Starlight Investments

3480 Havenwood Drive & 1485 Williamsport Drive

Transportation Impact Study

Proposed Residential Redevelopment

June 2018

18337/200

Table of Contents

List of Figures

List of Tables

APPENDICES

1 INTRODUCTION

Starlight Investments is currently proposing to densify the residential land uses on the site of 3480 Havenwood Drive and 1485 Williamsport Drive in the City of Mississauga (herein referred to as the subject site). The subject site is currently occupied by two (2) nine-storey residential apartment buildings, both featuring 132 residential units for a total of 264 units. The development proposal will introduce two (2) additional residential apartment towers with a shared podium, containing a total of 202 residential units.

The subject site is located in the southwest quadrant of Havenwood Drive and Williamsport Drive, as illustrated in **Figure 1-1**.

Figure 1-1: Site Location

1.1 DEVELOPMENT PROPOSAL

As noted above, the proposed expansion will consist of two rental towers with a shared podium which will result in an additional 202 residential units on the site. This will be added to the two (2) existing 9-storey rental buildings on-site. The proposed site plan illustrated in **Figure 1-2** with the site statistics provided in **Table 1-1**.

Land Use	Units
Existing Buildings	
Building A (3480 Havenwood Drive)	132
Building B (1485 Williamsport Drive)	132
Existing Site	**264**
Proposed Buildings	
Building C (8 Storey – Havenwood)	103
Building D (9 Storey – Williamsport)	99
SITE TOTAL	**466**
NET NEW UNITS	**+202**

Table 1-1: Proposed Site Statistics

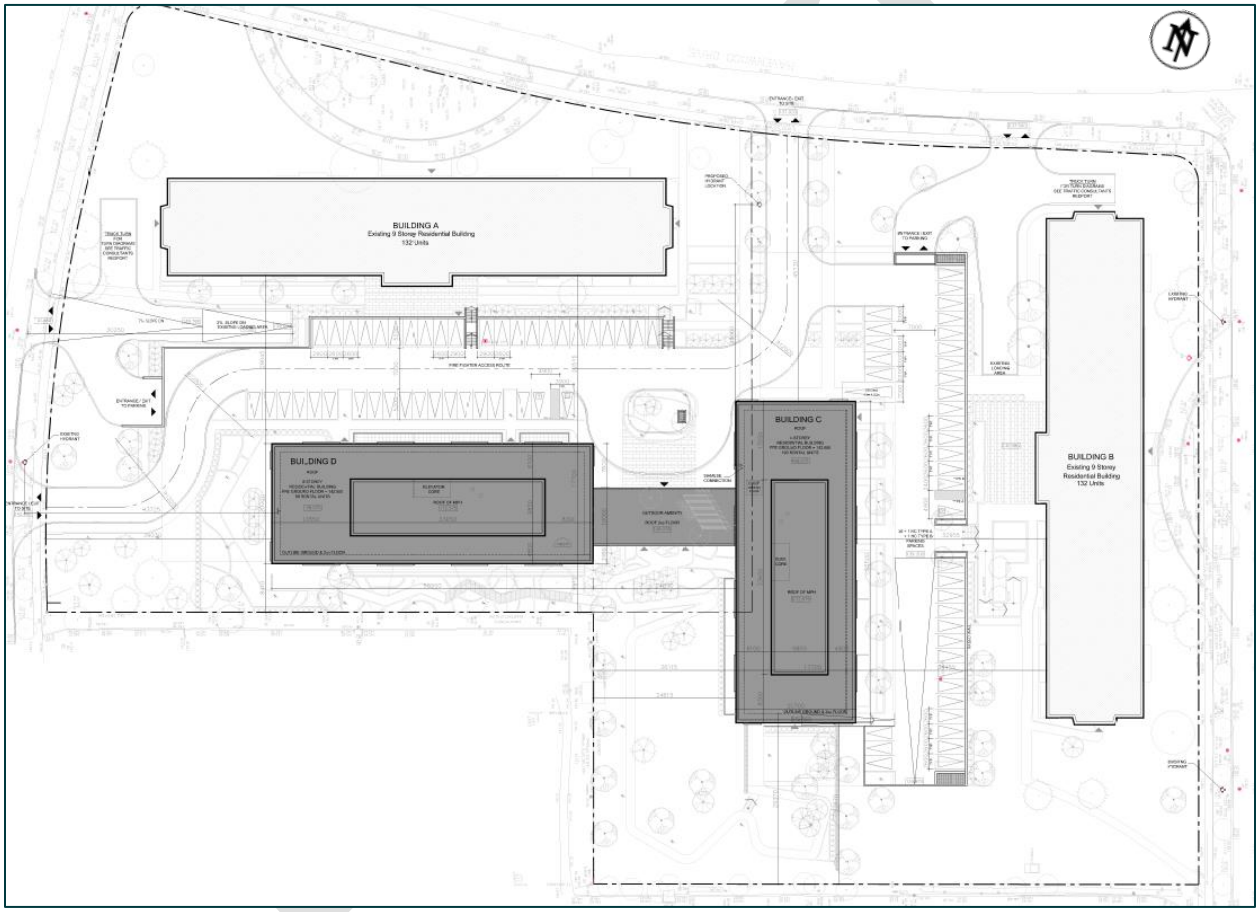


Figure 1-2: Proposed Site Plan

2 EXISTING CONDITIONS

This section will identify and assess 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 development and its anticipated transportation impact. The study area will include the following intersections:

- Dixie Road & Winding Trail (Signalized);
- Williamsport Drive & Gulleden Drive (Unsignalized);
- Williamsport Drive & 3480 Havenwood Drive Site Access (3) (Unsignalized);
- Williamsport Drive (North) & Havenwood Drive (Unsignalized);
- Havenwood Drive & 3480 Havenwood Drive Drop-off (Unsignalized);
- Havenwood Drive & 1485 Williamsport Drive Site Access (3) (Unsignalized);
- Williamsport Drive (South) & Havenwood Drive (Unsignalized);
- Williamsport Drive & 1485 Williamsport Drive Drop-off (Unsignalized);
- Bloor Street & Havenwood Drive (Signalized); and
- Bloor Street & Dixie Road (Signalized).

For ease of reference, the studied intersections are displayed below in **Figure 2-1.**

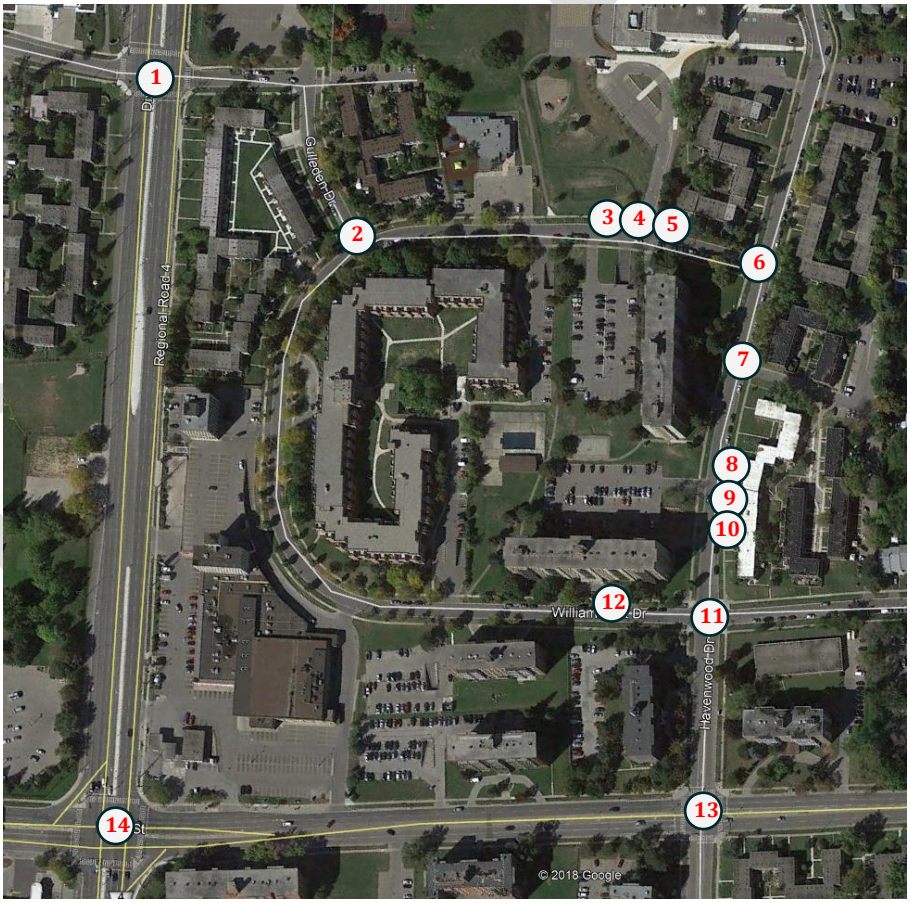


Figure 2-1: Proposed Study Area

2.1 ROAD NETWORK

The following provides a description and classification of the roadways within the study area, with **Figure 2-2** illustrating the existing lane configuration.

