



# Technical Memorandum

To:	Syed Rizvi – Town of Oakville	Date:	2020-05-28
Cc:	Kevin Singh – ARGO Development Corporation Christopher Gordon – CGH Transportation		
From:	Mark Crockford, P.Eng.	Project Number:	2019-78

## Re: Argo West Morrison Creek – Neighbourhood 9/10/11 Transportation Impact Study Addendum

### 1 Introduction

To support several residential developments in the Neighbourhood 9/10/11 areas of North Oakville, a Transportation Impact Study (TIS) was prepared and finalized in late May 2020. This study used the initial concept plan for each development to develop a TIS that examined the overall impact of the subject developments on the transportation network. The Neighbourhood 9/10/11 TIS, referred to herein as the TIS, forms the basis for this memo. This addendum acts as a covering letter for the Neighbourhood 9/10/11 TIS.

This addendum has been prepared to support Argo’s West Morrison Creek development and will examine the changes between the original concept plan considered in the TIS and the current plan that is being put forward. This includes examining the unit count and type, preparing an updated trip generation (using the same factors as those presented in the TIS), and, if significant changes to the trip generation are noted, providing updated Synchro results at key Study Area intersections.

### 2 Site Plan Comparison

The original concept plan considered in the TIS is included as Attachment 1. The updated plan, to be analyzed through this memo, is included as Attachment 2. Table 1 summarizes the unit count changes between the original concept and the updated plan.

*Table 1: Land Use Statistic Comparison*

	Single Detached LUC 210	Townhouses LUC 220	Mid-Rise LUC 221	Shopping Centre LUC 820
<b>Original</b>	85	162	0	0
<b>Updated</b>	88	122	103	222.5 m <sup>2</sup>
<b>Change</b>	3	-40	103	222.5 m <sup>2</sup>
<b>% Change</b>	3.5%	-25%	-	-

As shown above, the revised plan would reduce the townhouse units by 40 (25% of the total number of townhouses), and add three single detached units, 103 mid-rise apartment units, and 222.5 square metres of ground floor commercial space. Due to the change in unit counts the trip generation has been examined to determine if the proposed changes would significantly change relative to the trip generation originally considered. The trip generation equations and rates for the Single detached, townhouse units, and mid-rise apartment units were used in the TIS. The Shopping Centre Land Use was not considered in the original TIS but has been added for this analysis. The trip generation factors used for each of the land uses are summarized in Table 2.

Table 2: ITE Trip Generation Factor

	Single Detached LUC 210	Townhouses LUC 220	Mid-Rise LUC 221	Shopping Centre LUC 820
AM Peak	$T=0.71(X)+4.8$	$\ln(T) = 0.95 \ln(T) - 0.51$	$\ln(T) = 0.98 \ln(T) - 0.98$	1.2
PM Peak	$\ln(T) = 0.96 \ln(T) + 0.20$	$\ln(T) = 0.89 \ln(T) - 0.02$	$\ln(T) = 0.96 \ln(T) - 0.63$	4.88

For the residential land uses, the rate equation was used in the original TIS as the rates produced using these equations were within the range of rates listed in the data statistics for each land use code. For the Shopping Centre land use, using the rate equation yielded a rate that was outside of the range of rates listed in the ITE Trip Generation Manual and uncharacteristically high, given the limited space proposed as part of this development. Therefore, the average rates were used to better reflect the trip generation of the proposed development.

Using the above trip generation rates the total trip generation for the site has been recalculated and compared to the TIS trip generation. Table 3 summarizes and compares the trip generation between the two scenarios (original and updated).

Table 3: Vehicle Trip Generation Comparison

Scenario	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Original	28	90	118	94	55	149
Updated	34	100	133	111	68	180
Difference	6	10	15	17	13	31
% Difference	21%	11%	13%	18%	24%	21%

As shown above the changes to the trip generation will result in a net increase of approximately 20% in vehicle traffic from this development. Therefore, this increase in traffic necessitates a re-examination of the operational analysis of Marvin Avenue at Sixth Line and Marvin Avenue at Preserve Drive. While it is anticipated that other developments may have slight changes to their plans and unit counts, at this time there are no finalized plans to be considered. As those other properties are put forward, they will consider the changes accounted for here-in.

The updated vehicle trip generation has been applied to the study area intersections using the same assumptions as the TIS. Figure 1 illustrates the original traffic volumes at the intersections of Marvin Avenue / Access #6 at Sixth Line and Marvin Avenue / Access #6 at Preserve Drive. Figure 2 illustrates the updated traffic volumes.

Figure 1: Original Turning Movement Volumes (2024 Horizon)

