	-	-	962	853	-	966	856	-
Stage 2	-	-	-	-	-	-	965	849	-	961	853	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1570	-	-	1576	-	-	870	774	1031	871	782	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	870	774	-	871	782	-
Stage 1	-	-	-	-	-	-	959	850	-	963	853	-
Stage 2	-	-	-	-	-	-	960	846	-	957	850	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.7	0.6	8.5	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1031	1570	-	-	1576	-	-	889
HCM Lane V/C Ratio	0.001	0.003	-	-	0.003	-	-	0.022
HCM Control Delay (s/veh)	8.5	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1



Future Total

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2027)
Weekday AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	315	472	108
Future Volume (vph)	30	29	72	315	472	108
Lane Group Flow (vph)	33	32	80	350	524	120
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.07	0.08	0.21	0.34	0.50	0.14
Control Delay (s/veh)	22.8	9.1	10.1	10.3	12.3	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.8	9.1	10.1	10.3	12.3	4.3
Queue Length 50th (m)	4.0	0.0	5.7	27.3	45.9	3.3
Queue Length 95th (m)	10.7	6.5	13.3	43.5	70.8	10.4
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	400	384	1024	1054	856
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.08	0.21	0.34	0.50	0.14

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2027)
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	315	472	108
Future Volume (vph)	30	29	72	315	472	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1437	1638	1789	1842	1444
Flt Permitted	0.95	1.00	0.39	1.00	1.00	1.00
Satd. Flow (perm)	1725	1437	671	1789	1842	1444
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	32	80	350	524	120
RTOR Reduction (vph)	0	24	0	0	0	29
Lane Group Flow (vph)	33	8	80	350	524	91
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	5%	5%	5%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	377	384	1024	1054	826
v/s Ratio Prot				0.20	c0.28	
v/s Ratio Perm	c0.02	0.01	0.12			0.06
v/c Ratio	0.07	0.02	0.21	0.34	0.50	0.11
Uniform Delay, d1	22.2	21.9	8.3	9.1	10.2	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.3	0.2	1.7	0.3
Delay (s)	22.5	22.0	8.6	9.3	11.9	8.1
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.2			9.2	11.2	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	6	28	13	332	552	12
Future Vol, veh/h	6	28	13	332	552	12
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	4	7	6	4	8
Mvmt Flow	7	33	15	395	657	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1092	664	671	0	-	0
Stage 1	664	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	240	457	896	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	662	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	236	457	896	-	-	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	662	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	15.2	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	896	-	392	-	-
HCM Lane V/C Ratio	0.017	-	0.103	-	-
HCM Control Delay (s/veh)	9.1	-	15.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q (veh)	0.1	-	0.3	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	18	9	17	7	5	15
Future Vol, veh/h	18	9	17	7	5	15
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	14	26	11	8	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	42	0	98
Stage 1	-	-	-	-	35
Stage 2	-	-	-	-	63
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1580	-	906
Stage 1	-	-	-	-	993
Stage 2	-	-	-	-	965
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1580	-	891
Mov Cap-2 Maneuver	-	-	-	-	891
Stage 1	-	-	-	-	993
Stage 2	-	-	-	-	949

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	999	-	-	1580	-
HCM Lane V/C Ratio	0.031	-	-	0.017	-
HCM Control Delay (s/veh)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	12	22	93	16	2
Future Vol, veh/h	0	12	22	93	16	2
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	0	16	29	124	21	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	155	0	-	0	109 93
Stage 1	-	-	-	-	93 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.46 6.2
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.2	-	-	-	3.554 3.3
Pot Cap-1 Maneuver	1438	-	-	-	879 970
Stage 1	-	-	-	-	921 -
Stage 2	-	-	-	-	996 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1436	-	-	-	877 969
Mov Cap-2 Maneuver	-	-	-	-	877 -
Stage 1	-	-	-	-	920 -
Stage 2	-	-	-	-	995 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1436	-	-	-	886
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s/veh)	0	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Future Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	3	0	0	1	0	0	0	0	0	0	5
Mvmt Flow	0	37	0	3	125	48	0	0	0	16	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	37	0	0	206	216	38	193	192	149
Stage 1	-	-	-	-	-	-	37	37	-	155	155	-
Stage 2	-	-	-	-	-	-	169	179	-	38	37	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.345
Pot Cap-1 Maneuver	1416	-	-	1587	-	-	756	685	1040	771	707	890
Stage 1	-	-	-	-	-	-	984	868	-	852	773	-
Stage 2	-	-	-	-	-	-	838	755	-	982	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1416	-	-	1587	-	-	731	684	1039	769	706	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	731	684	-	769	706	-
Stage 1	-	-	-	-	-	-	984	868	-	852	771	-
Stage 2	-	-	-	-	-	-	810	753	-	981	868	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.1			0			9.5		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1416	-	-	1587	-	-	842
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.052
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	9.5
HCM Lane LOS		A	A	-	-	A	A	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.2

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2027)
Weekday PM Peak

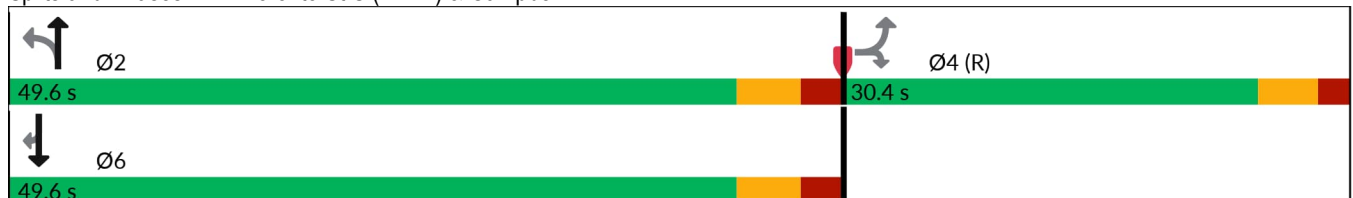


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	743	476	62
Future Volume (vph)	93	69	46	743	476	62
Lane Group Flow (vph)	95	70	47	758	486	63
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	41.5	41.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.15	0.12	0.15	0.85	0.55	0.09
Control Delay (s/veh)	19.7	6.1	11.2	28.2	16.5	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.7	6.1	11.2	28.2	16.5	5.2
Queue Length 50th (m)	10.3	0.0	3.8	95.9	49.2	2.0
Queue Length 95th (m)	22.4	8.8	9.1	135.2	69.3	7.2
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	634	582	358	999	999	799
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.12	0.13	0.76	0.49	0.08

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2027)
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	743	476	62
Future Volume (vph)	93	69	46	743	476	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1708	1451	1685	1842	1842	1443
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1708	1451	659	1842	1842	1443
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	95	70	47	758	486	63
RTOR Reduction (vph)	0	44	0	0	0	19
Lane Group Flow (vph)	95	26	47	758	486	44
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	1%	4%	2%	2%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	29.7	29.7	38.6	38.6	38.6	38.6
Effective Green, g (s)	29.7	29.7	38.6	38.6	38.6	38.6
Actuated g/C Ratio	0.37	0.37	0.48	0.48	0.48	0.48
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	634	538	317	888	888	696
v/s Ratio Prot				c0.41	0.26	
v/s Ratio Perm	c0.06	0.02	0.07			0.03
v/c Ratio	0.15	0.05	0.15	0.85	0.55	0.06
Uniform Delay, d1	16.7	16.1	11.5	18.2	14.6	11.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.2	8.0	0.7	0.0
Delay (s)	17.2	16.3	11.8	26.2	15.2	11.1
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	16.8			25.4	14.8	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	26	16	820	512	4
Future Vol, veh/h	1	26	16	820	512	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	27	17	854	533	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1433	542	543	0	-	0
Stage 1	541	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	149	544	1036	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	145	541	1032	-	-	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	402	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.8	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1032	-	491	-	-
HCM Lane V/C Ratio	0.016	-	0.057	-	-
HCM Control Delay (s/veh)	8.5	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	12	5	2	17	7	13
Future Vol, veh/h	12	5	2	17	7	13
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	7	3	24	10	18

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	24	0	56
Stage 1	-	-	-	-	21
Stage 2	-	-	-	-	35
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1604	-	957
Stage 1	-	-	-	-	1007
Stage 2	-	-	-	-	993
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1604	-	951
Mov Cap-2 Maneuver	-	-	-	-	951
Stage 1	-	-	-	-	1007
Stage 2	-	-	-	-	987

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.8	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1016	-	-	1604	-
HCM Lane V/C Ratio	0.028	-	-	0.002	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	21	24	20	64	0
Future Vol, veh/h	0	21	24	20	64	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	28	32	26	84	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	60	0	-	0	76 47
Stage 1	-	-	-	-	47 -
Stage 2	-	-	-	-	29 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1556	-	-	-	932 1028
Stage 1	-	-	-	-	981 -
Stage 2	-	-	-	-	999 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1554	-	-	-	930 1027
Mov Cap-2 Maneuver	-	-	-	-	930 -
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	998 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1554	-	-	-	930
HCM Lane V/C Ratio	-	-	-	-	0.091
HCM Control Delay (s/veh)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Future Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	12	90	0	5	47	40	0	0	1	41	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	90	0	0	194	211	90	192	191	67
Stage 1	-	-	-	-	-	-	114	114	-	77	77	-
Stage 2	-	-	-	-	-	-	80	97	-	115	114	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1522	-	-	1518	-	-	770	690	973	772	708	1002
Stage 1	-	-	-	-	-	-	896	805	-	937	835	-
Stage 2	-	-	-	-	-	-	934	819	-	895	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1518	-	-	759	682	973	764	700	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	759	682	-	764	700	-
Stage 1	-	-	-	-	-	-	889	799	-	930	832	-
Stage 2	-	-	-	-	-	-	926	817	-	887	799	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.9	0.4	8.7	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	973	1522	-	-	1518	-	-	788
HCM Lane V/C Ratio	0.001	0.008	-	-	0.003	-	-	0.06
HCM Control Delay (s/veh)	8.7	7.4	0	-	7.4	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.2



APPENDIX G

2032 Intersection Capacity Analysis



Future Background

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2032
Weekday AM Peak

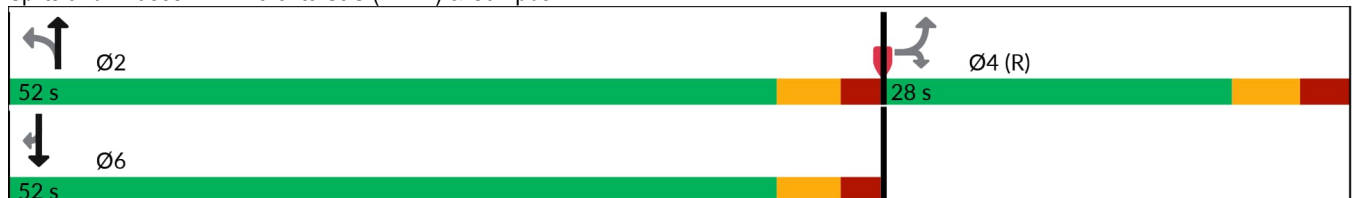


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	321	477	64
Future Volume (vph)	21	22	42	321	477	64
Lane Group Flow (vph)	23	24	47	357	530	71
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.05	0.06	0.13	0.35	0.50	0.09
Control Delay (s/veh)	22.6	9.9	9.0	10.3	12.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	9.9	9.0	10.3	12.4	4.4
Queue Length 50th (m)	2.8	0.0	3.2	28.0	46.7	1.9
Queue Length 95th (m)	8.4	5.6	8.4	44.6	71.8	7.3
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	387	365	1024	1054	828
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.13	0.35	0.50	0.09