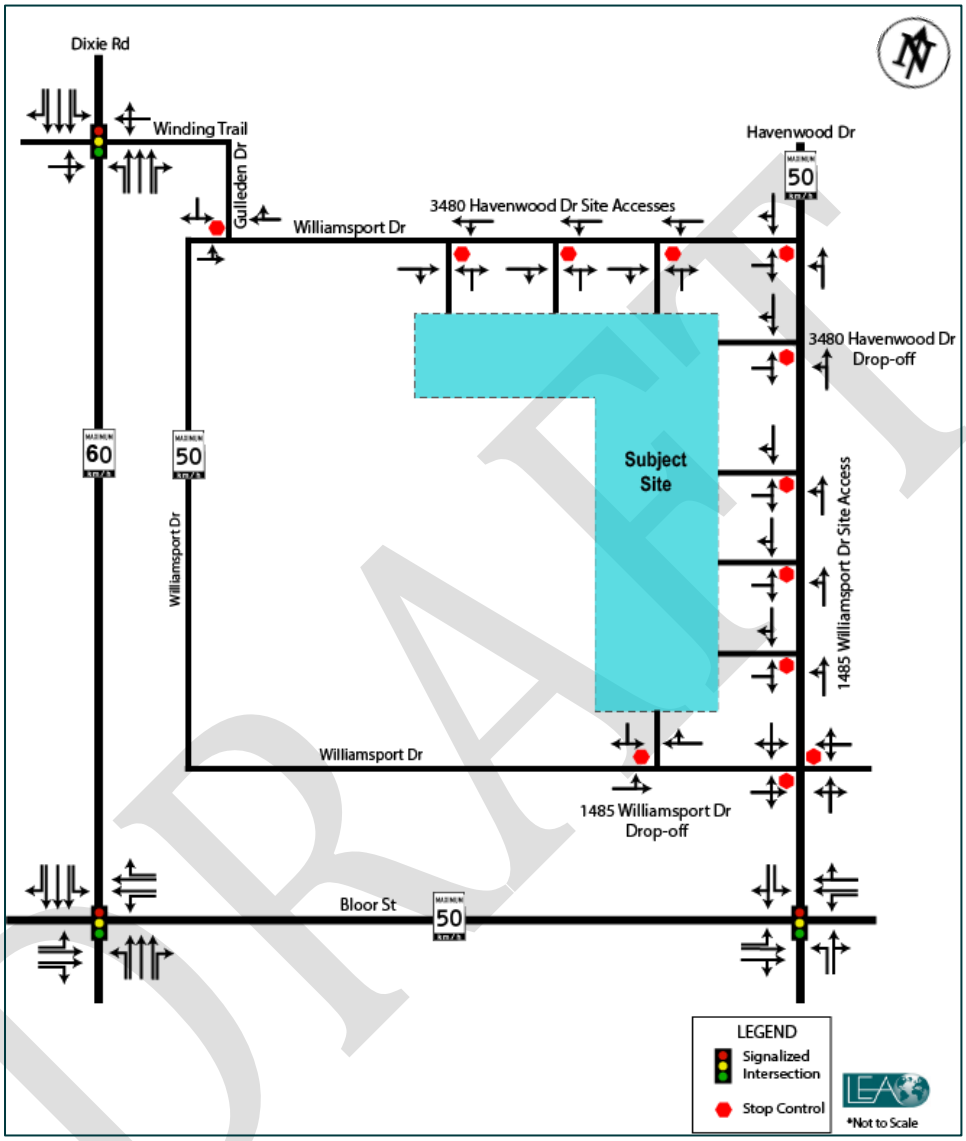


Figure 2-2: Existing Lane Configuration

- **Bloor Street** is an east-west major collector road that operates with a six-lane cross-section (three lanes per direction) under the jurisdiction of the City of Mississauga. The roadway operates with a posted speed limit of 50 km/h within the study area.

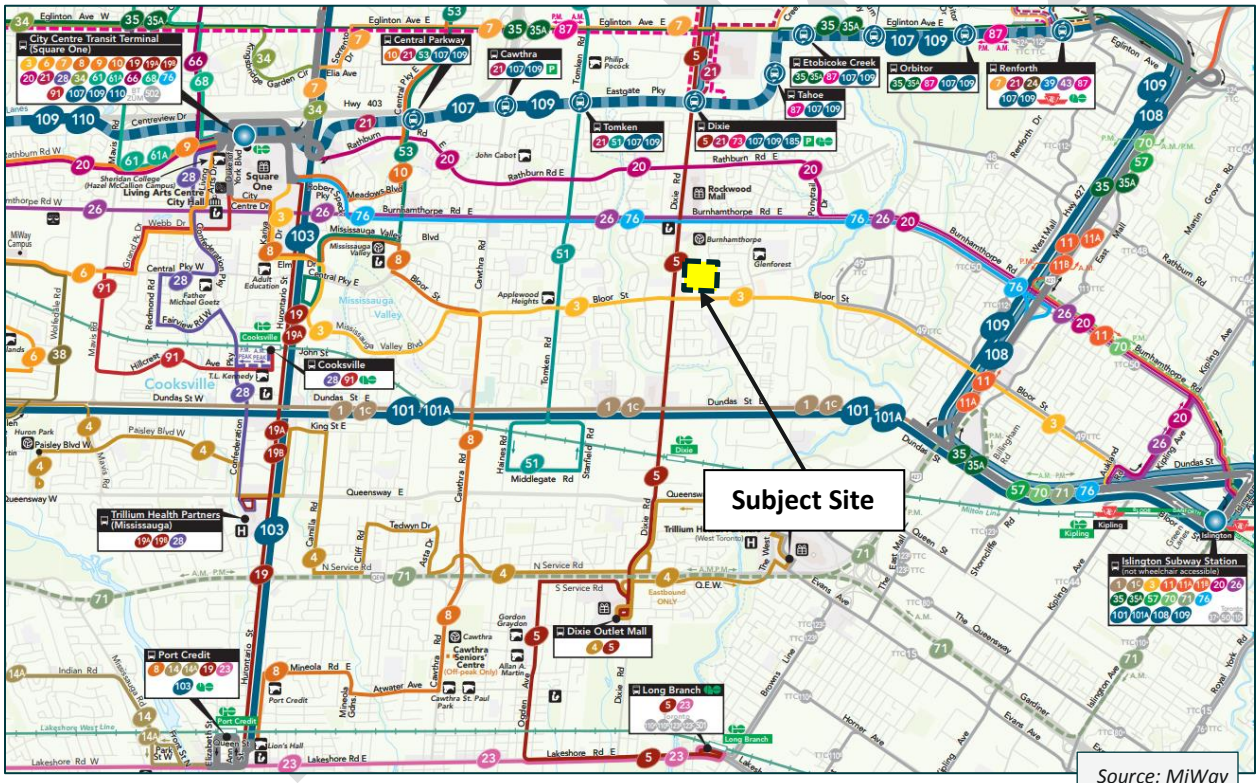
- **Dixie Road** is a regional arterial road with a six-lane cross-section (three lanes per direction) under the jurisdiction of Peel Region. The roadway operates with a posted speed limit of 60 km/h within the study area.

- **Havenwood Drive** is an east-west minor collector road with a two-lane cross-section (one lane per direction) under the jurisdiction of the City of Mississauga. The roadway operates with an unposted speed limit of 50 km/h within the study area. There is 15 hr on-street parking available on the east approach within the study area.

- **Williamsport Drive** is a local road mainly operating east-west. The road has a two-lane cross-section (one lane per direction) and an assumed unposted speed limit of 50 km/h. There is 15 hr on-street parking available on the south side of the road, between Gulleden Drive and Havenwood Drive (north section) as well as on the west approach between Grant's Food Mart site access and Havenwood Drive (south section) within the study area.

2.2 TRANSIT NETWORK

The proposed development is accessible by public transit which is operated by MiWay run within the study area. The existing transit network surrounding the study area is described below and illustrated in **Figure 2-3**.



Source: MiWay

Figure 2-3: Existing Transit Services

3 Bloor is a bus route that operates generally in the east-west direction between City Transit Terminal and Islington TTC Station. The route operates with headways of 10 minutes on weekdays during the morning and afternoon peak hours. Route 3 provides connection to Square One GO Station and the City Centre Transit Terminal (Square One).

5 Dixie is a bus route that operates generally in the north-south direction between Long Branch GO Station and Lorimar Drive at Cardiff Boulevard. The route operates on weekdays during the morning and

afternoon peak hours, with headways of 20 minutes. Furthermore, Route 5 provides connection to the Dixie Bus Terminal, Dixie GO Station, and Dixie Outlet Mall.

2.3 CYCLING NETWORK

The subject site is relatively well-connected via existing bicycle facilities. The nearest major cycling facility is the Burnhamthorpe Road East multi-use trail located approximately 700 metres north of the subject site. This trail runs in an east-west direction between Creditview Road/ Central Parkway West and Ponytail Drive. In addition to this primary east-west route, a primary north-south route is provided via the trail network along Applewood Hills Park. These trails provide for significant connectivity to the surrounding neighbourhoods and other Bicycle-Friendly Roads.

Bicycle-friendly roads are directly connected to the parks and include Winding Trail, Gulleden Drive, the north section of Williamsport Drive, and Havenwood Drive north of Williamsport Drive, within the study area. Therefore, the subject site is directly accessible to existing cycling facilities. The existing cycling network is shown in **Figure 2-4**.

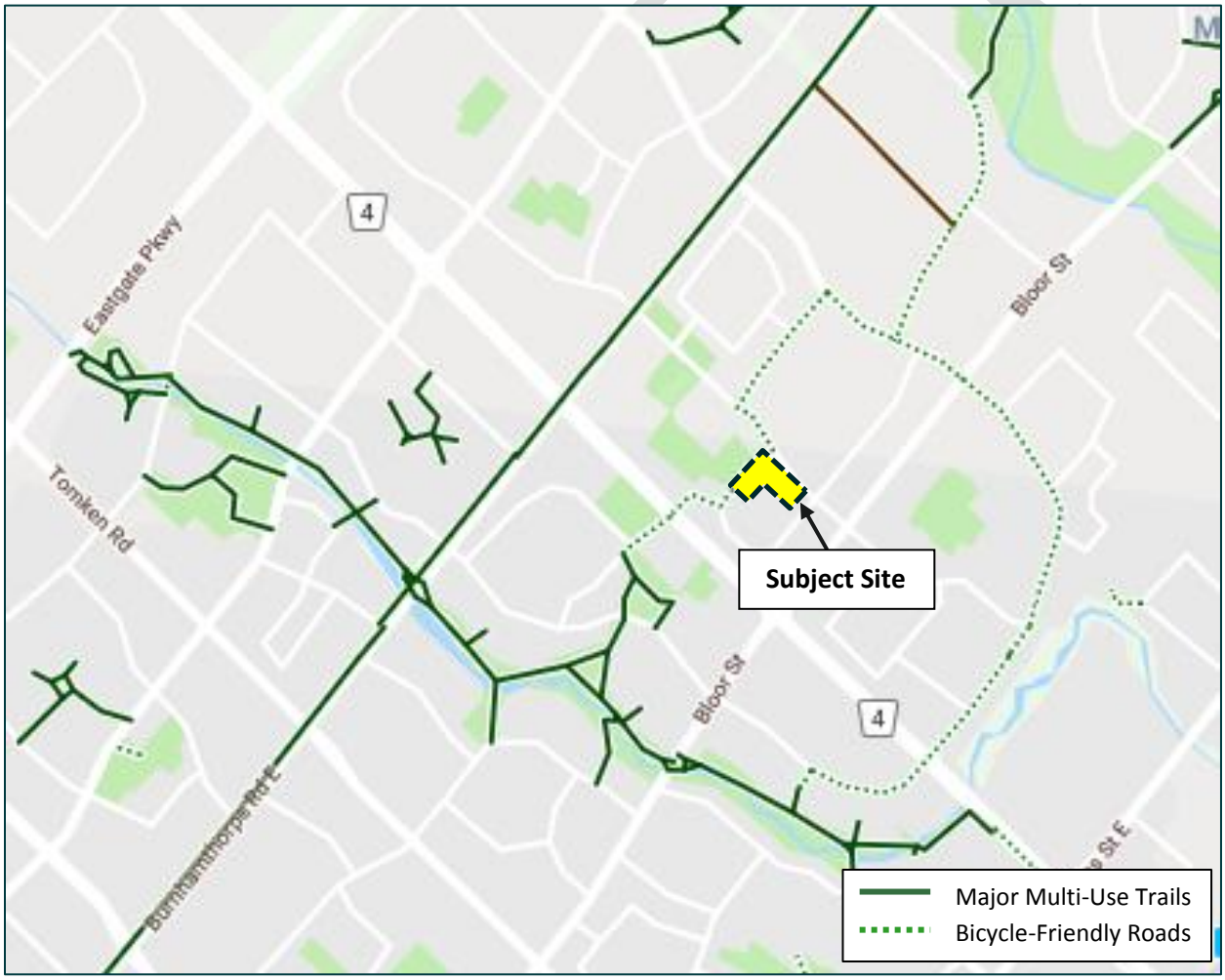


Figure 2-4: Existing Cycling Network

2.4 PEDESTRIAN NETWORK

In the area immediately surrounding the subject site, the existing pedestrian network consists of continuous sidewalks, available on both sides of all corridors within the study area. Crosswalks are available at all major intersections. Additionally, pathways are available throughout site to ease connectivity between the buildings. In conjunction with the redevelopment.