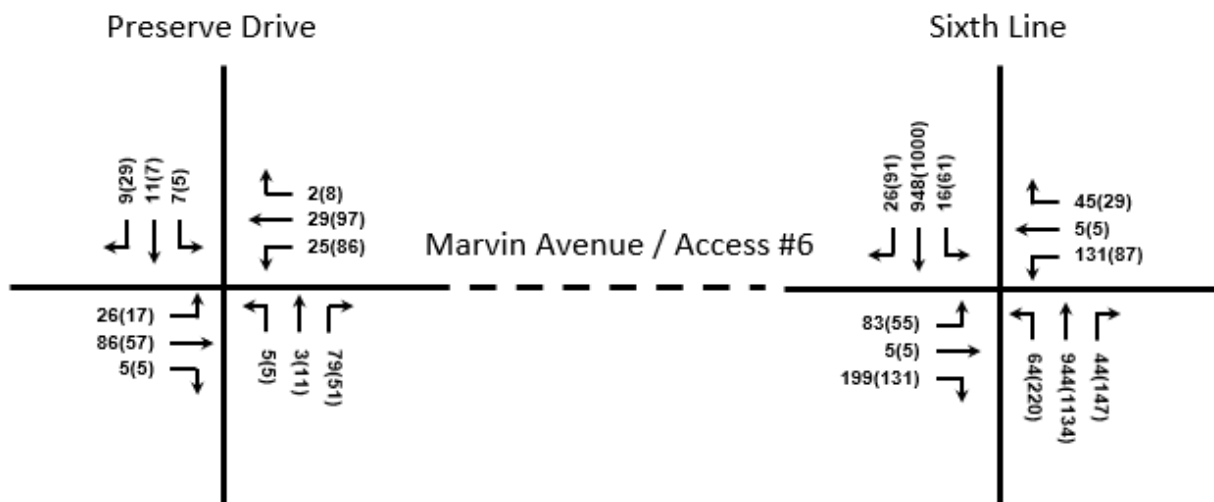
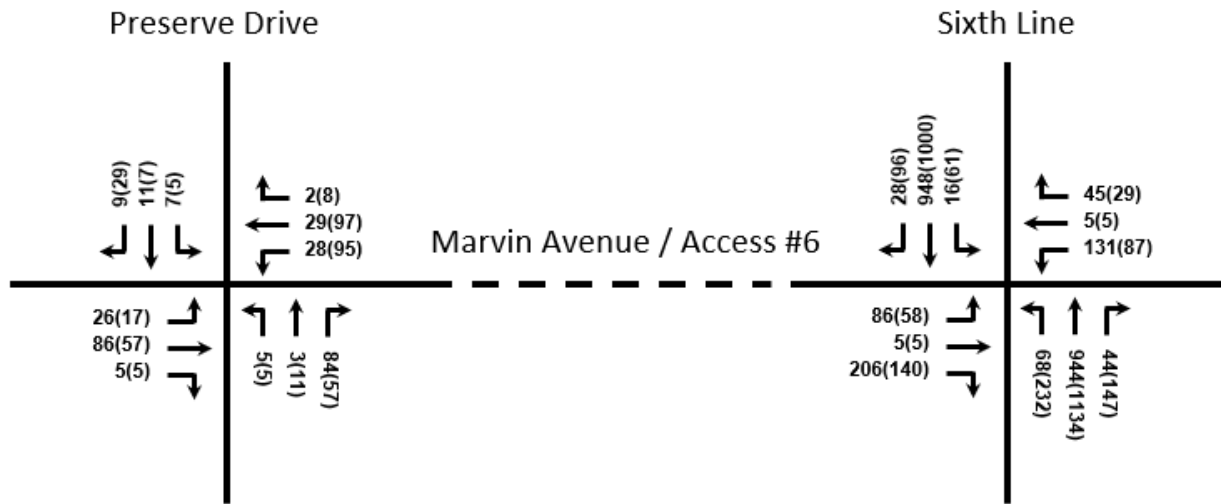


Figure 2: Updated Turning Movement Volumes (2024 Horizon)



While the differences between the original and updated volumes are minor, the Synchro analysis for these intersections has been updated to ensure that the analysis results are accurate. The Synchro parameters and analysis assumptions used in the TIS have been carried forward and only the turning movement volumes have been changed. The comparison of the operational analysis is presented in Table 4. The TIS Analysis Synchro Worksheets can be found in Attachment 3 and the Updated Analysis Synchro Worksheets can be found in Attachment 4.

Table 4: Operational Analysis Comparison

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del. (s)	Q (50 <sup>th</sup> )	Q (95 <sup>th</sup> )	LOS	V/C	Del. (s)	Q (50 <sup>th</sup> )	Q (95 <sup>th</sup> )
Marvin Avenue / Access #6 & Sixth Line (Signalized)	<b>TIS Analysis</b>										
	Overall	B	-	13	-	-	B	-	12	-	-
	<b>Updated Analysis</b>										
Overall	B	-	13	-	-	B	-	13	-	-	
Marvin Avenue / Access #6 & Sixth Line (All-way Stop Control)	<b>TIS Analysis</b>										
	EBL/T/R	A	0.15	8	-	4	A	0.11	8	-	3
	WBL/T/R	A	0.07	8	-	2	A	0.25	9	-	8
	<b>Updated Analysis</b>										
	EBL/T/R	A	0.15	8	-	4	A	0.11	8	-	3
WBL/T/R	A	0.08	8	-	2	A	0.26	9	-	8	

As shown above the incremental change of traffic, while increased by 20% from the previous version, has a minimal impact on the operational analysis of both intersections. As the results for 2024 remain consistent with the TIS it can be concluded that the 2030 analysis will have a similar result and there is no need to re-examine the results for the 2030 horizon. Therefore, the result of the original TIS remain valid with respect to the ARGO Lands’ proposed development.

### 3 Parking Justification

As part of the planning rationale, a parking plan has been prepared. and is further justified herein. This section will examine the parking provisions and compare them to the Town of Oakville Parking Zoning By-Law requirements. A parking summary can be seen in Table 5.

*Table 5: Parking Summary*

Land Use	Parking Rate	Units	Required Parking	Parking Provided	Difference
Single Detached	2.0 / unit	88	176	176	0
Townhouse	1.0 / unit	122	122	122	0
Apartment	1.25 / unit	103	129	103	-26
Visitor	0.2 / unit	103	21	22	+1
Non-residential portion of mixed-use building	1 / 30 m <sup>2</sup>	222.5 m <sup>2</sup>	8	8	+1

While most of the parking is provided within each unit, or in the underground parking for the apartment units, the commercial space and visitor parking is provided via on-street surface parking. Eight parking stalls are provided on street immediately adjacent to the proposed mixed-use development. Along the opposite side of Street A/Marvin Ave, a total of 22 on-street parking stalls are provided. Parking has been provided for the apartment unit based on a rate of 1.0 parking stall per unit. This is a slight reduction, compared to the zoning by-law.