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2032
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	321	477	64
Future Volume (vph)	21	22	42	321	477	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1410	1578	1789	1842	1417
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1725	1410	639	1789	1842	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	24	47	357	530	71
RTOR Reduction (vph)	0	18	0	0	0	18
Lane Group Flow (vph)	23	6	47	357	530	53
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	7%	9%	5%	2%	6%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	370	365	1024	1054	811
v/s Ratio Prot				0.20	c0.29	
v/s Ratio Perm	c0.01	0.00	0.07			0.04
v/c Ratio	0.05	0.02	0.13	0.35	0.50	0.07
Uniform Delay, d1	22.1	21.9	7.9	9.1	10.3	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.2	0.2	1.7	0.2
Delay (s)	22.3	21.9	8.1	9.3	12.0	7.8
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.1			9.2	11.5	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	4	21	12	330	520	3
Future Vol, veh/h	4	21	12	330	520	3
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	5	8	6	4	33
Mvmt Flow	5	25	14	393	619	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1045	621	623	0	-	0
Stage 1	621	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Critical Hdwy	6.4	6.25	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.345	2.272	-	-	-
Pot Cap-1 Maneuver	256	482	930	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	252	482	930	-	-	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.2	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	930	-	421	-	-
HCM Lane V/C Ratio	0.015	-	0.071	-	-
HCM Control Delay (s/veh)	8.9	-	14.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	h			4	Y	
Traffic Vol, veh/h	18	4	7	7	2	6
Future Vol, veh/h	18	4	7	7	2	6
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	6	11	11	3	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	34	0	64 32
Stage 1	-	-	-	-	31 -
Stage 2	-	-	-	-	33 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1591	-	947 1048
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	995 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1591	-	940 1047
Mov Cap-2 Maneuver	-	-	-	-	940 -
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	3.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1591	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s/veh)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		Y	
Traffic Vol, veh/h	0	12	10	39	7	1
Future Vol, veh/h	0	12	10	39	7	1
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	5	14	0
Mvmt Flow	0	16	13	52	9	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	57 41
Stage 1	-	-	-	-	41 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.54 6.2
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	2.2	-	-	-	3.626 3.3
Pot Cap-1 Maneuver	1547	-	-	-	921 1036
Stage 1	-	-	-	-	952 -
Stage 2	-	-	-	-	977 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	919 1035
Mov Cap-2 Maneuver	-	-	-	-	919 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	976 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	932
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Future Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	11
Mvmt Flow	0	25	0	3	53	20	0	0	0	7	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	25	0	0	100	104	26	95	94	63
Stage 1	-	-	-	-	-	-	25	25	-	69	69	-
Stage 2	-	-	-	-	-	-	75	79	-	26	25	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.399
Pot Cap-1 Maneuver	1540	-	-	1603	-	-	886	790	1056	893	800	977
Stage 1	-	-	-	-	-	-	998	878	-	946	841	-
Stage 2	-	-	-	-	-	-	939	833	-	997	878	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1603	-	-	874	788	1055	891	798	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	874	788	-	891	798	-
Stage 1	-	-	-	-	-	-	998	878	-	946	839	-
Stage 2	-	-	-	-	-	-	926	831	-	996	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.3	0	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1540	-	-	1603	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.02
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	8.9
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.1

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2032
Weekday PM Peak

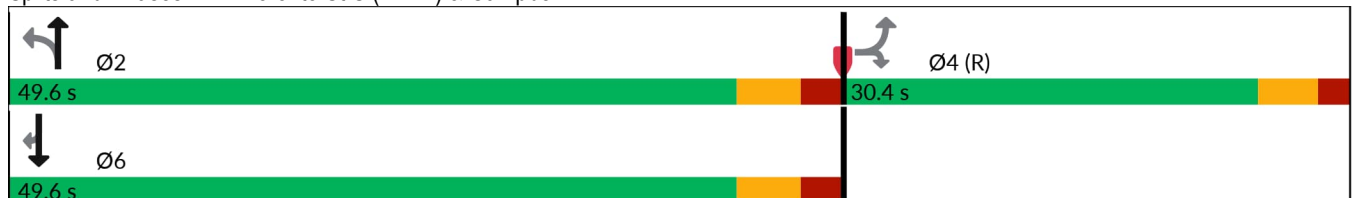


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	761	480	44
Future Volume (vph)	60	44	33	761	480	44
Lane Group Flow (vph)	61	45	34	777	490	45
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.10	0.08	0.11	0.86	0.54	0.06
Control Delay (s/veh)	19.6	7.1	10.3	28.6	16.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	7.1	10.3	28.6	16.1	5.4
Queue Length 50th (m)	6.6	0.0	2.6	98.2	48.7	1.4
Queue Length 95th (m)	15.6	7.1	6.9	141.7	70.1	5.8
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	615	542	355	999	999	787
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.10	0.78	0.49	0.06

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2032
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	761	480	44
Future Volume (vph)	60	44	33	761	480	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1691	1410	1669	1842	1842	1429
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1691	1410	655	1842	1842	1429
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	45	34	777	490	45
RTOR Reduction (vph)	0	29	0	0	0	13
Lane Group Flow (vph)	61	16	34	777	490	32
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	2%	7%	3%	2%	2%	5%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	29.1	29.1	39.2	39.2	39.2	39.2
Effective Green, g (s)	29.1	29.1	39.2	39.2	39.2	39.2
Actuated g/C Ratio	0.36	0.36	0.49	0.49	0.49	0.49
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	615	512	320	902	902	700
v/s Ratio Prot				c0.42	0.27	
v/s Ratio Perm	c0.04	0.01	0.05			0.02
v/c Ratio	0.10	0.03	0.11	0.86	0.54	0.05
Uniform Delay, d1	16.8	16.4	11.0	18.0	14.2	10.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	8.5	0.7	0.0
Delay (s)	17.1	16.5	11.1	26.5	14.8	10.7
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	16.9			25.8	14.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	18	15	806	506	4
Future Vol, veh/h	1	18	15	806	506	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	19	16	840	527	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1411	536	537	0	-	0
Stage 1	535	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	154	549	1041	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	150	546	1037	-	-	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.8	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1037	-	479	-	-
HCM Lane V/C Ratio	0.015	-	0.041	-	-
HCM Control Delay (s/veh)	8.5	-	12.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	12	2	1	17	3	5
Future Vol, veh/h	12	2	1	17	3	5
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	3	1	24	4	7

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	20	0	50
Stage 1	-	-	-	-	19
Stage 2	-	-	-	-	31
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1609	-	964
Stage 1	-	-	-	-	1009
Stage 2	-	-	-	-	997
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1609	-	959
Mov Cap-2 Maneuver	-	-	-	-	959
Stage 1	-	-	-	-	1009
Stage 2	-	-	-	-	992

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1609	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	15	21	8	26	0
Future Vol, veh/h	0	15	21	8	26	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	20	28	11	34	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	41	0	-	0	57 36
Stage 1	-	-	-	-	36 -
Stage 2	-	-	-	-	21 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1581	-	-	-	955 1042
Stage 1	-	-	-	-	992 -
Stage 2	-	-	-	-	1007 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1579	-	-	-	953 1041
Mov Cap-2 Maneuver	-	-	-	-	953 -
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	1006 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	953
HCM Lane V/C Ratio	-	-	-	-	0.036
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Future Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	5	45	0	5	33	17	0	0	1	17	0	2

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	50	0	0	45	0	0	108	115	45	108	107	42
Stage 1	-	-	-	-	-	-	55	55	-	52	52	-
Stage 2	-	-	-	-	-	-	53	60	-	56	55	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1570	-	-	1576	-	-	876	779	1031	876	787	1034
Stage 1	-	-	-	-	-	-	962	853	-	966	856	-
Stage 2	-	-	-	-	-	-	965	849	-	961	853	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1570	-	-	1576	-	-	870	774	1031	871	782	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	870	774	-	871	782	-
Stage 1	-	-	-	-	-	-	959	850	-	963	853	-
Stage 2	-	-	-	-	-	-	960	846	-	957	850	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.7	0.6	8.5	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1031	1570	-	-	1576	-	-	889
HCM Lane V/C Ratio	0.001	0.003	-	-	0.003	-	-	0.022
HCM Control Delay (s/veh)	8.5	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1



Future Total

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2032)
Weekday AM Peak

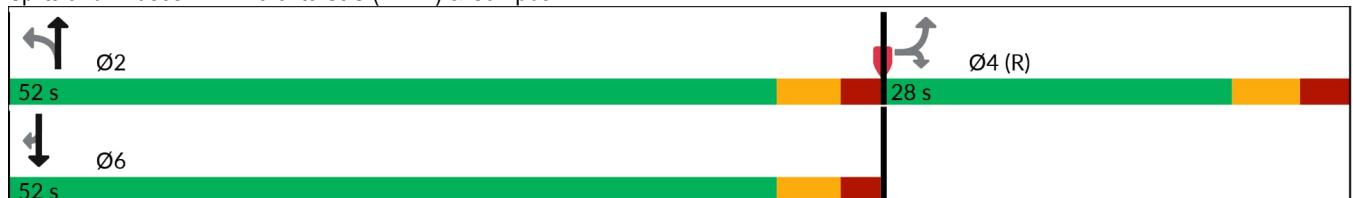


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	322	484	108
Future Volume (vph)	30	29	72	322	484	108
Lane Group Flow (vph)	33	32	80	358	538	120
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.07	0.08	0.21	0.35	0.51	0.14
Control Delay (s/veh)	22.8	9.1	10.2	10.4	12.5	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.8	9.1	10.2	10.4	12.5	4.3
Queue Length 50th (m)	4.0	0.0	5.7	28.1	47.8	3.4
Queue Length 95th (m)	10.7	6.5	13.4	44.7	73.3	10.4
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	400	374	1024	1054	855
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.08	0.21	0.35	0.51	0.14

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2032)
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	322	484	108
Future Volume (vph)	30	29	72	322	484	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1437	1638	1789	1842	1444
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1725	1437	653	1789	1842	1444
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	32	80	358	538	120
RTOR Reduction (vph)	0	24	0	0	0	29
Lane Group Flow (vph)	33	8	80	358	538	91
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	5%	5%	5%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	377	373	1024	1054	826
v/s Ratio Prot				0.20	c0.29	
v/s Ratio Perm	c0.02	0.01	0.12			0.06
v/c Ratio	0.07	0.02	0.21	0.35	0.51	0.11
Uniform Delay, d1	22.2	21.9	8.3	9.1	10.3	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.3	0.2	1.8	0.3
Delay (s)	22.5	22.0	8.6	9.3	12.1	8.1
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.2			9.2	11.4	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘		↗	↑	↘	
Traffic Vol, veh/h	6	28	13	339	564	12
Future Vol, veh/h	6	28	13	339	564	12
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	4	7	6	4	8
Mvmt Flow	7	33	15	404	671	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1115	678	685	0	-	0
Stage 1	678	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	232	449	885	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	228	449	885	-	-	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	499	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	15.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	885	-	383	-	-
HCM Lane V/C Ratio	0.017	-	0.106	-	-
HCM Control Delay (s/veh)	9.1	-	15.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q (veh)	0.1	-	0.4	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	18	9	17	7	5	15
Future Vol, veh/h	18	9	17	7	5	15
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	14	26	11	8	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	42	0	98
Stage 1	-	-	-	-	35
Stage 2	-	-	-	-	63
Critical Hdwy	-	-	4.1	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-	3.5
Pot Cap-1 Maneuver	-	-	1580	-	906
Stage 1	-	-	-	-	993
Stage 2	-	-	-	-	965
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1580	-	891
Mov Cap-2 Maneuver	-	-	-	-	891
Stage 1	-	-	-	-	993
Stage 2	-	-	-	-	949