2.5 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data in the intersection capacity analysis. Traffic volumes within the study area were collected during weekday periods between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM to capture the weekday AM and PM peak hours. **Table 2-1** illustrates the source of traffic data utilized in this study, with the detailed TMCs and signal timing plans are provided in **Appendix A**.

Intersection	Source	Captured Period
Dixie Road & Winding Trail (Signalized)	LEA	March 20, 2018 7:00 AM – 9:00 AM & 4:00 PM – 6:00 PM
Bloor Street & Havenwood Drive (Signalized)		
Bloor Street & Dixie Road (Signalized)		
Williamsport Drive & Gulleden Drive (Unsignalized)		
Williamsport Drive & 3480 Havenwood Drive Parking Lot Access (Unsignalized)		
Williamsport Drive & 3480 Havenwood Drive Underground Access (Unsignalized)		
Williamsport Drive & 3480 Havenwood Drive Loading Access (Unsignalized)		
Williamsport Drive (North) & Havenwood Drive (Unsignalized)		
Havenwood Drive & 3480 Havenwood Drive Drop-off (Unsignalized)		
Havenwood Drive & 1485 Williamsport Drive Parking Lot Access (Unsignalized)		
Havenwood Drive & 1485 Williamsport Drive Underground Access (Unsignalized)		
Havenwood Drive & 1485 Williamsport Drive Loading Access (Unsignalized)		
Williamsport Drive (South) & Havenwood Drive (Unsignalized)		
Williamsport Drive & 1485 Williamsport Drive Drop off (Unsignalized)		

Table 2-1: Existing Traffic Volumes

2.6 INTERSECTION CAPACITY ANALYSIS

The capacity analysis for the study area was undertaken using Synchro version 9.0, which is based on the Highway Capacity Manual (2000) methodology and adhering to the City of Mississauga *Traffic Impact Study Guidelines*. The existing traffic volumes in the study area during the weekday peak hours are illustrated in **Figure 2-5.**

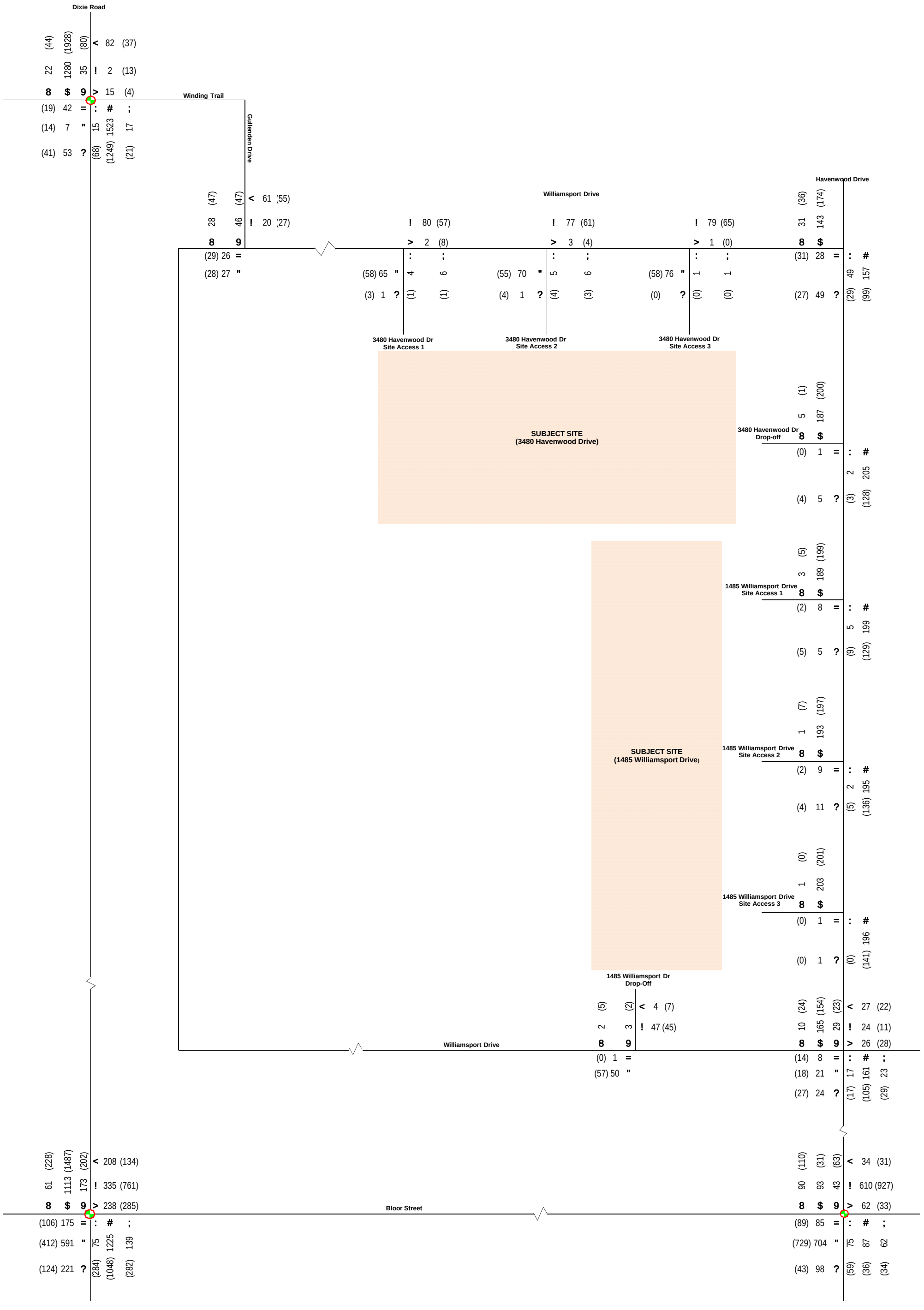


FIGURE 2-5
EXISTING TRAFFIC
LEA Consulting Ltd.

NOT TO SCALE

LEGEND

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

SIGNALIZED INTERSECTION

2.6.1 Weekday AM Peak Hour

The intersection capacity analysis was completed for the weekday AM peak hour with the results for all the studied signalized and unsignalized intersections summarized in **Table 2-2** and **Table 2-3** respectively. Detailed capacity results can be found in **Appendix B**.

Intersection	Weekday AM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.45	10.7	B	EBT	0.79	102.7	F	26.7	49.1
				WBT	0.57	75.6	E	23.6	44.1
				NBL	0.08	1.7	A	0.4	m1.3
				NBT	0.41	6.7	A	127.3	151.7
				SBL	0.20	5.2	A	2.2	7.4
				SBT	0.35	3.6	A	34.3	51.9
				SBR	0.02	2.5	A	0.0	1.9
Havenwood Drive & Bloor Street	0.39	16.8	B	EBL	0.19	5.6	A	5.8	15.1
				EBT	0.33	5.8	A	31.6	51.8
				WBL	0.15	5.4	A	4.1	11.6
				WBT	0.26	5.4	A	24.4	40.6
				NBL	0.72	68.9	E	18.7	34.6
				NBT	0.56	50.6	D	29.8	49.1
				SBL	0.33	47.5	D	10.1	20.9
				SBT	0.70	58.5	E	36.6	58.7
Dixie Road & Bloor Street	0.82	40.2	D	EBL	0.89	94.3	F	55.3	#94.7
				EBT	0.64	55.2	E	81.3	94.8
				WBL	1.03	114.0	F	55.4	#96.7
				WBT	0.30	38.1	D	36.9	46.6
				NBL	0.35	31.8	C	16.6	35.5
				NBT	0.54	31.2	C	110.9	134.5
				NBR	0.10	24.2	C	1.9	16.5
				SBL	0.64	27.0	C	31.3	49.3
				SBT	0.41	21.0	C	87.3	103.7
				SBR	0.04	31.8	C	1.8	12.2

Table 2-2: Existing Weekday AM Capacity Analysis – Signalized Intersections

Under the weekday AM peak hour existing traffic conditions, all movements operate acceptably and within capacity, with the exception of the westbound left-turn movement at Dixie Road and Bloor Street which operates over capacity with a v/c ratio of 1.03. This is likely due to the high number of vehicles conducting this movement. However, residual capacity is present in the opposing direction which indicates there is a potential to optimize the signal timing.

Intersection	Movement of Interest	Weekday AM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	33	1483	3.7	0.5	0.02	A
	SBLR	95	855	9.7	3.0	0.11	A
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	2	1460	0.2	0.0	0.00	A
	NBLR	11	873	9.2	0.3	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	3	1467	0.3	0.0	0.00	A
	NBLR	12	864	9.2	0.3	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 3	WBLT	1	1459	0.1	0.0	0.00	A
	NBLR	2	652	10.5	0.1	0.00	B
Havenwood Drive (North) & Williamsport Drive	EBLR	91	593	12.2	4.3	0.15	B
	NBLT	58	1175	2.3	1.2	0.05	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	6	731	10.0	0.2	0.01	A
	NBTL	2	1303	0.1	0.0	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	14	526	12.0	0.7	0.03	B
	NBLT	5	1161	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	22	565	11.6	1.0	0.04	B
	NBLT	2	1158	0.1	0.0	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	2	451	13.0	0.1	0.00	B
Havenwood Drive (South) & Williamsport Drive	EBLTR	60	383	16.1	4.4	0.16	C
	WBLTR	86	384	17.1	6.8	0.22	C
	NBLTR	19	1109	0.8	0.4	0.02	A
	SBLTR	33	1185	1.4	0.7	0.03	A
Williamsport Drive & 1485 Williamsport Drop-off	EBLT	1	1532	0.1	0.0	0.00	A
	SBLR	5	916	9.0	0.1	0.01	A

Table 2-3: Existing Weekday AM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections currently operate well under existing traffic conditions, with all movements operating within capacity during the weekday AM peak hour. No constraints have been identified under existing conditions.