To justify a reduction, a proxy site has been reviewed to determine a suitable parking rate. 5220 Lakeshore Road, which is used for comparison, is a 12-storey residential tower with surface and underground parking. This building is located adjacent to low-rise suburban development, similar to the subject development. The site was surveyed on May 28, 2019. Through that survey a parking demand rate of 0.93 parking stalls per unit plus 0.09 visitor parking stalls per unit, for a combined parking rate of 1.01 parking stalls per unit. The survey results and calculation table are included in Attachment 5. Based on the proxy site survey, the proposed parking rate of 1.0 parking stalls plus 0.2 visitor stalls per unit will adequately serve the proposed site. The proposed parking plan, prepared by Korsiak, is included in Attachment 6.

## 4 Site Specific Transportation Review

This memo has been prepared to address some site-specific considerations for Argo’s West Morrison Creek including Transit Facilities Plan, Road Cross-Sections, Pedestrian Circulation Plan, Cycling Facilities Plan, and Parking Provisions.

### 4.1 Transit Facilities Plan

A Transit Facilities Plan was created as part of the Neighbourhood 9/10/11 TIS. The Transit Facilities Plan has been recreated, focusing on the West Morrison Creek Development. This plan is included in Drawing 001, Attachment 7. Per the Transit Facilities Plan, all of the residential units are within 400 metres of at least one proposed transit station.

### 4.2 Road Cross-sections

The proposed right-of-ways and cross-sections are illustrated on Drawing 002, Attachment 7. These cross-sections are proposed to be consistent with the North Oakville Urban Design and Open Space Guidelines except for the 11.0 metre cross-sections as they are not included in the guideline. The cross-sections used in this plan from these guidelines have been included in Attachment 8. A proposed 11.0 metre cross-section for the laneway between townhouses is included in Attachment 9.

### 4.3 Pedestrian Concept Plan

A pedestrian circulation plan has been created to illustrate the sidewalk locations. Sidewalk provisions are generally per the road cross-section. Drawing 003, Attachment 7, illustrates the sidewalk locations and key pedestrian crossing locations. Additionally, a Pedestrian Circulation Plan has been prepared by Korsiak Planning and is included in Attachment 10.

### 4.4 Cycling Facilities Plan

A Cycling Facilities Plan was created as part of the Neighbourhood 9/10/11 TIS. The Cycling Facilities Plan has been recreated, focusing on the West Morrison Creek Development. This plan is included in Drawing 004, Attachment 7. Per the Cycling Facilities Plan, a signed route is provided along Marvin Avenue and a bicycle lane is provided along Sixth Line.

## 5 Conclusions

The proposed development concept has been refined since the original TIS was prepared. This addendum has verified that the changes to the unit counts and land uses will have no impact on the operational analysis and that the Neighbourhood 9/10/11 TIS remains valid.

This addendum has also addressed the site-specific issues including, parking, multi-modal transportation facilities, and roadway cross-sections. Through the plans prepared as part of this work it has been shown that the proposed development will have adequate cycling, pedestrian, and transit facilities and that the proposed right of ways are sufficient to support the appropriate cross-sections.

If you have any questions or comments, please do not hesitate to contact the undersigned.

Prepared By:

Reviewed By:



Mark Crockford, P. Eng.

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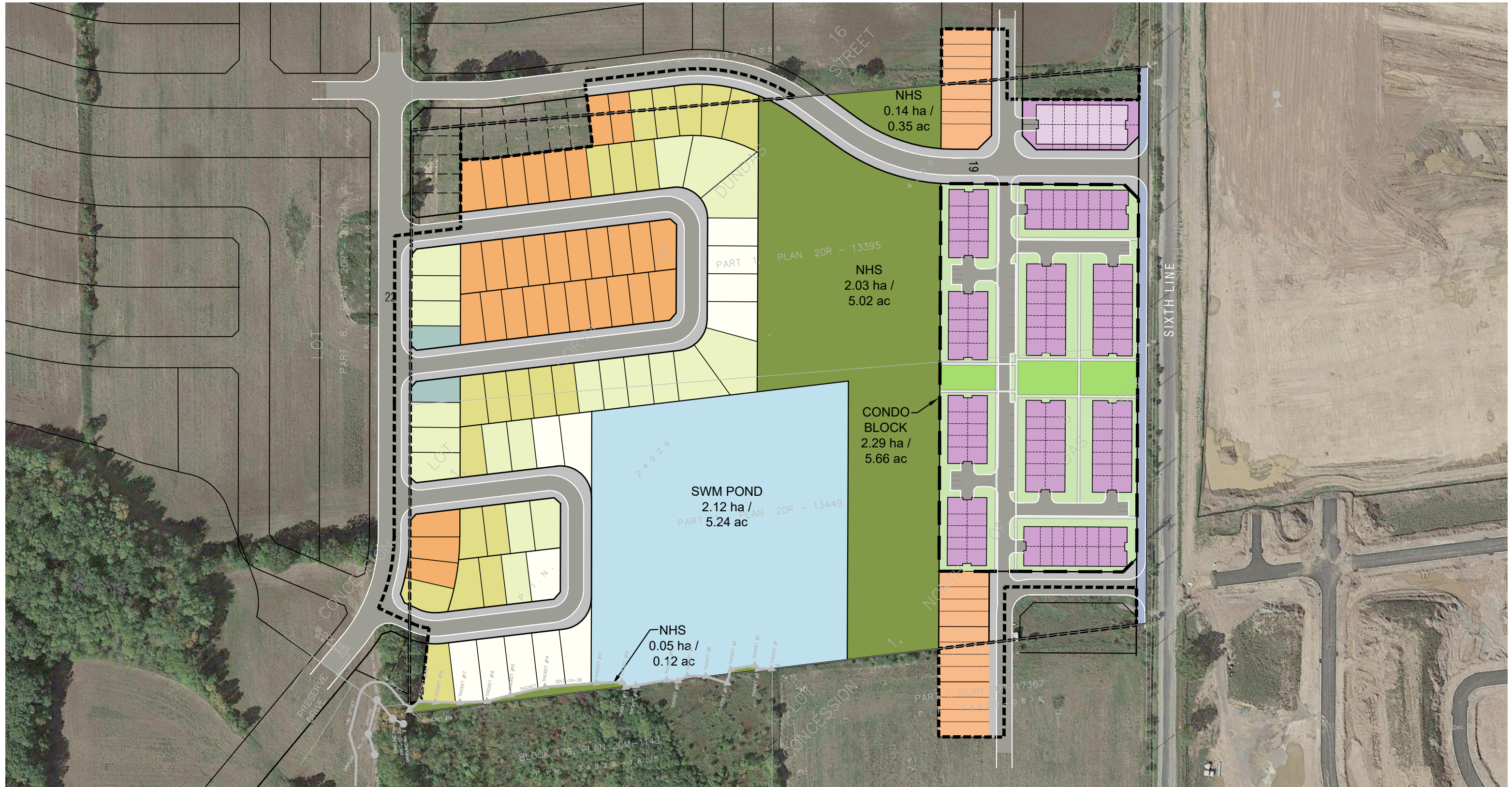
Christopher Gordon, P. Eng.