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	999	-	-	1580	-
HCM Lane V/C Ratio	0.031	-	-	0.017	-
HCM Control Delay (s/veh)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	12	22	93	16	2
Future Vol, veh/h	0	12	22	93	16	2
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	0	16	29	124	21	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	155	0	-	0	109 93
Stage 1	-	-	-	-	93 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.46 6.2
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.2	-	-	-	3.554 3.3
Pot Cap-1 Maneuver	1438	-	-	-	879 970
Stage 1	-	-	-	-	921 -
Stage 2	-	-	-	-	996 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1436	-	-	-	877 969
Mov Cap-2 Maneuver	-	-	-	-	877 -
Stage 1	-	-	-	-	920 -
Stage 2	-	-	-	-	995 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1436	-	-	-	886
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s/veh)	0	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Future Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	3	0	0	1	0	0	0	0	0	0	5
Mvmt Flow	0	37	0	3	125	48	0	0	0	16	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	173	0	0	37	0	0	206	216	38	193	192	149
Stage 1	-	-	-	-	-	-	37	37	-	155	155	-
Stage 2	-	-	-	-	-	-	169	179	-	38	37	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.345
Pot Cap-1 Maneuver	1416	-	-	1587	-	-	756	685	1040	771	707	890
Stage 1	-	-	-	-	-	-	984	868	-	852	773	-
Stage 2	-	-	-	-	-	-	838	755	-	982	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1416	-	-	1587	-	-	731	684	1039	769	706	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	731	684	-	769	706	-
Stage 1	-	-	-	-	-	-	984	868	-	852	771	-
Stage 2	-	-	-	-	-	-	810	753	-	981	868	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.1			0			9.5		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1416	-	-	1587	-	-	842
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.052
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	9.5
HCM Lane LOS		A	A	-	-	A	A	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.2

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2032)
Weekday PM Peak

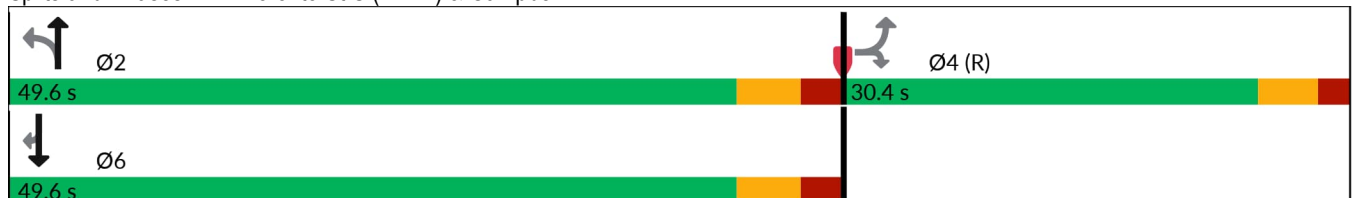


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	762	488	62
Future Volume (vph)	93	69	46	762	488	62
Lane Group Flow (vph)	95	70	47	778	498	63
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.15	0.12	0.15	0.86	0.55	0.09
Control Delay (s/veh)	20.0	6.1	11.0	28.7	16.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.0	6.1	11.0	28.7	16.3	5.2
Queue Length 50th (m)	10.5	0.0	3.7	98.3	49.8	2.0
Queue Length 95th (m)	22.4	8.8	9.1	141.7	71.7	7.3
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	621	572	352	999	999	799
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.12	0.13	0.78	0.50	0.08

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2032)
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	762	488	62
Future Volume (vph)	93	69	46	762	488	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1708	1451	1685	1842	1842	1443
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1708	1451	649	1842	1842	1443
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	95	70	47	778	498	63
RTOR Reduction (vph)	0	45	0	0	0	18
Lane Group Flow (vph)	95	25	47	778	498	45
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	1%	4%	2%	2%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	29.1	29.1	39.2	39.2	39.2	39.2
Effective Green, g (s)	29.1	29.1	39.2	39.2	39.2	39.2
Actuated g/C Ratio	0.36	0.36	0.49	0.49	0.49	0.49
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	621	527	318	902	902	707
v/s Ratio Prot				c0.42	0.27	
v/s Ratio Perm	c0.06	0.02	0.07			0.03
v/c Ratio	0.15	0.05	0.15	0.86	0.55	0.06
Uniform Delay, d1	17.1	16.5	11.2	18.0	14.3	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.2	8.5	0.7	0.0
Delay (s)	17.7	16.7	11.4	26.6	15.0	10.8
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	17.2			25.7	14.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	26	16	839	524	4
Future Vol, veh/h	1	26	16	839	524	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	27	17	874	546	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1466	555	556	0	-	0
Stage 1	554	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	142	535	1025	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	138	532	1021	-	-	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.9	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1021	-	481	-	-
HCM Lane V/C Ratio	0.016	-	0.058	-	-
HCM Control Delay (s/veh)	8.6	-	12.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	12	5	2	17	7	13
Future Vol, veh/h	12	5	2	17	7	13
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	7	3	24	10	18

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	24	0	56 25
Stage 1	-	-	-	-	21 -
Stage 2	-	-	-	-	35 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1604	-	957 1057
Stage 1	-	-	-	-	1007 -
Stage 2	-	-	-	-	993 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1604	-	951 1054
Mov Cap-2 Maneuver	-	-	-	-	951 -
Stage 1	-	-	-	-	1007 -
Stage 2	-	-	-	-	987 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.8	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1016	-	-	1604	-
HCM Lane V/C Ratio	0.028	-	-	0.002	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	21	24	20	64	0
Future Vol, veh/h	0	21	24	20	64	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	28	32	26	84	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	60	0	-	0	76 47
Stage 1	-	-	-	-	47 -
Stage 2	-	-	-	-	29 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1556	-	-	-	932 1028
Stage 1	-	-	-	-	981 -
Stage 2	-	-	-	-	999 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1554	-	-	-	930 1027
Mov Cap-2 Maneuver	-	-	-	-	930 -
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	998 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1554	-	-	-	930
HCM Lane V/C Ratio	-	-	-	-	0.091
HCM Control Delay (s/veh)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Future Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	12	90	0	5	47	40	0	0	1	41	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	90	0	0	194	211	90	192	191	67
Stage 1	-	-	-	-	-	-	114	114	-	77	77	-
Stage 2	-	-	-	-	-	-	80	97	-	115	114	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1522	-	-	1518	-	-	770	690	973	772	708	1002
Stage 1	-	-	-	-	-	-	896	805	-	937	835	-
Stage 2	-	-	-	-	-	-	934	819	-	895	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1518	-	-	759	682	973	764	700	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	759	682	-	764	700	-
Stage 1	-	-	-	-	-	-	889	799	-	930	832	-
Stage 2	-	-	-	-	-	-	926	817	-	887	799	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.9	0.4	8.7	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	973	1522	-	-	1518	-	-	788
HCM Lane V/C Ratio	0.001	0.008	-	-	0.003	-	-	0.06
HCM Control Delay (s/veh)	8.7	7.4	0	-	7.4	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.2



APPENDIX H

2037 Intersection Capacity Analysis



Future Background

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2037
Weekday AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	330	489	64
Future Volume (vph)	21	22	42	330	489	64
Lane Group Flow (vph)	23	24	47	367	543	71
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.05	0.06	0.13	0.36	0.52	0.09
Control Delay (s/veh)	22.6	9.9	9.1	10.4	12.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	9.9	9.1	10.4	12.6	4.5
Queue Length 50th (m)	2.8	0.0	3.2	29.0	48.2	2.0
Queue Length 95th (m)	8.4	5.6	8.5	46.1	74.2	7.3
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	387	356	1024	1054	828
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.06	0.13	0.36	0.52	0.09

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2037
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	22	42	330	489	64
Future Volume (vph)	21	22	42	330	489	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1410	1578	1789	1842	1417
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1725	1410	623	1789	1842	1417
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	24	47	367	543	71
RTOR Reduction (vph)	0	18	0	0	0	17
Lane Group Flow (vph)	23	6	47	367	543	54
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	7%	9%	5%	2%	6%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	370	356	1024	1054	811
v/s Ratio Prot				0.21	c0.29	
v/s Ratio Perm	c0.01	0.00	0.08			0.04
v/c Ratio	0.05	0.02	0.13	0.36	0.52	0.07
Uniform Delay, d1	22.1	21.9	7.9	9.2	10.4	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.2	0.2	1.8	0.2
Delay (s)	22.3	21.9	8.1	9.4	12.2	7.8
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.1			9.3	11.7	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	4	21	12	339	532	3
Future Vol, veh/h	4	21	12	339	532	3
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	5	8	6	4	33
Mvmt Flow	5	25	14	404	633	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1070	635	637	0	-	0
Stage 1	635	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.4	6.25	4.18	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.345	2.272	-	-	-
Pot Cap-1 Maneuver	247	473	918	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	243	473	918	-	-	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.4	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	918	-	411	-	-
HCM Lane V/C Ratio	0.016	-	0.072	-	-
HCM Control Delay (s/veh)	9	-	14.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	h			4	Y	
Traffic Vol, veh/h	18	4	7	7	2	6
Future Vol, veh/h	18	4	7	7	2	6
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	6	11	11	3	9

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	34	0	64 32
Stage 1	-	-	-	-	31 -
Stage 2	-	-	-	-	33 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1591	-	947 1048
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	995 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1591	-	940 1047
Mov Cap-2 Maneuver	-	-	-	-	940 -
Stage 1	-	-	-	-	997 -
Stage 2	-	-	-	-	988 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	3.6	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1591	-
HCM Lane V/C Ratio	0.012	-	-	0.007	-
HCM Control Delay (s/veh)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	12	10	39	7	1
Future Vol, veh/h	0	12	10	39	7	1
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	5	14	0
Mvmt Flow	0	16	13	52	9	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	57 41
Stage 1	-	-	-	-	41 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.54 6.2
Critical Hdwy Stg 1	-	-	-	-	5.54 -
Critical Hdwy Stg 2	-	-	-	-	5.54 -
Follow-up Hdwy	2.2	-	-	-	3.626 3.3
Pot Cap-1 Maneuver	1547	-	-	-	921 1036
Stage 1	-	-	-	-	952 -
Stage 2	-	-	-	-	977 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	919 1035
Mov Cap-2 Maneuver	-	-	-	-	919 -
Stage 1	-	-	-	-	951 -
Stage 2	-	-	-	-	976 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	932
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Future Vol, veh/h	0	19	0	2	40	15	0	0	0	5	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	5	0	0	3	0	0	0	0	0	0	11
Mvmt Flow	0	25	0	3	53	20	0	0	0	7	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	73	0	0	25	0	0	100	104	26	95	94	63
Stage 1	-	-	-	-	-	-	25	25	-	69	69	-
Stage 2	-	-	-	-	-	-	75	79	-	26	25	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.399
Pot Cap-1 Maneuver	1540	-	-	1603	-	-	886	790	1056	893	800	977
Stage 1	-	-	-	-	-	-	998	878	-	946	841	-
Stage 2	-	-	-	-	-	-	939	833	-	997	878	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1540	-	-	1603	-	-	874	788	1055	891	798	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	874	788	-	891	798	-
Stage 1	-	-	-	-	-	-	998	878	-	946	839	-
Stage 2	-	-	-	-	-	-	926	831	-	996	878	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.3	0	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1540	-	-	1603	-	-	944
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.02
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	8.9
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.1