2.6.2 Weekday PM Peak Hour

The intersection capacity analysis was completed for the weekday PM peak hour with the results for all the studied signalized and unsignalized intersections summarized in **Table 2-4** and **Table 2-5**, respectively. Detailed capacity results can be found in **Appendix B**.

Intersection	Weekday PM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.51	5.9	A	EBT	0.55	76.5	E	19.8	37.6
				WBT	0.16	69.5	E	5.4	20.1
				NBL	0.51	20.9	C	5.5	m27.1
				NBT	0.31	1.9	A	17.0	23.5
				SBL	0.27	4.8	A	4.5	12.4
				SBT	0.47	3.7	A	50.8	72.9
				SBR	0.03	2.1	A	0.5	3.1
Havenwood Drive & Bloor Street	0.39	11.7	B	EBL	0.23	4.8	A	4.9	13.0
				EBT	0.29	3.9	A	23.3	37.5
				WBL	0.07	3.2	A	1.6	5.0
				WBT	0.36	4.3	A	31.2	49.5
				NBL	0.62	62.7	E	14.8	28.8
				NBT	0.24	50.5	D	8.6	22.4
				SBL	0.52	54.8	D	15.6	29.6
				SBT	0.27	50.9	D	7.4	27.1
Dixie Road & Bloor Street	0.88	46.1	D	EBL	0.65	54.6	D	25.4	38.9
				EBT	0.47	54.6	D	52.3	62.2
				WBL	1.12	147.8	F	~82.0	#132.7
				WBT	0.81	63.5	E	102.8	113.8
				NBL	0.74	49.5	D	66.4	101.8
				NBT	0.41	25.1	C	78.5	104.2
				NBR	0.18	22.0	C	0.0	17.8
				SBL	0.57	23.4	C	26.2	42.6
				SBT	0.72	37.9	D	152.8	192.6
				SBR	0.23	23.8	C	10.4	24.0

Table 2-4: Existing Weekday PM Capacity Analysis – Signalized Intersections

Under the weekday PM peak hour existing traffic conditions, all movements operate acceptably and within capacity, with the exception of the westbound left-turn movement at Dixie Road and Bloor Street which operates over capacity with a v/c ratio of 1.12. Similar to the AM peak hour, this can be attributed to the high number of vehicles conducting this movement.

Intersection	Movement of Interest	Weekday PM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	37	1488	3.9	0.6	0.02	A
	SBLR	120	864	9.8	3.9	0.14	A
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	9	1515	1.0	0.1	0.01	A
	NBLR	2	895	9.0	0.1	0.00	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	4	1518	0.4	0.1	0.00	A
	NBLR	7	893	9.1	0.2	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 3	NBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (North) & Williamsport Drive	EBLR	65	657	11.1	2.6	0.10	B
	NBLT	33	1305	2.0	0.6	0.03	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	4	778	9.7	0.1	0.01	A
	NBTL	3	1299	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	7	700	10.2	0.2	0.01	B
	NBLT	10	1280	0.6	0.2	0.01	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	6	692	10.2	0.2	0.01	B
	NBLT	5	1279	0.3	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (South) & Williamsport Drive	EBLTR	65	538	12.6	3.3	0.12	B
	WBLTR	67	526	12.8	3.5	0.13	B
	NBLTR	19	1271	1.0	0.4	0.01	A
	SBLTR	25	1390	1.0	0.4	0.02	A
Williamsport Drive & 1485 Williamsport Drop-off	SBLR	7	955	8.8	0.2	0.01	A

Table 2-5: Existing Weekday PM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections currently operate well under existing traffic conditions, with all movements operating within capacity during the weekday PM peak hour.

3 FUTURE BACKGROUND TRAFFIC CONDITIONS

For the analysis of future background traffic conditions, this study considers a five-year horizon to year 2023. Future background traffic includes the traffic added to the network from other future developments within the surrounding area, corridor growth, as well as all planned infrastructure improvements within the study area.

3.1 CORRIDOR GROWTH

A corridor growth rate has been applied in the study area along Dixie Road and Bloor Street. The corridor growth rates were determined through obtaining historical turning movement counts (TMC) at the intersection of Dixie Road and Bloor Street. A growth rate of 3% and 2% was applied along Dixie Road in the AM and PM peak hours.

A growth rate of 6% and 4% was calculated along Bloor Street during the AM and PM peak hours. This large growth is presumed to be a result of new developments or redevelopments emerging in the area, or due to other changes in traffic patterns. Typically in Peel Region, growth rates of 3% are considered appropriate and conservative to capture general corridor growth. As such, a growth rate of 3% was applied along Bloor Street during the AM and PM peak hours. Documentation of growth calculations are provided in **Appendix C**.

3.2 ROAD NETWORK IMPROVEMENTS

There are no road network improvements identified in the study area within the planning horizon.

3.3 INTERSECTION CAPACITY ANALYSIS

The future background traffic volumes utilized for the intersection capacity analysis was determined by incorporating background development traffic to the existing traffic volumes. These are illustrated in **Figure 3-1**.

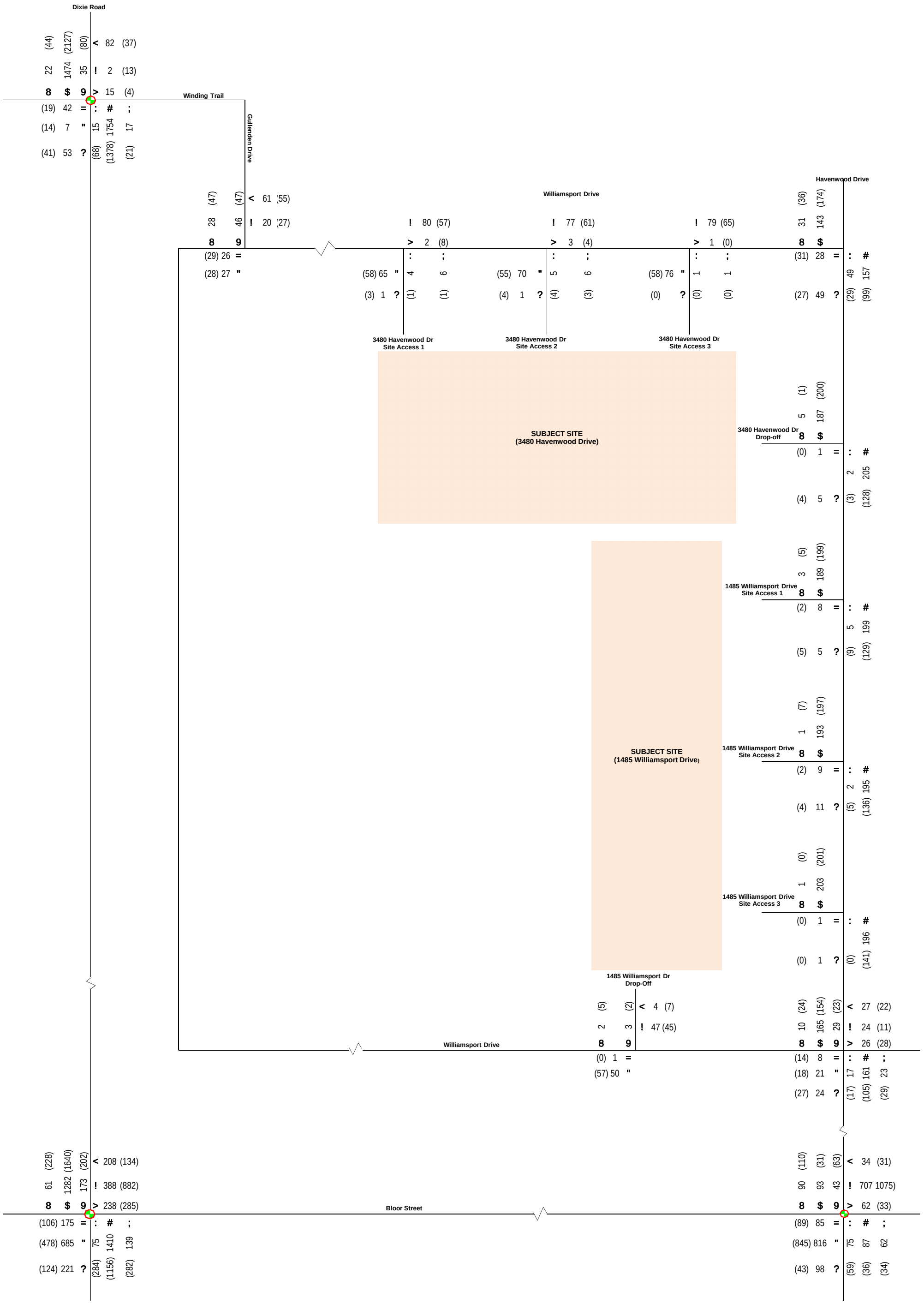


FIGURE 3-1
FUTURE BACKGROUND (2023)
LEA Consulting Ltd.

NOT TO SCALE

LEGEND

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

SIGNALIZED INTERSECTION

3.3.1 Weekday AM Peak Hour

The intersection capacity analysis was completed for the weekday AM peak hour with the results for all the studied signalized and unsignalized intersections summarized in **Table 3-1** and **Table 3-2,** respectively. Detailed capacity results can be found in **Appendix D**.

Intersection	Weekday AM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.5	10.8	B	EBT	0.78	101.5	F	26.7	49.1
				WBT	0.67	83.0	F	28.9	49.3
				NBL	0.10	2.0	A	0.3	m1.1
				NBT	0.47	7.4	A	158.7	187.4
				SBL	0.27	7.7	A	2.4	9.0
				SBT	0.40	3.9	A	42.3	63.1
				SBR	0.02	2.5	A	0.0	1.9
Havenwood Drive & Bloor Street	0.43	16.0	B	EBL	0.21	5.9	A	5.9	15.8
				EBT	0.37	6.1	A	38.0	61.6
				WBL	0.17	5.7	A	4.2	12.0
				WBT	0.30	5.6	A	29.1	47.9
				NBL	0.72	68.9	E	18.7	34.6
				NBT	0.56	50.6	D	29.8	49.1
				SBL	0.33	47.5	D	10.1	20.9
				SBT	0.70	58.5	E	36.6	58.7
Dixie Road & Bloor Street	0.91	42.7	D	EBL	0.93	103.0	F	56.1	#98.7
				EBT	0.72	56.9	E	95.2	109.5
				WBL	1.12	140.2	F	~57.9	#114.1
				WBT	0.33	38.3	D	43.5	53.4
				NBL	0.44	37.2	D	17.6	39.0
				NBT	0.63	34.1	C	135.8	161.4
				NBR	0.11	25.0	C	5.0	20.0
				SBL	0.73	32.4	C	31.2	52.8
				SBT	0.48	21.8	C	104.1	122.3
				SBR	0.04	32.0	C	2.2	12.6

Table 3-1: Future Background Weekday AM Capacity Analysis – Signalized Intersections

Under the future background traffic conditions weekday AM peak hour, all movements operate acceptably and within capacity, with the exception of the westbound left-turn movement at Dixie Road and Bloor Street. The WBL movement continues to operate over capacity with a v/c ratio of 1.12, which has increased from 1.03 under existing conditions. This is likely due to the additional vehicles in the east/west direction resulting from corridor growth along Bloor Street which provides fewer gap opportunities for left turn movements. Similarly, the eastbound left turn movement will operate near capacity with a V/C ratio of 0.93. To mitigate this constraint an optimized signal timing has been proposed and outlined in **Section 3.3.3**.