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[Christopher.Gordon@CGHTransportation.com](mailto:Christopher.Gordon@CGHTransportation.com)

# Attachment 1

Original Concept Plan



**DRAFT**

- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.
- Aerial Photo: Google Earth, Approx. Spring 2015

GERRARD DESIGN ASSOCIATES INC

Argo West Morrison | Oakville, Ontario  
**PRELIMINARY LANDUSE CONCEPT**



DEC 4, 2017  
 PROJECT 1631  
 SCALE 1:2000

**SK-36**

# Attachment 2

Updated Draft Plan



**DRAFT PLAN OF SUBDIVISION  
24T-  
Argo (West Morrison Creek) Limited**

PART OF LOT 16  
CONCESSION 1, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR  
NOW IN THE  
TOWN OF OAKVILLE  
REGIONAL MUNICIPALITY OF HALTON

**OWNER'S AUTHORIZATION**  
I HEREBY AUTHORIZE KORSIAK URBAN PLANNING TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

SIGNED  DATE December 19, 2019  
Fabio J. Mazzocco  
Argo (West Morrison Creek) Limited  
4900 Palladium Way, Suite 105  
Burlington, Ontario L7M 0W7

**SURVEYOR'S CERTIFICATE**  
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED  DATE November 25, 2019  
Ron Querubin, OLS, OLIP



**ADDITIONAL INFORMATION** (UNDER SECTION 51 (17) OF THE PLANNING ACT)

A) SHOWN ON PLAN	G) SHOWN ON PLAN
B) SHOWN ON PLAN	H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
C) SHOWN ON PLAN	I) CLAY LOAM
D) SHOWN ON PLAN	J) SHOWN ON PLAN
E) SHOWN ON PLAN	K) SANITARY AND STORM SEWERS TO BE PROVIDED
F) SHOWN ON PLAN	L) SHOWN ON PLAN

**LAND USE SCHEDULE**

Land Use	Lots/Blocks	Lot/ Block Total	Area (ha)	Units
□ Single Detached (12.2m)	1, 2, 4-12, 25, 26, 28-31, 33-41, 43-47, 49-51, 53-56, 58-63, 72-76	49	1.45	49
◇ Single Detached (10.4m)	3, 24, 27, 48, 77, 78	6	0.17	6
△ Single Detached (13.4m)	13-16, 32, 42, 52, 57, 64, 69-71, 79-88	22	0.92	22
○ Single Detached (15.24m)	17-23, 65-68	11	0.40	11
Rear Lane Townhouses (4.6m)	89-96	8	0.70	40
Street Townhouses (6.1m)	97-103	7	0.78	42
Back-to-Back Townhouses (6.4m)	104-106	3	0.39	40
Mixed Use	107	1	0.26	TBD
Natural Heritage System (NHS)	108-112	5	2.28	
SWM Pond	113	1	2.13	
Residential Reserve	114-118	5	0.51	
Walkway (3m)	119	1	0.01	
0.3m Reserve	120-122	3	0.00	
Road Widening	123	1	0.17	
11m ROW (215m)			0.24	
17m ROW (1,048m)			1.76	
19m ROW (116m)			0.24	
22m ROW (64m)			0.16	
<b>Total</b>	<b>123</b>	<b>123</b>	<b>12.57</b>	<b>210</b>

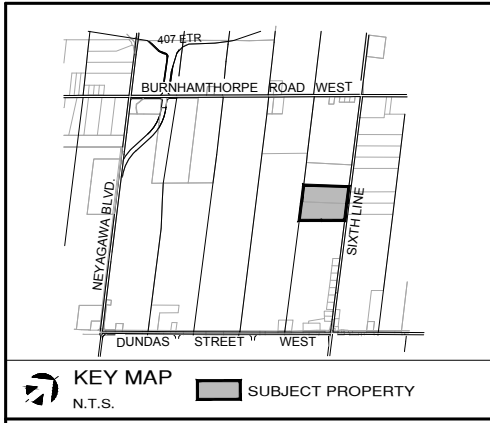
**NOTES:**  
- Pavement illustration is diagrammatic  
- Connector to Connector or Avenue daylight triangle = 7.5m  
- Local to Local or Collector daylight triangle = 3.5m