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Background 2037
Weekday PM Peak

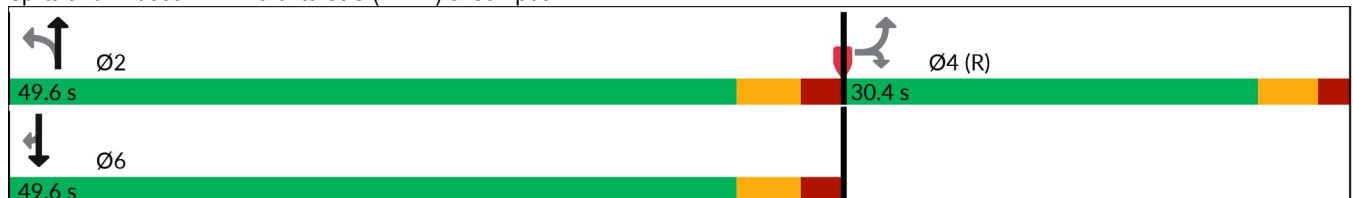


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	780	492	44
Future Volume (vph)	60	44	33	780	492	44
Lane Group Flow (vph)	61	45	34	796	502	45
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.10	0.08	0.11	0.87	0.55	0.06
Control Delay (s/veh)	19.8	7.1	10.2	29.3	16.0	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.8	7.1	10.2	29.3	16.0	5.4
Queue Length 50th (m)	6.7	0.0	2.6	100.4	49.5	1.5
Queue Length 95th (m)	15.6	7.1	7.0	147.8	72.4	5.9
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	605	533	348	999	999	786
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.10	0.80	0.50	0.06

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Background 2037
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	44	33	780	492	44
Future Volume (vph)	60	44	33	780	492	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1691	1410	1669	1842	1842	1429
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1691	1410	643	1842	1842	1429
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	45	34	796	502	45
RTOR Reduction (vph)	0	29	0	0	0	13
Lane Group Flow (vph)	61	16	34	796	502	32
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	2%	7%	3%	2%	2%	5%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	28.6	28.6	39.7	39.7	39.7	39.7
Effective Green, g (s)	28.6	28.6	39.7	39.7	39.7	39.7
Actuated g/C Ratio	0.36	0.36	0.50	0.50	0.50	0.50
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	604	504	319	914	914	709
v/s Ratio Prot				c0.43	0.27	
v/s Ratio Perm	c0.04	0.01	0.05			0.02
v/c Ratio	0.10	0.03	0.11	0.87	0.55	0.05
Uniform Delay, d1	17.1	16.7	10.7	17.9	14.0	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	9.1	0.7	0.0
Delay (s)	17.5	16.8	10.9	27.0	14.6	10.4
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	17.2			26.3	14.3	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	1	18	15	825	518	4
Future Vol, veh/h	1	18	15	825	518	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	19	16	859	540	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1443	549	550	0	-	0
Stage 1	548	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	147	539	1030	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	143	536	1026	-	-	-
Mov Cap-2 Maneuver	143	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	400	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1026	-	468	-	-
HCM Lane V/C Ratio	0.015	-	0.042	-	-
HCM Control Delay (s/veh)	8.6	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			4	4	
Traffic Vol, veh/h	12	2	1	17	3	5
Future Vol, veh/h	12	2	1	17	3	5
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	3	1	24	4	7

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	20	0	50 23
Stage 1	-	-	-	-	19 -
Stage 2	-	-	-	-	31 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1609	-	964 1060
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	997 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1609	-	959 1057
Mov Cap-2 Maneuver	-	-	-	-	959 -
Stage 1	-	-	-	-	1009 -
Stage 2	-	-	-	-	992 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.4	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1018	-	-	1609	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	15	21	8	26	0
Future Vol, veh/h	0	15	21	8	26	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	20	28	11	34	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	41	0	-	0	57 36
Stage 1	-	-	-	-	36 -
Stage 2	-	-	-	-	21 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1581	-	-	-	955 1042
Stage 1	-	-	-	-	992 -
Stage 2	-	-	-	-	1007 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1579	-	-	-	953 1041
Mov Cap-2 Maneuver	-	-	-	-	953 -
Stage 1	-	-	-	-	991 -
Stage 2	-	-	-	-	1006 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	953
HCM Lane V/C Ratio	-	-	-	-	0.036
HCM Control Delay (s/veh)	0	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Future Vol, veh/h	4	37	0	4	27	14	0	0	1	14	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	5	45	0	5	33	17	0	0	1	17	0	2

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	50	0	0	45	0	0	108	115	45	108	107	42
Stage 1	-	-	-	-	-	-	55	55	-	52	52	-
Stage 2	-	-	-	-	-	-	53	60	-	56	55	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1570	-	-	1576	-	-	876	779	1031	876	787	1034
Stage 1	-	-	-	-	-	-	962	853	-	966	856	-
Stage 2	-	-	-	-	-	-	965	849	-	961	853	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1570	-	-	1576	-	-	870	774	1031	871	782	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	870	774	-	871	782	-
Stage 1	-	-	-	-	-	-	959	850	-	963	853	-
Stage 2	-	-	-	-	-	-	960	846	-	957	850	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s/v	0.7		0.6		8.5		9.1	
HCM LOS					A		A	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1031	1570	-	-	1576	-	-	889
HCM Lane V/C Ratio	0.001	0.003	-	-	0.003	-	-	0.022
HCM Control Delay (s/veh)	8.5	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.1



Future Total

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2037)
Weekday AM Peak

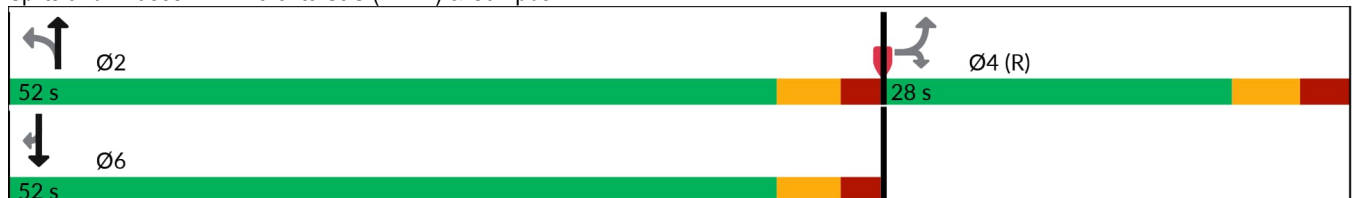


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	331	496	108
Future Volume (vph)	30	29	72	331	496	108
Lane Group Flow (vph)	33	32	80	368	551	120
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	25.0	25.0	42.2	42.2	42.2	42.2
Total Split (s)	28.0	28.0	52.0	52.0	52.0	52.0
Total Split (%)	35.0%	35.0%	65.0%	65.0%	65.0%	65.0%
Yellow Time (s)	4.0	4.0	3.9	3.9	3.9	3.9
All-Red Time (s)	3.0	3.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	Max	Max
v/c Ratio	0.07	0.08	0.22	0.36	0.52	0.14
Control Delay (s/veh)	22.8	9.1	10.3	10.5	12.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.8	9.1	10.3	10.5	12.7	4.4
Queue Length 50th (m)	4.0	0.0	5.8	29.1	49.3	3.5
Queue Length 95th (m)	10.7	6.5	13.5	46.2	75.6	10.6
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	452	400	364	1024	1054	854
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.08	0.22	0.36	0.52	0.14

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 24 (30%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2037)
 Weekday AM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	29	72	331	496	108
Future Volume (vph)	30	29	72	331	496	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1725	1437	1638	1789	1842	1444
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1725	1437	637	1789	1842	1444
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	32	80	368	551	120
RTOR Reduction (vph)	0	24	0	0	0	28
Lane Group Flow (vph)	33	8	80	368	551	92
Confl. Peds. (#/hr)		1	6			6
Heavy Vehicles (%)	0%	5%	5%	5%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	21.0	21.0	45.8	45.8	45.8	45.8
Effective Green, g (s)	21.0	21.0	45.8	45.8	45.8	45.8
Actuated g/C Ratio	0.26	0.26	0.57	0.57	0.57	0.57
Clearance Time (s)	7.0	7.0	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	452	377	364	1024	1054	826
v/s Ratio Prot				0.21	c0.30	
v/s Ratio Perm	c0.02	0.01	0.13			0.06
v/c Ratio	0.07	0.02	0.22	0.36	0.52	0.11
Uniform Delay, d1	22.2	21.9	8.4	9.2	10.4	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.3	0.2	1.9	0.3
Delay (s)	22.5	22.0	8.7	9.4	12.3	8.1
Level of Service	C	C	A	A	B	A
Approach Delay (s/veh)	22.2			9.3	11.5	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	W	
Traffic Vol, veh/h	6	28	13	348	576	12
Future Vol, veh/h	6	28	13	348	576	12
Conflicting Peds, #/hr	3	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	4	7	6	4	8
Mvmt Flow	7	33	15	414	686	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1140	693	700	0	-	0
Stage 1	693	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Critical Hdwy	6.4	6.24	4.17	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.336	2.263	-	-	-
Pot Cap-1 Maneuver	224	440	874	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	220	440	874	-	-	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	649	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	15.8	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	874	-	374	-	-
HCM Lane V/C Ratio	0.018	-	0.108	-	-
HCM Control Delay (s/veh)	9.2	-	15.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q (veh)	0.1	-	0.4	-	-

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	18	9	17	7	5	15
Future Vol, veh/h	18	9	17	7	5	15
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	28	14	26	11	8	23

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	42	0	98 36
Stage 1	-	-	-	-	35 -
Stage 2	-	-	-	-	63 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1580	-	906 1042
Stage 1	-	-	-	-	993 -
Stage 2	-	-	-	-	965 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1580	-	891 1041
Mov Cap-2 Maneuver	-	-	-	-	891 -
Stage 1	-	-	-	-	993 -
Stage 2	-	-	-	-	949 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	5.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	999	-	-	1580	-
HCM Lane V/C Ratio	0.031	-	-	0.017	-
HCM Control Delay (s/veh)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	12	22	93	16	2
Future Vol, veh/h	0	12	22	93	16	2
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	0	16	29	124	21	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	155	0	-	0	109 93
Stage 1	-	-	-	-	93 -
Stage 2	-	-	-	-	16 -
Critical Hdwy	4.1	-	-	-	6.46 6.2
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.2	-	-	-	3.554 3.3
Pot Cap-1 Maneuver	1438	-	-	-	879 970
Stage 1	-	-	-	-	921 -
Stage 2	-	-	-	-	996 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1436	-	-	-	877 969
Mov Cap-2 Maneuver	-	-	-	-	877 -
Stage 1	-	-	-	-	920 -
Stage 2	-	-	-	-	995 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1436	-	-	-	886
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s/veh)	0	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Future Vol, veh/h	0	28	0	2	94	36	0	0	0	12	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	3	0	0	1	0	0	0	0	0	0	5
Mvmt Flow	0	37	0	3	125	48	0	0	0	16	0	28