Intersection	Movement of Interest	Weekday AM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	33	1483	3.7	0.5	0.02	A
	SBLR	95	855	9.7	3.0	0.11	A
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	2	1460	0.2	0.0	0.00	A
	NBLR	11	873	9.2	0.3	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	3	1467	0.3	0.0	0.00	A
	NBLR	12	864	9.2	0.3	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 3	WBLT	1	1459	0.1	0.0	0.00	A
	NBLR	2	652	10.5	0.1	0.00	B
Havenwood Drive (North) & Williamsport Drive	EBLR	91	593	12.2	4.3	0.15	B
	NBLT	58	1175	2.3	1.2	0.05	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	6	731	10.0	0.2	0.01	A
	NBTL	2	1303	0.1	0.0	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	14	526	12.0	0.7	0.03	B
	NBLT	5	1161	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	22	565	11.6	1.0	0.04	B
	NBLT	2	1158	0.1	0.0	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	2	451	13.0	0.1	0.00	B
Havenwood Drive (South) & Williamsport Drive	EBLTR	60	383	16.1	4.4	0.16	C
	WBLTR	86	384	17.1	6.8	0.22	C
	NBLTR	19	1109	0.8	0.4	0.02	A
	SBLTR	33	1185	1.4	0.7	0.03	A
Williamsport Drive & 1485 Williamsport Drop-off	EBLT	1	1532	0.1	0.0	0.00	A
	SBLR	5	916	9.0	0.1	0.01	A

Table 3-2: Future Background Weekday AM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections continue to operate well under the future background traffic conditions, with all movements operating within capacity during the weekday AM peak hour.

3.3.2 Weekday PM Peak Hour

The intersection capacity analysis was completed for the weekday PM peak hour with the results for all the studied signalized and unsignalized intersections summarized in **Table 3-3** and **Table 3-4** respectively. Detailed capacity results can be found in **Appendix D**.

Intersection	Weekday PM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.65	6.3	A	EBT	0.58	77.7	E	21.8	39.5
				WBT	0.15	69.0	E	5.4	20.1
				NBL	0.65	38.4	D	10.1	m#38.5
				NBT	0.34	2.0	A	21.0	25.3
				SBL	0.31	6.0	A	4.9	14.1
				SBT	0.52	4.2	A	61.8	87.8
				SBR	0.03	2.2	A	0.6	3.3
Havenwood Drive & Bloor Street	0.43	11.2	B	EBL	0.28	5.7	A	5.1	14.3
				EBT	0.33	4.1	A	28.0	44.7
				WBL	0.08	3.3	A	1.6	5.1
				WBT	0.41	4.6	A	38.4	60.1
				NBL	0.62	62.7	E	14.8	28.8
				NBT	0.24	50.5	D	8.6	22.4
				SBL	0.52	54.8	D	15.6	29.6
				SBT	0.45	52.8	D	14.9	35.4
Dixie Road & Bloor Street	0.92	48.5	D	EBL	0.67	53.1	D	24.2	36.8
				EBT	0.47	51.7	D	58.9	68.4
				WBL	1.10	137.5	F	~76.7	#126.4
				WBT	0.81	60.9	E	116.4	127.0
				NBL	0.78	58.3	E	72.7	#113.3
				NBT	0.49	29.7	C	96.8	123.9
				NBR	0.19	25.0	C	0.7	19.8
				SBL	0.63	30.3	C	28.5	47.5
				SBT	0.84	44.7	D	185.7	#230.9
				SBR	0.25	26.1	C	13.0	26.6

Table 3-3: Future Background Weekday PM Capacity Analysis – Signalized Intersections

Under the weekday PM peak hour future background traffic conditions, all movements operate acceptably and within capacity, with the exception of the westbound left-turn movement at Dixie Road and Bloor Street which continues to operate over capacity with a V/C ratio of 1.10. Similar to the AM peak hour, this can be attributed to the increase in east/west through movements which result in fewer turning opportunities. **Section 3.3.3** outlined the proposed signal timing optimization to mitigate this constraint.

Intersection	Movement of Interest	Weekday PM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	37	1488	3.9	0.6	0.02	A
	SBLR	120	864	9.8	3.9	0.14	A
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	9	1515	1.0	0.1	0.01	A
	NBLR	2	895	9.0	0.1	0.00	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	4	1518	0.4	0.1	0.00	A
	NBLR	7	893	9.1	0.2	0.01	A
Williamsport Drive & 3480 Havenwood Site Access 3	NBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (North) & Williamsport Drive	EBLR	65	657	11.1	2.6	0.10	B
	NBLT	33	1305	2.0	0.6	0.03	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	4	778	9.7	0.1	0.01	A
	NBTL	3	1299	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	7	700	10.2	0.2	0.01	B
	NBLT	10	1280	0.6	0.2	0.01	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	6	692	10.2	0.2	0.01	B
	NBLT	5	1279	0.3	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (South) & Williamsport Drive	EBLTR	65	538	12.6	3.3	0.12	B
	WBLTR	67	526	12.8	3.5	0.13	B
	NBLTR	19	1271	1.0	0.4	0.01	A
	SBLTR	25	1390	1.0	0.4	0.02	A
Williamsport Drive & 1485 Williamsport Drop-off	SBLR	7	955	8.8	0.2	0.01	A

Table 3-4: Future Background Weekday PM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections continue to operate well, with all movements operating within capacity during the weekday PM peak hour.

3.3.3 Optimized Capacity Analysis

Given the constraints observed under the existing and future background conditions, the signal timing plan at the intersection of Dixie Road and Bloor Street has been optimized to mitigate the current constraints which will worsen under the future background scenario. During the weekday AM and PM peak hours, the westbound left-turn will operate over capacity. The proposed signal timing improvements are highlighted below in **Table 3-5.**

Proposed Signal Timing Optimization								
Phase Timings	**NB L**	**NB T/R**	**SB L**	**SB T/R**	**WB L**	**WB T/R**	**EB L**	**EB T/R**
Weekday AM Peak Hour								
Existing Splits (s)	-	72	19	91	16	69	-	53
Proposed Splits (s)	**-**	**68**	**19**	**87**	**20**	**73**	**-**	**53**
Cycle Length (s)	160							
Weekday PM Peak Hour								
Existing Splits (s)	24	72	13	61	13	62	13	62
Proposed Splits (s)	**24**	**68**	**13**	**57**	**17**	**62**	**17**	**62**
Cycle Length (s)	160							

Table 3-5: Recommended Signal Timing- Dixie Road & Bloor Street

The capacity analysis results based on the recommended splits are outlined below in **Table 3-6.**

OPTIMIZED Future Background Intersection Capacity Analysis									
Intersection	**Overall**			**Movements of Interest**					
	V/C	**Delay (s)**	**LOS**	**Movement**	**V/C**	**Delay (s)**	**LOS**	**Queue (m)**	
								50th	**95th**
Weekday AM Peak Hour									
Dixie Road & Bloor Street	0.86	40.4	D	EBL	0.90	94.2	F	54.8	#98.5
				EBT	0.69	55.2	E	92.4	108.9
				WBL	0.91	71.2	E	51.4	#95.4
				WBT	0.30	34.5	C	40.1	50.6
				NBL	0.49	44.1	D	19.5	41.2
				NBT	0.68	39.1	D	149.3	168.6
				NBR	0.12	28.4	C	6.5	22.3
				SBL	0.77	38.0	D	32.6	#59.0
				SBT	0.50	22.8	C	107.6	122.3
				SBR	0.04	33.6	C	2.2	12.6
Weekday PM Peak Hour									
Dixie Road & Bloor Street	0.90	47.7	D	EBL	0.57	46.5	D	23.5	35.2
				EBT	0.49	53.2	D	59.5	68.4
				WBL	0.97	90.2	F	70.8	#108.3
				WBT	0.81	60.9	E	116.4	127.0
				NBL	0.79	59.1	E	73.2	#117.0
				NBT	0.51	32.1	C	101.7	129.5
				NBR	0.19	27.0	C	2.8	23.9
				SBL	0.63	32.5	C	29.8	53.6
				SBT	0.87	47.5	D	190.5	#247.3
				SBR	0.26	28.2	C	14.7	28.9

Table 3-6: Future Background OPTIMIZED Weekday AM & PM Capacity Analysis

All the movements at the intersection of Dixie Road & Bloor Street will operate within capacity during the AM and PM peak hours. The westbound left-turn specifically will operate with a V/C ratio of 0.91 and 0.97 in the AM and PM peak hours.

4 SITE-GENERATED TRAFFIC

4.1 TRIP GENERATION

The trip generation for the two (2) proposed residential towers were projected by using the vehicle trip rates of the two (2) apartment buildings on-site. To be conservative the maximum trip rate of the two buildings was applied to project the future site trips. The existing and future site trip generation is outlined in **Table 4-1.**

Subject Site Trip Generation							
Trips Generated	Units	AM Peak Hour (Trips)			PM Peak Hour (Trips)		
		In	Out	Total	In	Out	Total
Existing Trip Generation							
3480 Havenwood Drive (Building A)	132	8	23	31	19	9	28
1450 Williamsport Drive (Building B)	132	12	35	47	26	13	39
Total Existing Site Trips		**20**	**58**	**78**	**45**	**22**	**67**
Proposed Site Trip Generation							
Residential Trip Rate (Max Rate)	-	0.09	0.27	0.36	0.20	0.10	0.30
Building C	103	9	28	37	21	10	31
Building D	99	9	27	36	20	10	30
TOTAL NEW SITE TRIPS		**18**	**55**	**73**	**41**	**20**	**61**

Table 4-1: Subject Site Trip Generation Summary

The subject site is projected to generate and additional 73 trips (18 inbound, 55 outbound) and 61 trips (41 inbound, 20 outbound) during the AM and PM peak hour periods.

4.2 TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution of site traffic was estimate using Transportation Tomorrow Survey (TTS) 2016 data. The traffic has been assigned accordingly to each site access based on the existing observed distribution. The applied residential trip distribution for the proposed development is outlined in **Table 4-2** below and further detailed in **Appendix E.**

SUBJECT SITE TRIP DISTRIBUTION					
Direction	Street	Weekday AM Peak Hour		Weekday PM Peak Hour	
		IN	OUT	IN	OUT
Eastbound	Bloor Street	37%	27%	30%	15%
Westbound	Bloor Street	15%	30%	27%	37%
Northbound	Dixie Road	9%	33%	10%	39%
Southbound	Dixie Road	39%	10%	33%	9%
TOTAL		**100%**	**100%**	**100%**	**100%**

Table 4-2: Directional Trip Distribution

The site-generated traffic volumes for the AM and PM peak hours are illustrated in **Figure 4-1**.