SCALE 1:2500 March 16, 2020  
DRAWN BY: SE CHECKED BY: KC



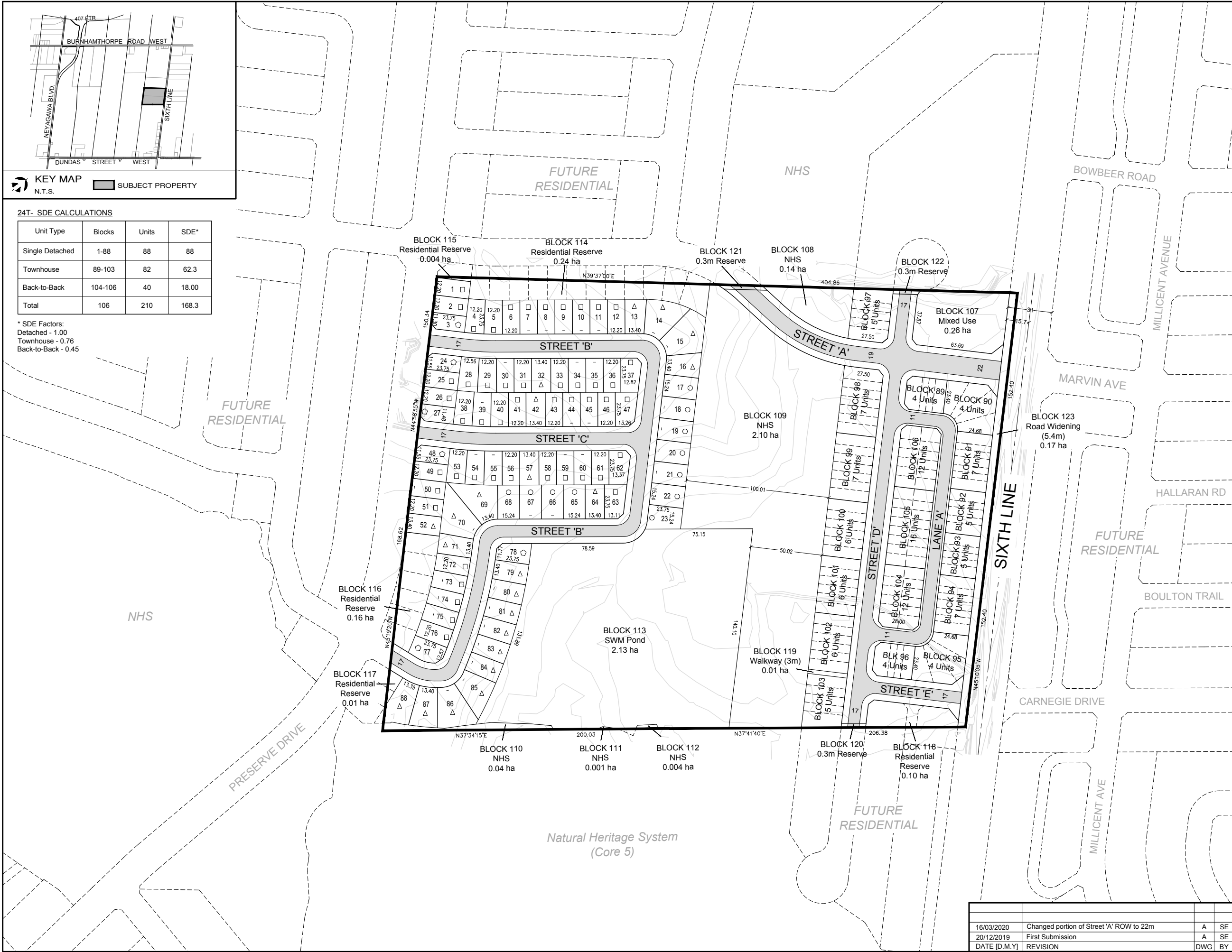
DATE [D.M.Y]	REVISION	DWG	BY
16/03/2020	Changed portion of Street 'A' ROW to 22m	A	SE
20/12/2019	First Submission	A	SE



**24T- SDE CALCULATIONS**

Unit Type	Blocks	Units	SDE*
Single Detached	1-88	88	88
Townhouse	89-103	82	62.3
Back-to-Back	104-106	40	18.00
<b>Total</b>	<b>106</b>	<b>210</b>	<b>168.3</b>

\* SDE Factors:  
Detached - 1.00  
Townhouse - 0.76  
Back-to-Back - 0.45



# Attachment 3

TIS Analysis Synchro Worksheets

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation  
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
Future Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.853			0.864			0.993			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1770	1609	0	1770	3514	0	1770	3525	0
Flt Permitted	0.722			0.555			0.231			0.225		
Satd. Flow (perm)	1345	1589	0	1034	1609	0	430	3514	0	419	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			49			8			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			102.5			226.5			436.9	
Travel Time (s)		8.8			7.4			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	5	216	142	5	49	70	1026	48	17	1030	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	221	0	142	54	0	70	1074	0	17	1058	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	10.0		2.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation  
Neighbourhood 10