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	173	0	0	37	0	0	206	216	38	193	192	149
Stage 1	-	-	-	-	-	-	37	37	-	155	155	-
Stage 2	-	-	-	-	-	-	169	179	-	38	37	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.345
Pot Cap-1 Maneuver	1416	-	-	1587	-	-	756	685	1040	771	707	890
Stage 1	-	-	-	-	-	-	984	868	-	852	773	-
Stage 2	-	-	-	-	-	-	838	755	-	982	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1416	-	-	1587	-	-	731	684	1039	769	706	890
Mov Cap-2 Maneuver	-	-	-	-	-	-	731	684	-	769	706	-
Stage 1	-	-	-	-	-	-	984	868	-	852	771	-
Stage 2	-	-	-	-	-	-	810	753	-	981	868	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.1	0	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1416	-	-	1587	-	-	842
HCM Lane V/C Ratio	-	-	-	-	0.002	-	-	0.052
HCM Control Delay (s/veh)	0	0	-	-	7.3	0	-	9.5
HCM Lane LOS		A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	-	0	-	-	0	-	-	0.2

Queues
1: Toronto St S (RR47) & Campbell Dr

Future Total (2037)
Weekday PM Peak

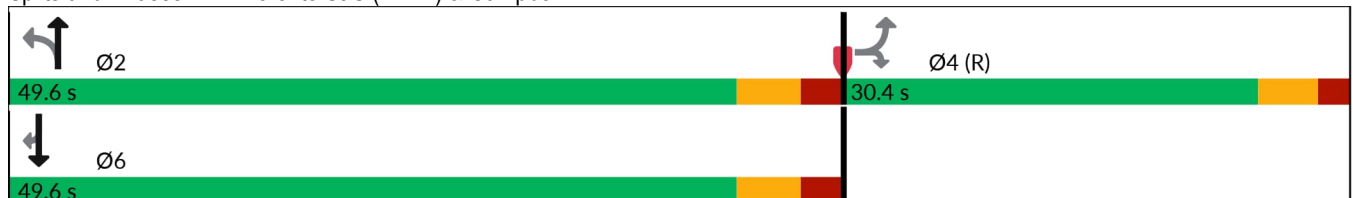


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	781	500	62
Future Volume (vph)	93	69	46	781	500	62
Lane Group Flow (vph)	95	70	47	797	510	63
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	20.0	20.0	20.0	20.0
Minimum Split (s)	23.5	23.5	42.2	42.2	42.2	42.2
Total Split (s)	30.4	30.4	49.6	49.6	49.6	49.6
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	62.0%
Yellow Time (s)	3.6	3.6	3.9	3.9	3.9	3.9
All-Red Time (s)	1.9	1.9	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None	None	None	None
v/c Ratio	0.16	0.12	0.15	0.87	0.56	0.09
Control Delay (s/veh)	20.2	6.1	10.9	29.3	16.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	6.1	10.9	29.3	16.1	5.3
Queue Length 50th (m)	10.7	0.0	3.6	100.2	50.3	2.0
Queue Length 95th (m)	22.4	8.8	9.1	148.0	73.8	7.4
Internal Link Dist (m)	124.6			593.6	63.9	
Turn Bay Length (m)	30.0		30.0			15.0
Base Capacity (vph)	610	563	345	999	999	798
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.12	0.14	0.80	0.51	0.08

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 28 (35%), Referenced to phase 4:EBL and 8:, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Toronto St S (RR47) & Campbell Dr



HCM Signalized Intersection Capacity Analysis
 1: Toronto St S (RR47) & Campbell Dr

Future Total (2037)
 Weekday PM Peak



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	93	69	46	781	500	62
Future Volume (vph)	93	69	46	781	500	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.2	3.2	3.2	3.5	3.5	3.2
Total Lost time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1708	1451	1685	1842	1842	1443
Flt Permitted	0.95	1.00	0.36	1.00	1.00	1.00
Satd. Flow (perm)	1708	1451	637	1842	1842	1443
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	95	70	47	797	510	63
RTOR Reduction (vph)	0	45	0	0	0	18
Lane Group Flow (vph)	95	25	47	797	510	45
Confl. Peds. (#/hr)		1	7			7
Heavy Vehicles (%)	1%	4%	2%	2%	2%	4%
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	28.6	28.6	39.7	39.7	39.7	39.7
Effective Green, g (s)	28.6	28.6	39.7	39.7	39.7	39.7
Actuated g/C Ratio	0.36	0.36	0.50	0.50	0.50	0.50
Clearance Time (s)	5.5	5.5	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	610	518	316	914	914	716
v/s Ratio Prot				c0.43	0.28	
v/s Ratio Perm	c0.06	0.02	0.07			0.03
v/c Ratio	0.16	0.05	0.15	0.87	0.56	0.06
Uniform Delay, d1	17.5	16.8	11.0	17.9	14.0	10.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.2	9.2	0.7	0.0
Delay (s)	18.0	17.0	11.2	27.1	14.8	10.5
Level of Service	B	B	B	C	B	B
Approach Delay (s/veh)	17.6			26.2	14.3	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	U	W	
Traffic Vol, veh/h	1	26	16	858	536	4
Future Vol, veh/h	1	26	16	858	536	4
Conflicting Peds, #/hr	4	1	6	0	0	6
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	15	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	1	27	17	894	558	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1498	567	568	0	-	0
Stage 1	566	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	136	527	1014	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	524	1010	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	384	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1010	-	473	-	-
HCM Lane V/C Ratio	0.017	-	0.059	-	-
HCM Control Delay (s/veh)	8.6	-	13.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	-	-

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	12	5	2	17	7	13
Future Vol, veh/h	12	5	2	17	7	13
Conflicting Peds, #/hr	0	0	0	0	5	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	7	3	24	10	18

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	24	0	56 25
Stage 1	-	-	-	-	21 -
Stage 2	-	-	-	-	35 -
Critical Hdwy	-	-	4.1	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.2	-	3.5 3.3
Pot Cap-1 Maneuver	-	-	1604	-	957 1057
Stage 1	-	-	-	-	1007 -
Stage 2	-	-	-	-	993 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1604	-	951 1054
Mov Cap-2 Maneuver	-	-	-	-	951 -
Stage 1	-	-	-	-	1007 -
Stage 2	-	-	-	-	987 -

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.8	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1016	-	-	1604	-
HCM Lane V/C Ratio	0.028	-	-	0.002	-
HCM Control Delay (s/veh)	8.6	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q (veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		4	
Traffic Vol, veh/h	0	21	24	20	64	0
Future Vol, veh/h	0	21	24	20	64	0
Conflicting Peds, #/hr	2	0	0	2	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	28	32	26	84	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	60	0	-	0	76 47
Stage 1	-	-	-	-	47 -
Stage 2	-	-	-	-	29 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1556	-	-	-	932 1028
Stage 1	-	-	-	-	981 -
Stage 2	-	-	-	-	999 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1554	-	-	-	930 1027
Mov Cap-2 Maneuver	-	-	-	-	930 -
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	998 -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1554	-	-	-	930
HCM Lane V/C Ratio	-	-	-	-	0.091
HCM Control Delay (s/veh)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q (veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Future Vol, veh/h	10	75	0	4	39	33	0	0	1	34	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	12	90	0	5	47	40	0	0	1	41	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	90	0	0	194	211	90	192	191	67
Stage 1	-	-	-	-	-	-	114	114	-	77	77	-
Stage 2	-	-	-	-	-	-	80	97	-	115	114	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1522	-	-	1518	-	-	770	690	973	772	708	1002
Stage 1	-	-	-	-	-	-	896	805	-	937	835	-
Stage 2	-	-	-	-	-	-	934	819	-	895	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1518	-	-	759	682	973	764	700	1002
Mov Cap-2 Maneuver	-	-	-	-	-	-	759	682	-	764	700	-
Stage 1	-	-	-	-	-	-	889	799	-	930	832	-
Stage 2	-	-	-	-	-	-	926	817	-	887	799	-

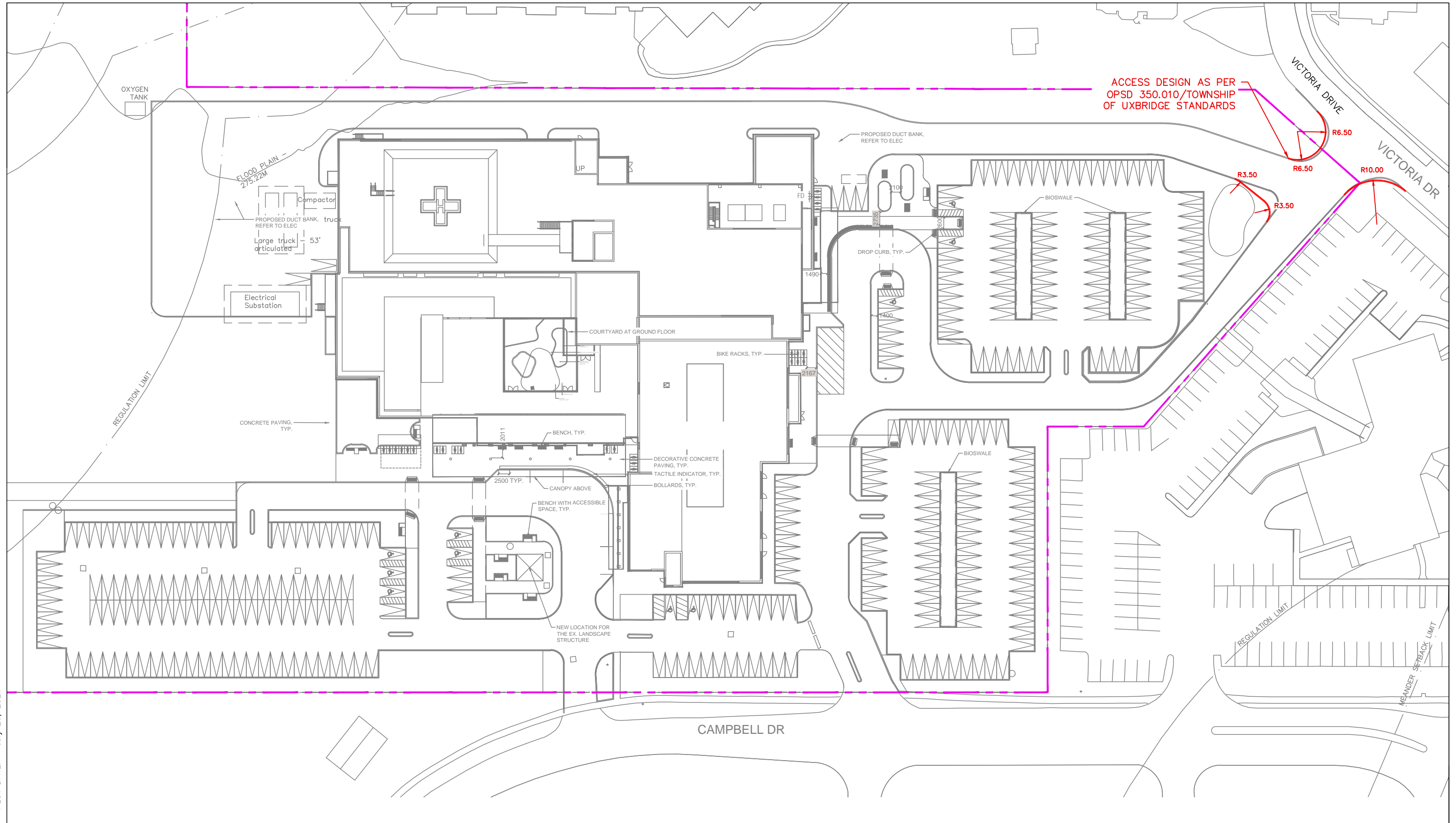
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0.9			0.4			8.7			9.9		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	973	1522	-	-	1518	-	-	788
HCM Lane V/C Ratio	0.001	0.008	-	-	0.003	-	-	0.06
HCM Control Delay (s/veh)	8.7	7.4	0	-	7.4	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q (veh)	0	0	-	-	0	-	-	0.2