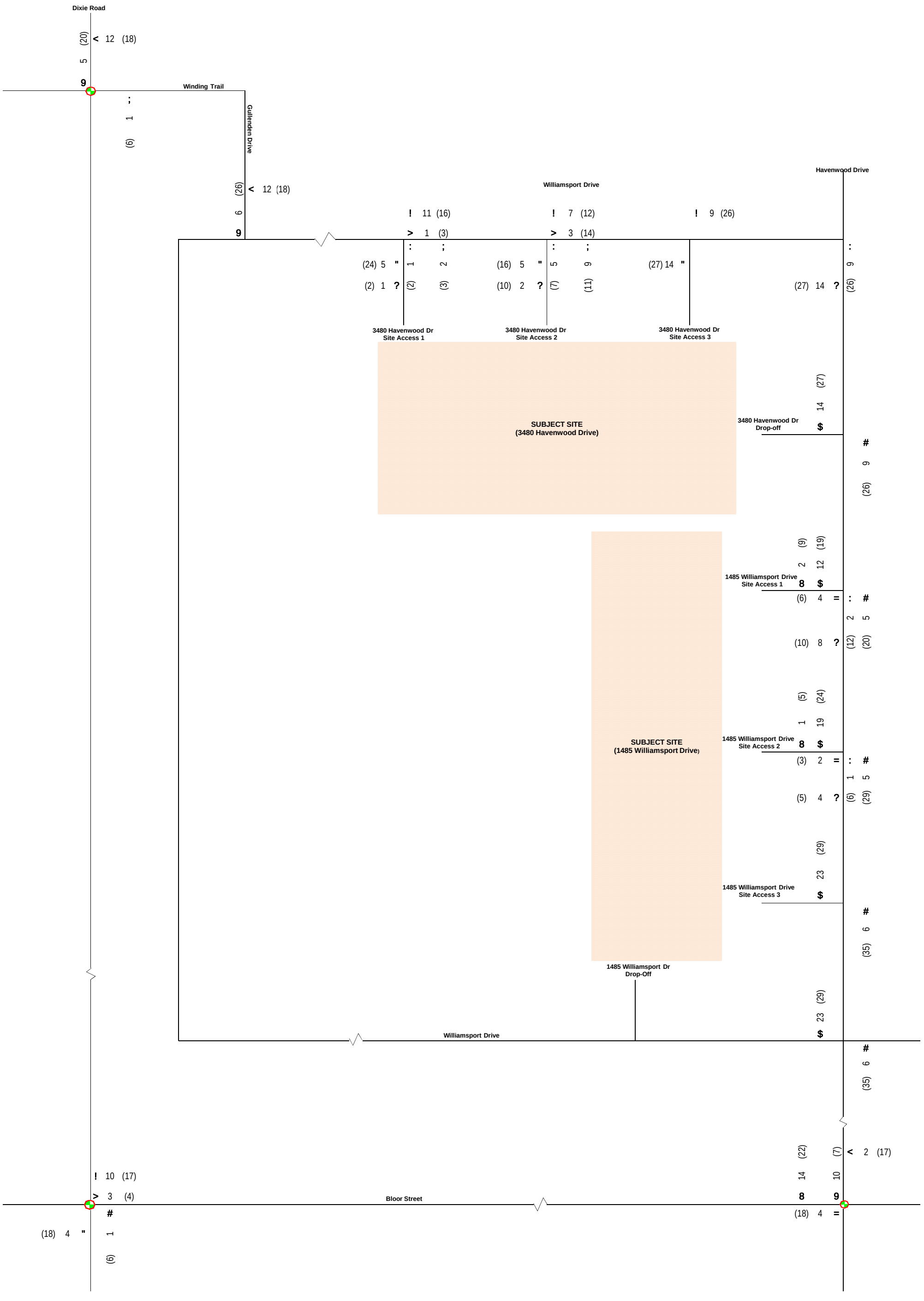


FIGURE 4-1
FUTURE TOTAL (2023)
LEA Consulting Ltd.

NOT TO SCALE

LEGEND

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

SIGNALIZED INTERSECTION

5 FUTURE TOTAL TRAFFIC CONDITIONS

The future total traffic is the sum of the future background volumes and site-generated traffic. The proposed signal timing improvements in the future background conditions were applied within the future total analyses

5.1 INTERSECTION CAPACITY ANALYSIS

The future total traffic volumes utilized for the intersection capacity analysis are illustrated in **Figure 5-1.**

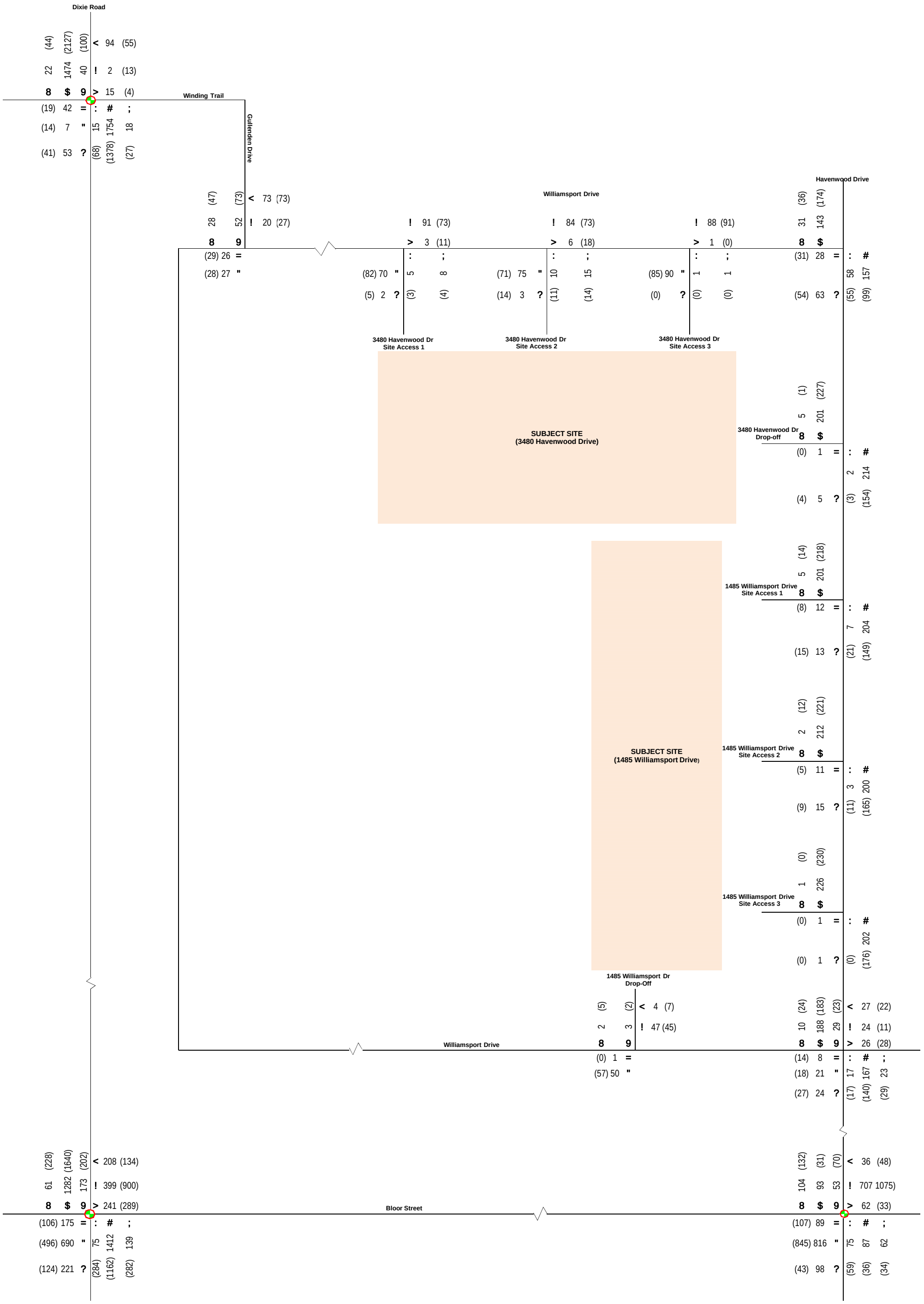


FIGURE 5-1
FUTURE TOTAL (2023)
LEA Consulting Ltd.

NOT TO SCALE

LEGEND

XX (XX)	WEEKDAY AM (PM) PEAK HOUR TRAFFIC VOLUMES
	SIGNALIZED INTERSECTION

5.1.1 Weekday AM Peak Hour

The intersection capacity analysis was completed for the weekday AM peak hour with the results for all the studied signalized and unsignalized intersections summarized in **Table 5-1** and **Table 5-2**, respectively. Detailed capacity results can be found in **Appendix F**.

Intersection	Weekday AM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.51	8.4	A	EBT	0.76	95.1	F	26.5	49.1
				WBT	0.71	83.2	F	35.4	57.6
				NBL	0.10	2.1	A	0.5	m0.5
				NBT	0.48	1.8	A	22.5	m17.1
				SBL	0.33	10.2	B	3.3	12.9
				SBT	0.41	4.5	A	46.4	67.6
				SBR	0.02	2.8	A	0.0	2.0
Havenwood Drive & Bloor Street	0.44	16.9	B	EBL	0.23	6.6	A	6.8	18.0
				EBT	0.38	6.6	A	40.1	65.4
				WBL	0.18	6.2	A	4.5	12.8
				WBT	0.31	6.1	A	31.0	51.1
				NBL	0.74	71.4	E	18.6	34.7
				NBT	0.52	48.5	D	29.3	48.0
				SBL	0.40	47.4	D	13.5	25.8
				SBT	0.73	58.9	E	39.9	62.9
Dixie Road & Bloor Street	0.97	49.5	D	EBL	0.98	114.1	F	64.8	#120.6
				EBT	0.72	53.1	D	109.3	127.2
				WBL	0.97	84.4	F	~67.4	#137.0
				WBT	0.32	31.0	C	48.8	61.7
				NBL	0.78	86.9	F	24.1	#57.4
				NBT	0.86	51.5	D	174.5	190.8
				NBR	0.15	33.8	C	9.4	25.9
				SBL	0.91	92.8	F	54.4	#91.9
				SBT	0.61	32.5	C	102.4	174.5
				SBR	0.05	38.4	D	0.2	16.7

Table 5-1: Future Total Weekday AM Capacity Analysis – Signalized Intersections

Under the weekday AM peak hour future total traffic conditions, all movements operate acceptably and within capacity. The westbound left-turn movement at Dixie Road and Bloor Street operates near capacity with a v/c ratio of 0.97, however this movement was observed to operate over capacity under existing conditions. A minor increase in delay is observed from future background conditions.