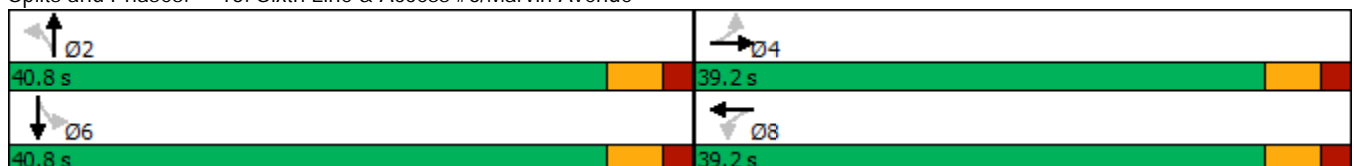


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.2	13.2		13.2	13.2		36.6	36.6		36.6	36.6	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.61	0.61	
v/c Ratio	0.31	0.57		0.63	0.14		0.27	0.50		0.07	0.49	
Control Delay	21.7	21.9		33.7	7.7		10.3	8.2		7.1	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.7	21.9		33.7	7.7		10.3	8.2		7.1	8.2	
LOS	C	C		C	A		B	A		A	A	
Approach Delay		21.8			26.5			8.4			8.2	
Approach LOS		C			C			A			A	

Intersection Summary






















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	60.3
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	11.1
Intersection LOS:	B
Intersection Capacity Utilization:	82.4%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



HCM 2010 Signalized Intersection Summary  
 15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation  
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	5	199	131	5	45	64	944	44	16	948	26
Future Volume (veh/h)	83	5	199	131	5	45	64	944	44	16	948	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	90	5	216	142	5	49	70	1026	48	17	1030	28
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	10	435	302	42	408	311	1919	90	306	1962	53
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1345	36	1553	1155	149	1457	531	3443	161	523	3520	96
Grp Volume(v), veh/h	90	0	221	142	0	54	70	527	547	17	518	540
Grp Sat Flow(s),veh/h/ln	1345	0	1589	1155	0	1606	531	1770	1834	523	1770	1846
Q Serve(g_s), s	3.4	0.0	7.4	7.5	0.0	1.6	6.1	12.0	12.0	1.4	11.7	11.7
Cycle Q Clear(g_c), s	5.0	0.0	7.4	14.9	0.0	1.6	17.8	12.0	12.0	13.4	11.7	11.7
Prop In Lane	1.00		0.98	1.00		0.91	1.00		0.09	1.00		0.05
Lane Grp Cap(c), veh/h	455	0	445	302	0	449	311	986	1022	306	986	1029
V/C Ratio(X)	0.20	0.00	0.50	0.47	0.00	0.12	0.22	0.53	0.53	0.06	0.53	0.53
Avail Cap(c_a), veh/h	795	0	846	593	0	855	311	986	1022	306	986	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	19.2	25.5	0.0	17.1	14.4	8.9	8.9	13.1	8.8	8.8
Incr Delay (d2), s/veh	0.2	0.0	0.9	1.1	0.0	0.1	1.7	2.1	2.0	0.3	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.4	2.5	0.0	0.7	1.0	6.3	6.5	0.2	6.2	6.4
LnGrp Delay(d),s/veh	19.2	0.0	20.1	26.6	0.0	17.3	16.1	11.0	10.9	13.5	10.8	10.8
LnGrp LOS	B		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		311			196			1144			1075	
Approach Delay, s/veh		19.8			24.0			11.3			10.8	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		23.1		40.8		23.1				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		19.8		9.4		15.4		16.9				
Green Ext Time (p_c), s		8.2		2.1		8.7		1.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									
<b>Notes</b>												

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation  
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.855			0.870			0.983			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Flt Permitted	0.733			0.663			0.205			0.152		
Satd. Flow (perm)	1365	1593	0	1235	1621	0	382	3479	0	283	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			32			21			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	142	95	5	32	239	1233	160	66	1087	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	147	0	95	37	0	239	1393	0	66	1186	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	10.0		2.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation  
Neighbourhood 10

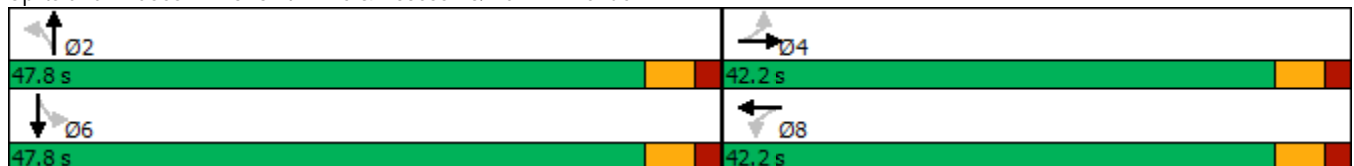


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	42.2	42.2		42.2	42.2		47.8	47.8		47.8	47.8	
Total Split (%)	46.9%	46.9%		46.9%	46.9%		53.1%	53.1%		53.1%	53.1%	
Maximum Green (s)	37.0	37.0		37.0	37.0		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	11.4	11.4		11.4	11.4		45.5	45.5		45.5	45.5	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.68	0.68		0.68	0.68	
v/c Ratio	0.26	0.47		0.46	0.12		0.93	0.59		0.35	0.50	
Control Delay	25.8	21.2		31.4	11.0		57.5	7.4		11.7	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	21.2		31.4	11.0		57.5	7.4		11.7	6.5	
LOS	C	C		C	B		E	A		B	A	
Approach Delay		22.5			25.7			14.7			6.7	
Approach LOS		C			C			B			A	

Intersection Summary





















Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	67.3
Natural Cycle:	130
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	12.6
Intersection LOS:	B
Intersection Capacity Utilization:	86.7%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