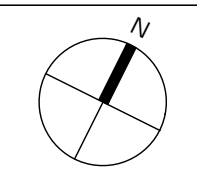
APPENDIX I

Functional Design Review



DRAWN BY: C.T. PLOT DATE: July 26, 2024

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Date
 JUL 26, 2024

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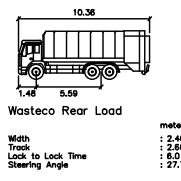
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 UXBRIDGE ONTARIO

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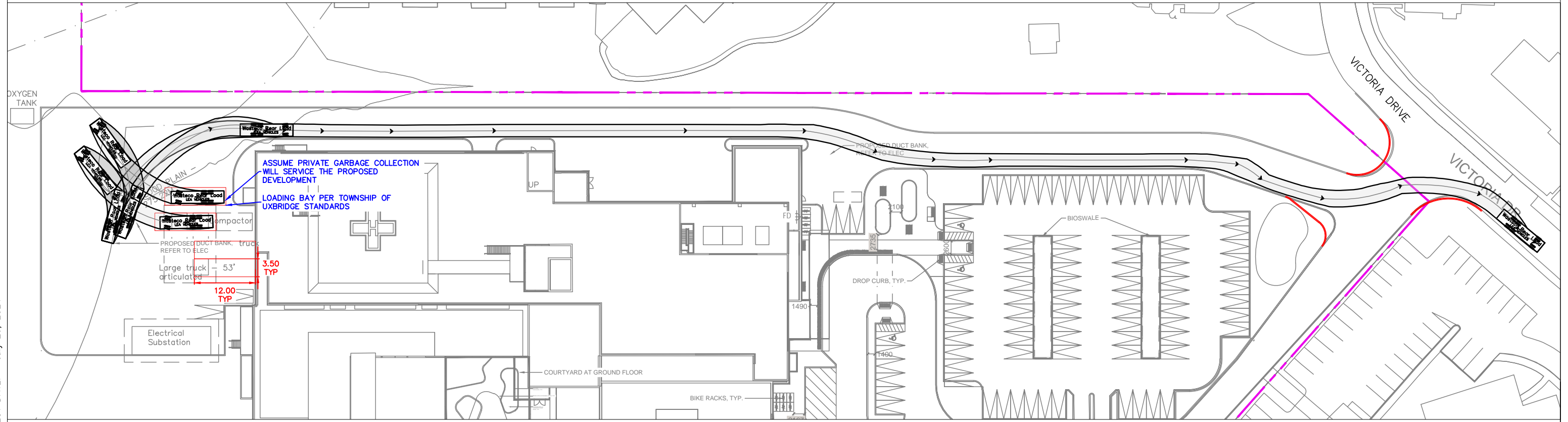
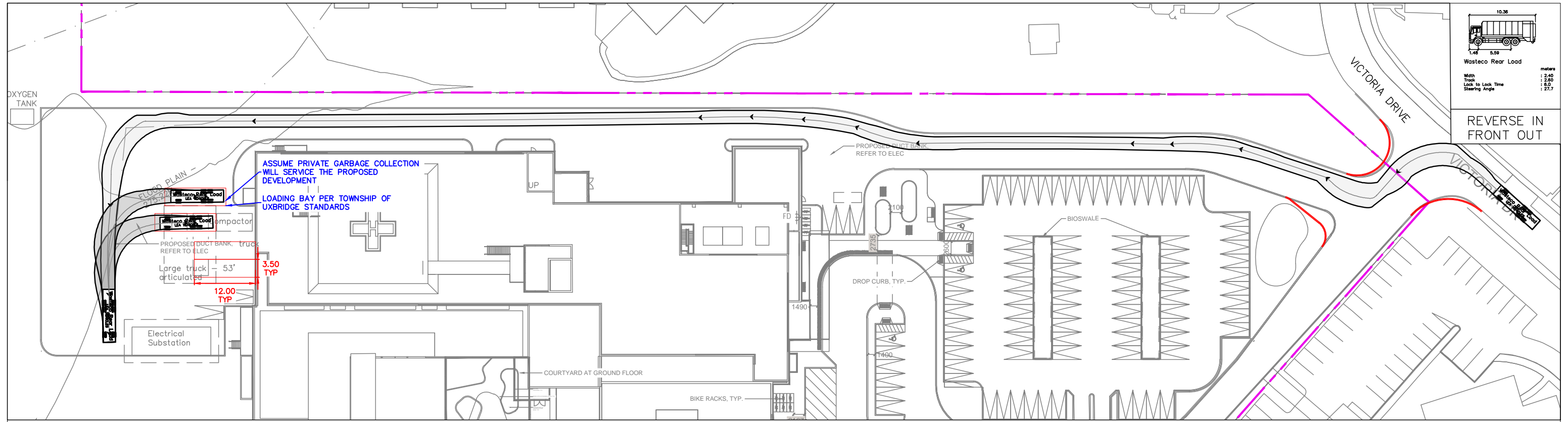
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ACCESS REVIEW
 GROUND FLOOR

Drawing No.
 001



REVERSE IN FRONT OUT



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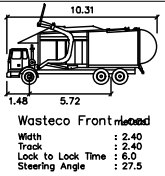
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UXBRIDGE ONTARIO

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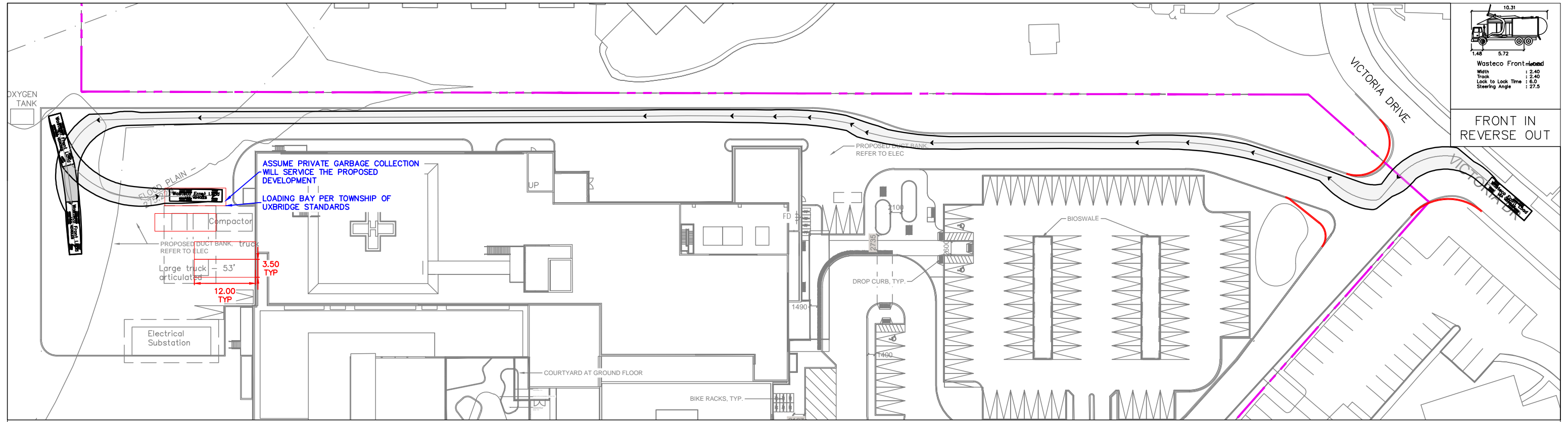
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PROPOSED DEVELOPMENT
REAR PACKER GARBAGE TRUCK
ENTRY AND EXIT PATHS

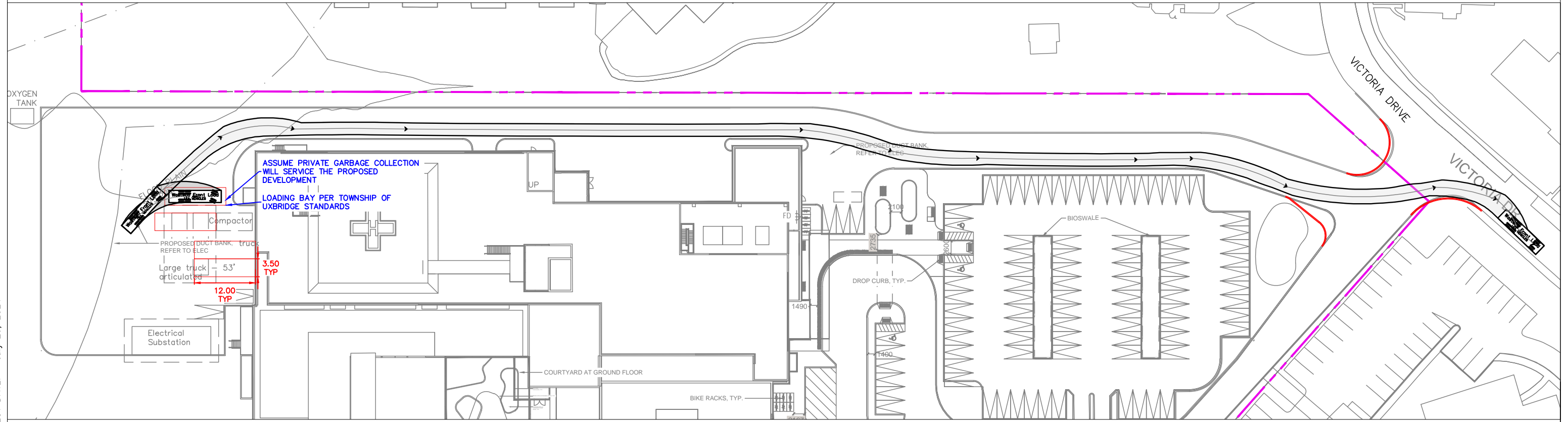
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003