Intersection	Movement of Interest	Weekday AM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	33	1455	3.7	0.6	0.02	A
	SBLR	107	835	9.9	3.5	0.13	A
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	3	1449	0.2	0.0	0.00	A
	NBLR	17	845	9.3	0.5	0.02	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	8	1452	0.6	0.1	0.01	A
	NBLR	36	850	9.4	1.1	0.04	A
Williamsport Drive & 3480 Havenwood Site Access 3	WBLT	1	1430	0.1	0.0	0.00	A
	NBLR	2	623	10.8	0.1	0.00	B
Havenwood Drive (North) & Williamsport Drive	EBLR	118	607	12.4	5.7	0.19	B
	NBLT	75	1175	2.8	1.6	0.06	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	6	705	10.1	0.2	0.01	B
	NBTL	2	1277	0.1	0.0	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	33	538	12.1	1.6	0.06	B
	NBLT	9	1137	0.4	0.2	0.01	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	31	543	12.0	1.4	0.06	B
	NBLT	4	1126	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	2	422	13.6	0.1	0.00	B
Havenwood Drive (South) & Williamsport Drive	EBLTR	60	358	17.1	4.8	0.17	C
	WBLTR	86	359	18.2	7.4	0.24	C
	NBLTR	19	1070	0.8	0.4	0.02	A
	SBLTR	33	1175	1.2	0.7	0.03	A
Williamsport Drive & 1485 Williamsport Drop-off	EBLT	1	1532	0.1	0.0	0.00	A
	SBLR	5	916	9.0	0.1	0.01	A

Table 5-2: Future Total Weekday AM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections currently operate well under future total traffic conditions, with all movements projected to operate within capacity during the weekday AM peak hour. All site accesses will operate acceptably with the additional site traffic.

5.1.2 Weekday PM Peak Hour

The intersection capacity analysis was completed for the weekday PM peak hour with the results for all the studied signalized and unsignalized intersections summarized in**Table 5-3** and **Table 5-4**, respectively. Detailed capacity results can be found in **Appendix F**.

Intersection	Weekday PM Peak Hour								
	Overall			Movements of Interest					
	V/C	Delay (s)	LOS	Movement	V/C	Delay (s)	LOS	Queue (m)	
								50th	95th
Dixie Road & Winding Trail	0.65	6.4	A	EBT	0.59	78.5	E	21.8	39.6
				WBT	0.16	69.0	E	5.4	21.0
				NBL	0.65	38.8	D	10.7	m#38.8
				NBT	0.34	1.8	A	19.3	21.2
				SBL	0.37	7.1	A	6.2	18.1
				SBT	0.52	4.2	A	61.8	87.8
				SBR	0.03	2.2	A	0.6	3.3
Havenwood Drive & Bloor Street	0.44	11.6	B	EBL	0.32	6.4	A	6.1	17.4
				EBT	0.33	4.2	A	28.3	46.4
				WBL	0.08	3.4	A	1.6	5.2
				WBT	0.42	4.7	A	39.3	63.2
				NBL	0.64	65.6	E	14.9	28.8
				NBT	0.23	50.2	D	8.6	22.2
				SBL	0.53	54.9	D	16.3	30.4
				SBT	0.50	53.3	D	17.4	38.4
Dixie Road & Bloor Street	0.91	48.2	D	EBL	0.57	46.4	D	23.5	35.1
				EBT	0.50	53.2	D	61.0	69.8
				WBL	0.98	95.3	F	71.2	#110.5
				WBT	0.82	60.8	E	117.4	127.9
				NBL	0.79	59.1	E	73.1	#117.9
				NBT	0.51	32.3	C	102.6	130.0
				NBR	0.20	27.2	C	3.0	24.2
				SBL	0.64	33.0	C	29.9	54.1
				SBT	0.87	47.8	D	191.1	#247.3
				SBR	0.26	28.2	C	14.7	28.9

Table 5-3:Future Total Weekday PM Capacity Analysis – Signalized Intersections

Under the weekday PM peak hour future total traffic conditions, all movements operate acceptably and within capacity. The westbound left-turn movement at Dixie Road and Bloor Street will operate close to capacity with a v/c ratio of 0.98. This is a marginal increase to the future background optimized scenario which reported a V/C ratio of 0.97. The proposed development will add one (1) additional trip to this movement.

Intersection	Movement of Interest	Weekday PM Peak Hour					
		Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
Williamsport Drive & Gulleden Drive	EBLT	73	1475	3.9	0.6	0.03	A
	SBLR	143	843	10.1	4.9	0.17	B
Williamsport Drive & 3480 Havenwood Site Access 1	WBLT	11	1491	1.1	0.2	0.01	A
	NBLR	4	866	9.2	0.1	0.00	A
Williamsport Drive & 3480 Havenwood Site Access 2	WBLT	14	1494	1.3	0.2	0.01	A
	NBLR	17	871	9.2	0.5	0.02	A
Williamsport Drive & 3480 Havenwood Site Access 3	NBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (North) & Williamsport Drive	EBLR	82	662	11.2	3.4	0.12	B
	NBLT	49	1305	2.6	0.9	0.04	A
Havenwood Drive & 3480 Havenwood Drop-off	EBLR	4	761	9.8	0.1	0.01	A
	NBTL	3	1280	0.2	0.1	0.00	A
Havenwood Drive & 1485 Williamsport Site Access 1	EBLR	15	665	10.5	0.6	0.02	B
	NBLT	18	1262	0.9	0.3	0.01	A
Havenwood Drive & 1485 Williamsport Site Access 2	EBLR	10	676	10.4	0.4	0.01	B
	NBLT	10	1264	0.5	0.2	0.01	A
Havenwood Drive & 1485 Williamsport Site Access 3	EBLR	0	1700	0.0	0.0	0.00	A
Havenwood Drive (South) & Williamsport Drive	EBLTR	65	515	13.0	3.4	0.13	B
	WBLTR	67	499	13.3	3.7	0.13	B
	NBLTR	19	1257	0.9	0.4	0.02	A
	SBLTR	25	1360	1.0	0.4	0.02	A
Williamsport Drive & 1485 Williamsport Drop-off	SBLR	7	955	8.8	0.2	0.01	A

Table 5-4: Future Total Weekday PM Capacity Analysis – Unsignalized Intersections

The unsignalized intersections currently operate well under future total traffic conditions, with all movements operating within capacity during the weekday PM peak hour. All site accesses will operate with minimal delays with the additional site traffic.

6 PARKING REVIEW

This section will review the vehicular and bicycle parking standards based on the applicable requirements for the study area.

6.1 BICYCLE PARKING

The City of Mississauga Zoning By-law does not specify any bicycle parking requirements. However, given the extent of the vehicular parking reduction proposed (discussed in **Section 6.2**), the bicycle parking rates provided in the Parking Strategy for Mississauga City Centre are recommended to be applied to the subject site. The recommended and provided bicycle parking supply is outlined in **Table 6-1**.

Subject Site Bicycle Parking						
Land Use	Recommended Rates		Recommended Spaces		Provided Spaces	
	Resident	Visitor	Resident	Visitor	Resident	Visitor
Residential	0.6 spaces/unit	0.15 spaces/unit	280	70	280	70

Table 6-1: Bicycle Parking Requirements

As per the bicycle parking rates provide in the Parking Strategy for Mississauga City Centre, the subject site should provide a total supply of 280 resident spaces and 70 short-term spaces. This recommended supply will be provided on-site.

6.2 VEHICLE PARKING

The Subject Site is governed by the requirements of City of Mississauga Zoning By-law 0225-2007. The parking requirements for the existing buildings and the proposed residential expansion, as well as the proposed parking supply is summarized in **Table 6-2**.

Type	Units	By-Law 0225-2007		Proposed Supply
		Parking Rate (spaces/unit)	Required Parking	
Bachelor	22	1.0	22	257
1-Bed	206	1.18	243	
2-Bed	145	1.36	197	
3-Bed	93	1.5	140	
		Sub-Total Resident	602	
Visitor	466	0.2	93	46
		Total Parking	**695**	**303**

Table 6-2: Zoning By-Law Parking Requirements

Based on the parking review, the subject site is required to provide a total of 695 spaces, consisting of 602 resident spaces and 93 visitor spaces. The proposed parking supply is 303 total spaces. A justification of the proposed supply based on the existing parking demand is provided in the section below.

6.3 PARKING JUSTIFICATION

In support of the parking reduction, an analysis of the existing parking utilization was conducted to determine the current parking demand and project the future parking demand of the residential expansion. Based on the information provided by the owner, the existing apartment buildings at 3480

Havenwood Drive and 1485 Williamsport Drive each consist of 132 rental units, all of which are currently rented and occupied. The existing resident and visitor parking demand is outlined below.

6.3.1 Resident Parking Demand

To understand the resident parking demand at the subject site, recent parking rental information was provided by the owner. The parking utilization is summarized in **Table 6-3**, with detailed information provided in **Appendix G**.

Location	Tenant Spaces Provided	Occupied Spaces			Vacant Spaces
		3480 Havenwood	1485 Williamsport	Combined	
Surface	139	37	41	78	61
Underground	156	37	28	65	91
Total	295	74	69	143	152

Table 6-3: Existing Rental Parking Information

Based on the tenant parking information obtained, a total of 143 parking spaces are utilized by the two existing buildings on-site. This results in a maximum resident parking demand of 0.56 spaces/unit and 0.52 spaces per unit for 3480 Havenwood Drive and 1485 Williamsport Drive respectively.

6.3.2 Visitor Parking Demand

To determine the visitor parking demand, a parking utilization survey was completed for the two existing residential buildings. The parking demand survey was conducted by NexTrans Consulting on Friday, April 21, 2017 and Sunday, April 23, 2017 between 5:00pm – 10:00pm and 2:00pm – 8:00 pm at 30-minute intervals, respectively. **Table 6-4** outlines the results of the survey.