HCM 2010 Signalized Intersection Summary  
 15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation  
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (veh/h)	55	5	131	87	5	29	220	1134	147	61	1000	91
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	60	5	142	95	5	32	239	1233	160	66	1087	99
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	11	301	250	43	273	331	2039	263	271	2122	193
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1365	54	1537	1236	218	1398	470	3153	407	386	3281	299
Grp Volume(v), veh/h	60	0	147	95	0	37	239	690	703	66	586	600
Grp Sat Flow(s),veh/h/ln	1365	0	1591	1236	0	1616	470	1770	1791	386	1770	1810
Q Serve(g_s), s	2.5	0.0	5.4	4.9	0.0	1.2	31.1	14.9	15.1	7.9	11.5	11.5
Cycle Q Clear(g_c), s	3.7	0.0	5.4	10.3	0.0	1.2	42.6	14.9	15.1	23.0	11.5	11.5
Prop In Lane	1.00		0.97	1.00		0.86	1.00		0.23	1.00		0.16
Lane Grp Cap(c), veh/h	351	0	311	250	0	316	331	1144	1158	271	1144	1170
V/C Ratio(X)	0.17	0.00	0.47	0.38	0.00	0.12	0.72	0.60	0.61	0.24	0.51	0.51
Avail Cap(c_a), veh/h	850	0	894	702	0	908	331	1144	1158	271	1144	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	23.5	28.0	0.0	21.8	18.5	6.7	6.8	13.5	6.1	6.2
Incr Delay (d2), s/veh	0.2	0.0	1.1	1.0	0.0	0.2	12.8	2.4	2.4	2.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.5	1.7	0.0	0.6	5.4	7.8	8.0	1.0	6.1	6.2
LnGrp Delay(d),s/veh	23.6	0.0	24.6	29.0	0.0	22.0	31.3	9.1	9.1	15.6	7.8	7.8
LnGrp LOS	C		C	C		C	C	A	A	B	A	A
Approach Vol, veh/h		207			132			1632			1252	
Approach Delay, s/veh		24.3			27.0			12.4			8.2	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.8		18.1		47.8		18.1				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 43		* 37		* 43		* 37				
Max Q Clear Time (g_c+I1), s		44.6		7.4		25.0		12.3				
Green Ext Time (p_c), s		0.0		1.4		10.0		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.1								
HCM 2010 LOS				B								
<b>Notes</b>												



# Attachment 4





















Updated Analysis Synchro Worksheets

Intersection Capacity Utilization  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation Updated  
Neighbourhood 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	5	206	131	5	45	68	944	44	16	948	28
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right	No			No			No			No		
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	5.2	5.2	4.0	5.2	5.2	4.0	5.2	5.2	4.0	5.2	5.2	4.0
Minimum Green (s)	10.0	10.0	4.0	10.0	10.0	4.0	20.0	20.0	4.0	20.0	20.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	86	211	0	131	50	0	68	988	0	16	976	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.85	0.85	0.95	0.86	0.85	0.95	0.99	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1805	1622	0	1805	1644	0	1805	3593	0	1805	3602	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00			0.00			0.00		
Protected Option Allowed	Yes			Yes			Yes			Yes		
Reference Time (s)	5.7	15.6	0.0	8.7	3.7	0.0	4.5	33.0	0.0	1.1	32.5	0.0
Adj Reference Time (s)	15.2	20.8	0.0	15.2	15.2	0.0	25.2	38.2	0.0	25.2	37.7	0.0
Permitted Option												
Adj Saturation A (vph)	120	1622		120	1644		120	1797		120	1801	
Reference Time A (s)	85.8	15.6		130.6	3.7		67.8	33.0		16.0	32.5	
Adj Saturation B (vph)	0	1622		NA	NA		NA	NA		NA	NA	
Reference Time B (s)	13.7	15.6		NA	NA		NA	NA		NA	NA	
Reference Time (s)		15.6			130.6			67.8			32.5	
Adj Reference Time (s)		20.8			135.8			73.0			37.7	
Split Option												
Ref Time Combined (s)	5.7	15.6		8.7	3.7		4.5	33.0		1.1	32.5	
Ref Time Seperate (s)	5.7	0.4		8.7	0.4		4.5	31.5		1.1	31.6	
Reference Time (s)	15.6	15.6		8.7	8.7		33.0	33.0		32.5	32.5	
Adj Reference Time (s)	20.8	20.8		15.2	15.2		38.2	38.2		37.7	37.7	
Summary												
	EB WB		NB SB		Combined							
Protected Option (s)	36.0		63.4									
Permitted Option (s)	135.8		73.0									
Split Option (s)	36.0		75.9									
Minimum (s)	36.0		63.4		99.4							
Right Turns												
Adj Reference Time (s)												
Cross Thru Ref Time (s)												
Oncoming Left Ref Time (s)												
Combined (s)												
Intersection Summary												
Intersection Capacity Utilization	82.8%		ICU Level of Service						E			
Reference Times and Phasing Options do not represent an optimized timing plan.												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	5	206	131	5	45	68	944	44	16	948	28
Future Volume (veh/h)	86	5	206	131	5	45	68	944	44	16	948	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	93	5	224	142	5	49	74	1026	48	17	1030	30
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	461	10	442	300	42	415	307	1906	89	303	1945	57
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	1345	35	1554	1147	149	1457	530	3443	161	523	3512	102
Grp Volume(v), veh/h	93	0	229	142	0	54	74	527	547	17	519	541
Grp Sat Flow(s),veh/h/ln	1345	0	1589	1147	0	1606	530	1770	1834	523	1770	1845
Q Serve(g_s), s	3.5	0.0	7.7	7.6	0.0	1.6	6.6	12.2	12.2	1.4	11.9	11.9
Cycle Q Clear(g_c), s	5.1	0.0	7.7	15.3	0.0	1.6	18.5	12.2	12.2	13.6	11.9	11.9
Prop In Lane	1.00		0.98	1.00		0.91	1.00		0.09	1.00		0.06
Lane Grp Cap(c), veh/h	461	0	452	300	0	457	307	980	1016	303	980	1021
V/C Ratio(X)	0.20	0.00	0.51	0.47	0.00	0.12	0.24	0.54	0.54	0.06	0.53	0.53
Avail Cap(c_a), veh/h	790	0	840	580	0	849	307	980	1016	303	980	1021
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	0.0	19.2	25.6	0.0	17.0	14.9	9.1	9.1	13.4	9.1	9.1
Incr Delay (d2), s/veh	0.2	0.0	0.9	1.2	0.0	0.1	1.8	2.1	2.0	0.4	2.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.5	2.5	0.0	0.7	1.1	6.4	6.7	0.2	6.3	6.6
LnGrp Delay(d),s/veh	19.1	0.0	20.1	26.8	0.0	17.1	16.7	11.2	11.2	13.8	11.1	11.0
LnGrp LOS	B		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		322			196			1148			1077	
Approach Delay, s/veh		19.8			24.1			11.6			11.1	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		23.5		40.8		23.5				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+l1), s		20.5		9.7		15.6		17.3				
Green Ext Time (p_c), s		8.0		2.2		8.6		0.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			13.3									
HCM 2010 LOS			B									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings  
 21: Preserve Drive & Access #6 / Marvin Avenue