FRONT IN
 REVERSE OUT



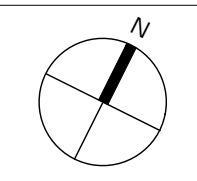
ENTRY PATH



EXIT PATH

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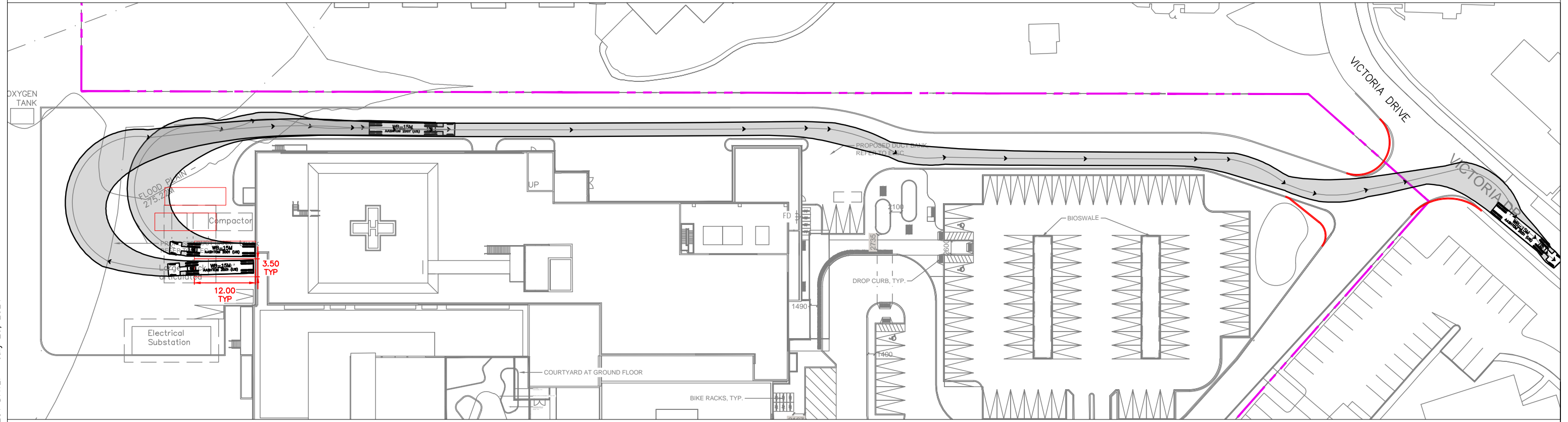
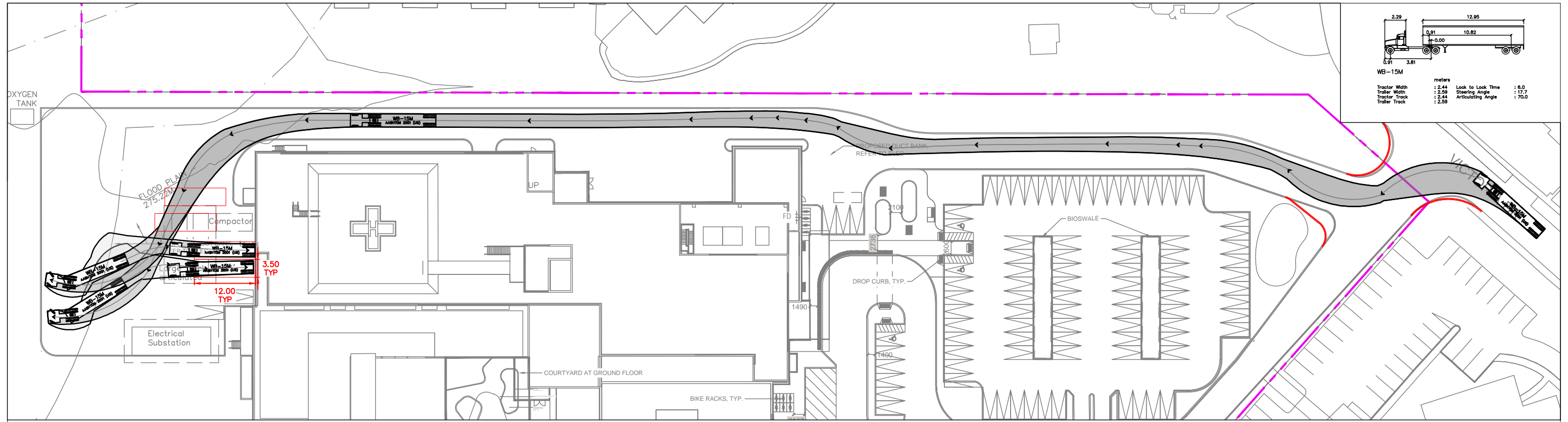
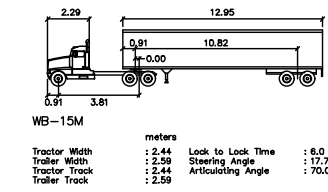
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4 CAMPBELL DRIVE
 UXBRIDGE ONTARIO

1: 700

PROPOSED DEVELOPMENT
 FRONT LOADER GARBAGE TRUCK
 ENTRY AND EXIT PATHS

Drawing No.
 003



DRAWN BY: C.T. PLOT DATE: July 26, 2024

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FOR DISCUSSION

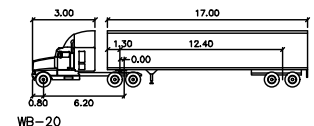
4 CAMPBELL DRIVE
UXBRIDGE ONTARIO

7 0 7 14 21m

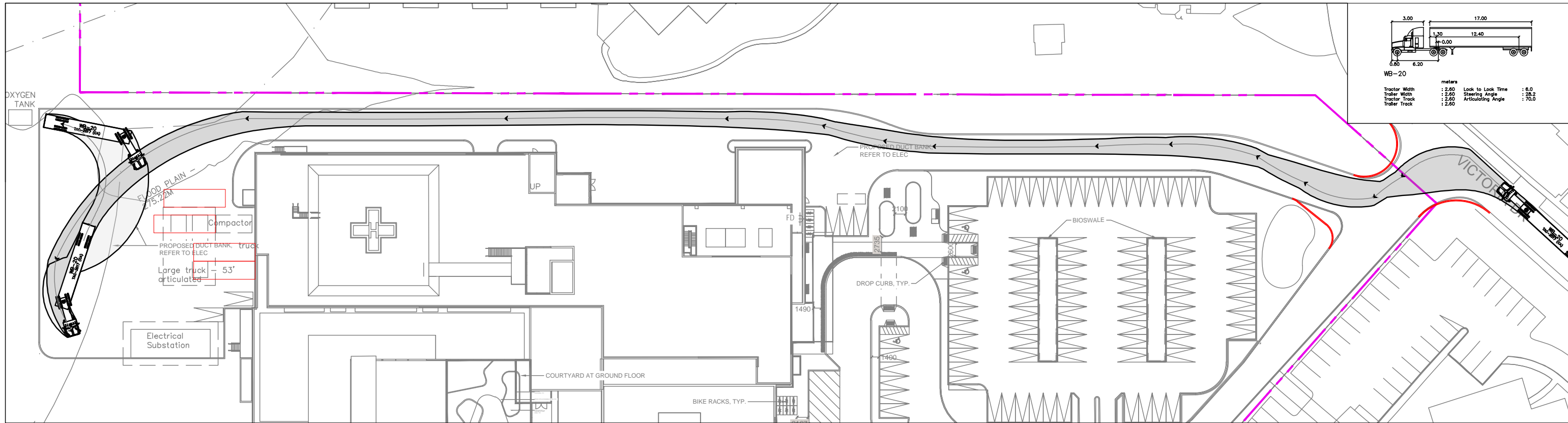
1:700

PROPOSED DEVELOPMENT
WB-15 TRUCK
ENTRY AND EXIT PATHS

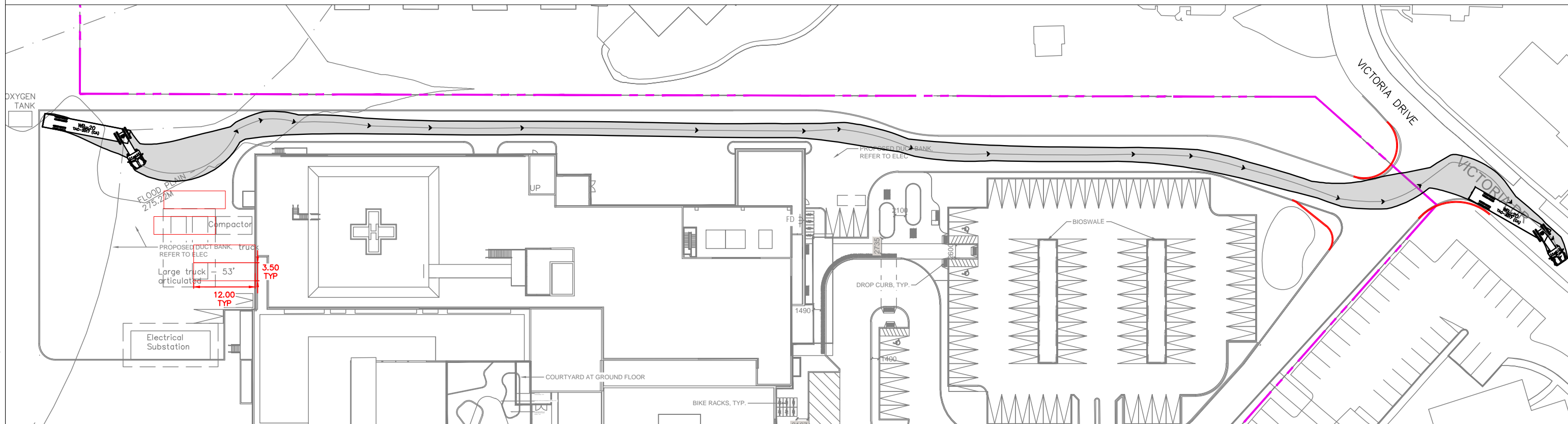
Drawing No.
005



meters	
Tractor Width	: 2.80
Trailer Width	: 2.60
Tractor Track	: 2.80
Trailer Track	: 2.60
Lock to Lock Time	: 8.0
Steering Angle	: 28.2
Articulating Angle	: 70.0



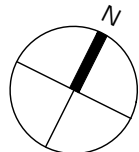
ENTRY PATH



EXIT PATH

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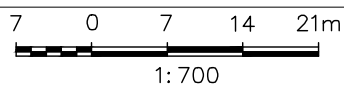
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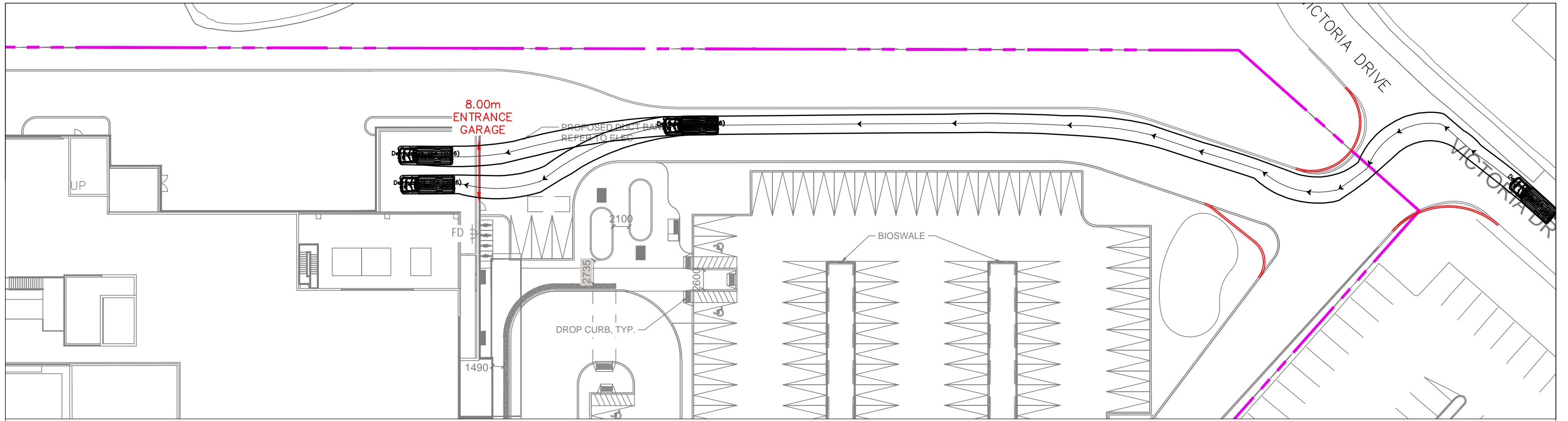
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4 CAMPBELL DRIVE
UXBRIDGE ONTARIO