Time	Visitor			Utilization Rate	Residual Supply
	3480 Havenwood	1485 Williamsport	Total Demand		
Existing Supply = 16 spaces					
Friday, April 21, 2017					
5:00 PM	2	2	4	25%	12
5:30 PM	1	1	2	13%	14
6:00 PM	1	3	4	25%	12
6:30 PM	1	3	4	25%	12
7:00 PM	1	3	4	25%	12
7:30 PM	1	2	3	19%	13
8:00 PM	1	2	3	19%	13
8:30 PM	1	2	3	19%	13
9:00 PM	0	4	4	25%	12
9:30 PM	0	4	4	25%	12
10:00 PM	0	3	3	19%	13
Maximum	**2**	**4**	**4**	**25%**	**14**
Sunday, April 23, 2017					
2:00 PM	1	4	5	31%	11
2:30 PM	0	4	4	25%	12
3:00 PM	1	4	5	31%	11
3:30 PM	0	3	3	19%	13
4:00 PM	0	3	3	19%	13
4:30 PM	0	3	3	19%	13
5:00 PM	0	5	5	31%	11
5:30 PM	0	4	4	25%	12
6:00 PM	0	4	4	25%	12
6:30 PM	0	4	4	25%	12
7:00 PM	0	5	5	31%	11
7:30 PM	0	4	4	25%	12
8:00 PM	1	3	4	25%	12
Maximum	**1**	**5**	**5**	**31%**	**13**

Table 6-4: Existing Visitor Parking Utilization

The visitor parking demand survey reveals a maximum demand of 1 and 5 spaces for 3480 Havenwood Drive and 1485 Williamsport Drive respectively. This results in a visitor parking demand rate of 0.02 spaces/unit and 0.04 spaces/unit.

6.3.3 Existing Parking Demand Summary

The overall units, current parking supply, occupied parking spaces and parking demand rates are summarized in in **Table 6-5**, with detailed information provided in **Appendix G**.

Type	Building	Occupied Units	Parking Supply	Occupied Spaces	Demand Rate (spaces/unit)
Resident	3480 Havenwood	132	148	74	**0.56**
	1485 Williamsport	132	147	69	0.52
Visitor	3480 Havenwood	132	8	2	0.02
	1485 Williamsport	132	8	5	**0.04**

Table 6-5: Existing Parking Demand

Based on the information above, the current maximum residential parking demand observed on-site is 0.56 spaces per occupied unit, while the visitor parking demand rate is 0.04 spaces per unit. This results in an overall parking rate of 0.60 spaces per unit, which is substantially lower than the Zoning By-law rates required of the subject site.

6.3.4 Future Parking Demand

To determine the future parking demand of the proposed development, the existing parking demand rates were applied to the residential expansion and are summarized in **Table 6-6**. The visitor demand rate of 0.04 spaces/unit was determined to be atypical and thus a visitor parking rate of 0.10 spaces/unit has been applied to the entire site to be conservative. Based on the existing demand rates, Building C would require 68 parking spaces and Building D would require 66 parking spaces.

Building	Units	Resident		Visitor		Total Spaces
		Demand Rate	Projected Demand	Demand Rate	Projected Demand	
Building C	103	0.56	58	0.1	10	68
Building D	99	0.56	56	0.1	10	66

Table 6-6: Projected Future Parking Demand

A summary of the proposed parking supply for the entire site is provided in **Table 6-7.**

Building	Units	Resident		Visitor		Total Spaces
		Demand Rate	Demand	Demand Rate	Demand	
Existing Buildings						
Building A (3480 Havenwood)	132	0.56	74	0.1	13	87
Building B (1485 Williamsport)	132	0.52	69	0.1	13	82
Proposed Buildings						
Building C	103	0.56	58	0.1	10	68
Building D	99	0.56	56	0.1	10	66
					TOTAL	**303**

Table 6-7: Parking Summary

It is evident that the City's By-law requirements overestimate the parking required to satisfy the projected parking demand at the subject site. As such, a parking reduction is recommended to satisfy the parking demand for the existing buildings as well as those proposed and to provide an appropriate amount of parking. To complement the parking reduction and ensure that other modes of transportation can accommodate the multi-modal behaviours of the existing and planned future residents, a number of Transportation Demand Management (TDM) measures are proposed, which includes the considerable amount of resident and bicycle parking proposed.

7 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management (TDM) typically consists of a number of strategies to achieve a more efficient transportation network by influencing travel behaviour. Effective TDM measures can reduce vehicle usage and encourage people to engage in more sustainable methods of travel. There are several opportunities to incorporate TDM measures that support alternative modes of transportation. The recommendations should enhance non-single occupant vehicle trips for the future residents of the proposed development as well as the existing residential towers.

7.1 PARKING MANAGEMENT

1. *Parking reduction from the Zoning By-law requirements.*

   As discussions in **Section 6.0**, a total of 303 parking spaces are proposed for the development, which will be sufficient to meet the existing parking demand observed at the subject site. An overabundance of parking provides incentive for vehicle ownership and thus additional vehicle trips, which is contradictory to the City's transportation goals and objectives. Reduced parking provisions is a key travel demand management tool that will support existing and future public transit investments, discourage automobile use and enhance walkable communities.

7.2 TRANSIT-BASED RECOMMENDED STRATEGIES

2. *Connection to transit network.*

   The subject site is located in a transit supportive neighbourhood with existing bus stops within a 5-minute walking distance. As detailed in **Section 2. 2**, the MiWay routes in the immediate area are Route 3 Bloor and Route 5 Dixie. Both routes operate seven days a week and provide significant north-south and east-west connections to major destinations such as the Mississauga City Centre Transit Terminal and Dixie GO Station.

3. *PRESTO Cards with pre-loaded value shall be provided to all new tenants.*

   As part of the welcome package, one (1) PRESTO Card with preloaded value should be provided to encourage new tenants of the building to use the current MiWay and GO Transit services.

7.3 CYCLING-BASED RECOMMENDED STRATEGIES

4. *The proposed development should install short and long-term bicycle parking facilities.*

   The proposed development should provide bicycle parking facilities to support and encourage active transportation, while also taking advantage of the cycling infrastructure surrounding the subject site. The short-term bicycle spaces should be located in highly visible and convenient areas close to building entrances, such as at-grade for the residents and visitors. Long-term bicycle parking should be provided in secured and weather-protected locations, including storage rooms, bicycle lockers and underground parking areas.

   Though there are no bicycle parking requirements in the Zoning By-law, given the extent of the parking reduction proposed, the bicycle parking rates as recommended in the Parking Strategy for Mississauga City Centre are recommended to be applied to the subject site. These bicycle parking rates are:

   - Resident - 0.60 spaces/unit

- Visitor – 0.15 spaces/unit

These rates translate to a total supply of 280 resident spaces and 70 short-term spaces. It is understood that this amount of bicycle parking will be provided.

5. *Availability of multi-use trails and bike lanes in the vicinity of the site.*

   Based on 2017 Mississauga Cycling Map, there is a multi-use trail along Dixie Road which becomes a shared park path south of Bloor Street. Further, there are signed bike routes along Williamsport Drive and provides connections to both the Charlie Martin and Applewood trails.

6. *Promote and increase cycling awareness and multi-modal transport.*

   Provide information packages to encourage active transportation and different travel demand management programs. This should include educating residents on the heath and environmental benefits of cycling, as well as providing pedestrian, cycling and transit maps of the available infrastructure in the surrounding area. Identifying safe cycling routes can also facilitate students cycling to school and reduce automobile reliance for the younger generation.

   The applicant should provide the information packages and communications to be distributed to future tenants. A designated Information Centre should be set up within the main building area to provide updated information on Smart Commute initiatives and multi-modal connections.

8 LOADING REVIEW

The City of Mississauga Zoning By-Law 0225-2007 was reviewed to determine the loading requirements for the proposed development, which are summarized in **Table 8-1**.

Land Use	# of Apt Buildings	Zoning By-Law Requirement	Loading Spaces Provided
Residential	4*	4 Loading Spaces	3 Loading Spaces

Table 8-1: Loading Summary

According to the City's By-law, one loading space is required per apartment building containing a minimum of 30 dwelling units. Currently two (2) loading spaces are provided for the two (2) existing apartment buildings. These two (2) loading spaces will remain in their current form. While two (2) new buildings are proposed, these (2) two buildings or towers will essentially operate as a single building at-grade, as they will share the same podium and will be interconnected via a centralized service corridor. Therefore, one (1) new loading space is proposed which will provide direct access to the shared podium and the shared service corridor. Resultantly, the proposed loading scheme is considered to be acceptable and will meet the garbage collection and move-in needs of the site.

A review of the functionality and accessibility of the proposed loading spaces was completed to determine that the proposed loading spaces can be accessed and egressed by a garbage truck. The swept path diagrams are provided in **Appendix H**.

9 CONCLUSIONS

- The proposed development will introduce an 8-storey and 9-storey rental apartment building to the site of 3480 Havenwood Drive and 1450 Williamsport Drive. This will be added to the two (2) existing 9-storey rental buildings on-site. The site will maintain the existing site accesses onto Havenwood Drive and Williamsport Drive.

- The subject site is located in an area that provides a multi-modal transportation network, including a continuous and connected pedestrian network, cycling trails and routes, and accessible transit services.

- Under existing traffic conditions all signalized intersections will operate within capacity with the exception of the westbound left turn movement at Dixie Road and Bloor Street. The unsignalized intersections are operating with good overall LOS, and all individual movements are operating within capacity.

- The future background scenario applies a corridor growth rate along Dixie Road and Bloor Street, to account for background developments in the surrounding area.

- The future background intersection capacity analysis shows acceptable LOS at all signalized and unsignalized intersections, with the exception of the westbound left turn movement at Dixie Road and Bloor Street. An optimized signal timing plan is proposed which results in all movements at the intersection operating with a V/C ratio below 1.0 under the weekday AM and PM peak hours.

- The projected site trips were determined through collecting the existing trip rates from 3480 Havenwood Drive and 1450 Williamsport Drive during the Weekday AM and PM peak periods. Based on these observed trip rates, the proposed expansion is projected to generate 73 new trips (18 inbound, 55 outbound) and 61 new trips (41 inbound, 20 outbound) during the AM and PM peak hour periods.

- The future total analysis reveals all movements are to operate within capacity and with acceptable delays. All site accesses are projected to operate well with minimal delays with the addition of the site traffic.

- The proposed development is required to provide a total of 695 spaces, consisting of 602 resident spaces and 93 visitor spaces. The proposed parking supply of 303 total spaces is short of the minimum By-law requirements by 392 spaces.

- Based on parking demand survey data and rental information provided by the owner, site-specific parking supply rates are recommended for the proposed buildings. To be conservative, a visitor supply rate of 0.10 spaces/unit has been recommended. A resident supply rate of 0.56 spaces/unit is also recommended. Utilizing these demand rates, the proposed supply of 303 will meet the projected parking demand for all four (4) buildings on-site.

- Significant TDM measures are proposed to ensure that the multi-modal behaviours of the existing site are maintained and applicable to the future residents of the two (2) new towers. These TDM measures include pre-loaded PRESTO Cards, considerable bicycle parking, and informational packages.

- Three (3) loading spaces are proposed for the four (4) residential buildings, maintaining two (2) of the existing loading spaces. As the two (2) proposed new towers will effectively operate as one (1) building at-grade due to a shared podium and interconnected service area via a service corridor, the proposed loading supply is considered acceptable and appropriate.