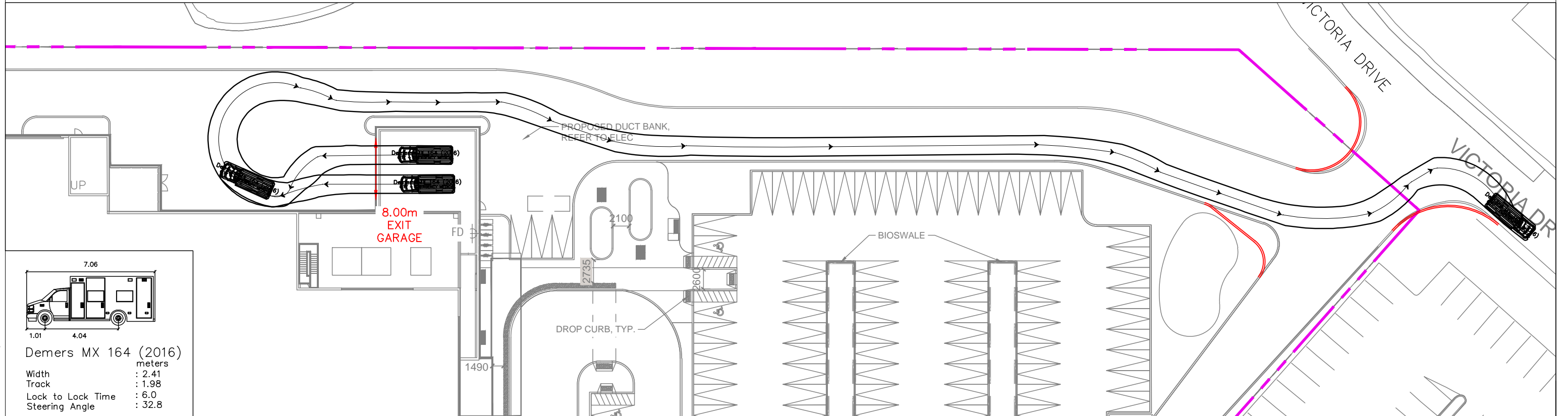


PROPOSED DEVELOPMENT
WB-20 TRUCK
ENTRY AND EXIT PATHS

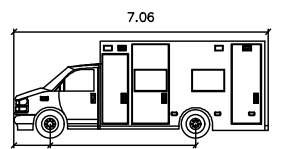
Drawing No.
006



ENTRY PATH



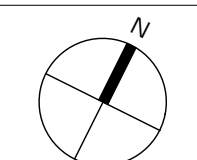
EXIT PATH



Demers MX 164 (2016)
 meters
 Width : 2.41
 Track : 1.98
 Lock to Lock Time : 6.0
 Steering Angle : 32.8

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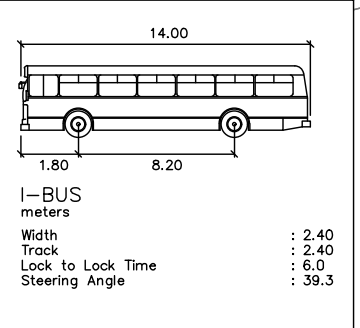
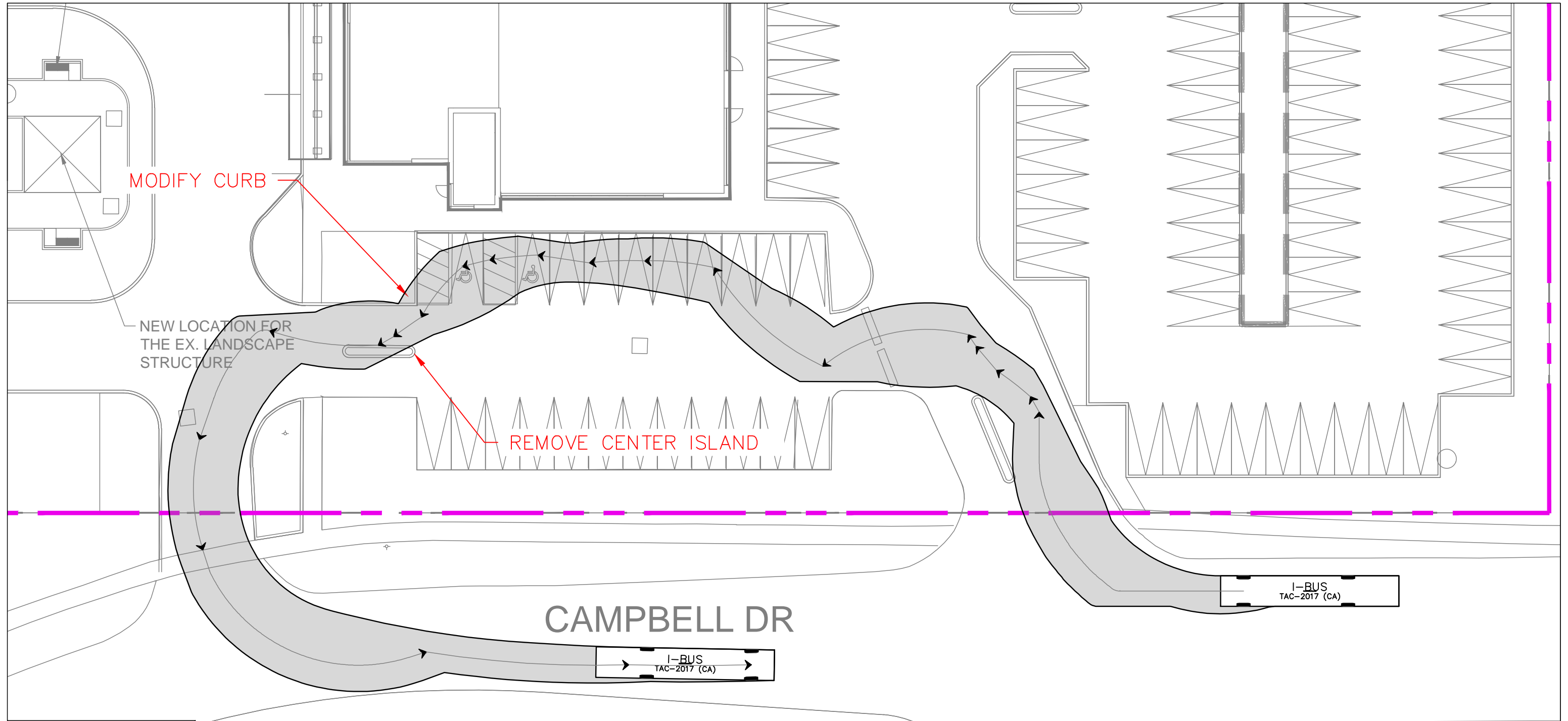
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 FOR DISCUSSION

4 CAMPBELL DRIVE
 UXBRIDGE ONTARIO

1:500

AMBULANCE
 ENTRY/EXIT PATHS

Drawing No.
 007



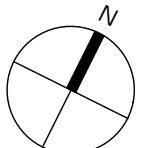
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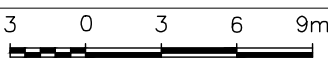
Date
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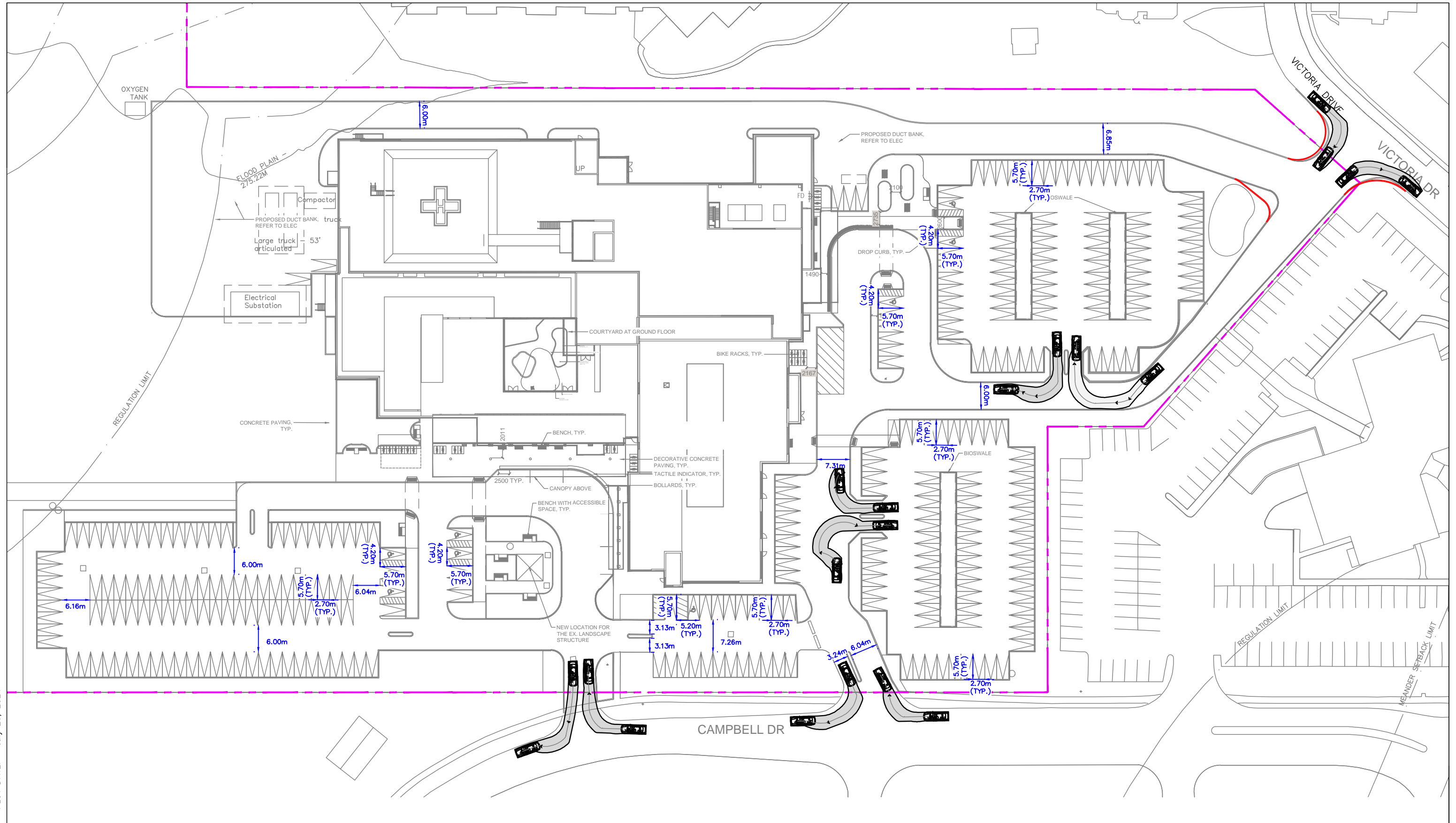
4 CAMPBELL DRIVE
 UXBRIDGE ONTARIO



1: 300

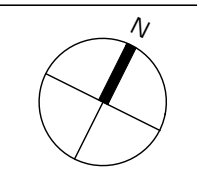
DURHAM REGION TRANSIT BUS
 ENTRANCE AND EXIT

Drawing No.
008



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4 CAMPBELL DRIVE
 UXBRIDGE ONTARIO

8 0 8 16 24m

1:800

PARKING ANALYSIS
 GROUND FLOOR

Drawing No.
009