2024 Future Total AM  
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	86	5	28	29	2	5	3	84	7	11	9
Future Volume (vph)	26	86	5	28	29	2	5	3	84	7	11	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.996			0.876			0.955	
Flt Protected		0.989			0.977			0.997			0.987	
Satd. Flow (prot)	0	1833	0	0	1813	0	0	1627	0	0	1756	0
Flt Permitted		0.989			0.977			0.997			0.987	
Satd. Flow (perm)	0	1833	0	0	1813	0	0	1627	0	0	1756	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		58.8			148.3			256.7			383.9	
Travel Time (s)		4.2			10.7			18.5			27.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	93	5	30	32	2	5	3	91	8	12	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	64	0	0	99	0	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	86	5	28	29	2	5	3	84	7	11	9
Future Vol, veh/h	26	86	5	28	29	2	5	3	84	7	11	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	93	5	30	32	2	5	3	91	8	12	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	7.8	7.3	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	22%	47%	26%
Vol Thru, %	3%	74%	49%	41%
Vol Right, %	91%	4%	3%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	117	59	27
LT Vol	5	26	28	7
Through Vol	3	86	29	11
RT Vol	84	5	2	9
Lane Flow Rate	100	127	64	29
Geometry Grp	1	1	1	1
Degree of Util (X)	0.107	0.149	0.077	0.035
Departure Headway (Hd)	3.862	4.227	4.333	4.318
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	933	839	816	833
Service Time	1.863	2.298	2.419	2.321
HCM Lane V/C Ratio	0.107	0.151	0.078	0.035
HCM Control Delay	7.3	8	7.8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.2	0.1

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation Updated  
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	5	140	87	5	29	232	1134	147	61	1000	96
Future Volume (vph)	58	5	140	87	5	29	232	1134	147	61	1000	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.855			0.870			0.983			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Flt Permitted	0.733			0.649			0.203			0.152		
Satd. Flow (perm)	1365	1593	0	1209	1621	0	378	3479	0	283	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			32			21			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	5	152	95	5	32	252	1233	160	66	1087	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	157	0	95	37	0	252	1393	0	66	1191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	1		1	1	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	10.0		2.0	10.0	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4							
Detector 2 Size(m)		0.6			0.6							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	

Lanes, Volumes, Timings  
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation Updated  
Neighbourhood 10

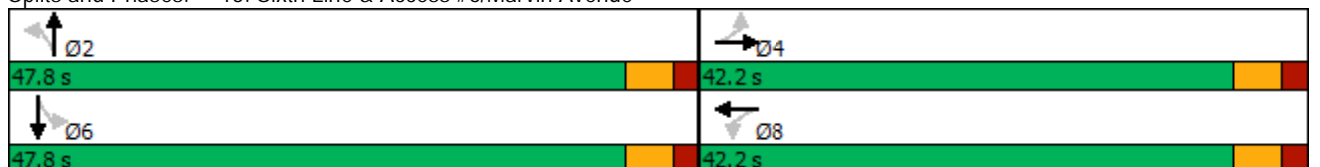






















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	42.2	42.2		42.2	42.2		47.8	47.8		47.8	47.8	
Total Split (%)	46.9%	46.9%		46.9%	46.9%		53.1%	53.1%		53.1%	53.1%	
Maximum Green (s)	37.0	37.0		37.0	37.0		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	11.4	11.4		11.4	11.4		45.4	45.4		45.4	45.4	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.67	0.67		0.67	0.67	
v/c Ratio	0.27	0.51		0.47	0.12		0.99	0.59		0.35	0.50	
Control Delay	26.1	22.3		31.8	11.0		72.1	7.4		11.7	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.1	22.3		31.8	11.0		72.1	7.4		11.7	6.5	
LOS	C	C		C	B		E	A		B	A	
Approach Delay		23.4			26.0			17.3			6.8	
Approach LOS		C			C			B			A	
Queue Length 50th (m)	6.9	12.0		10.8	0.5		24.5	38.5		2.8	30.2	
Queue Length 95th (m)	16.6	27.8		23.7	7.3		#48.1	69.2		13.1	54.0	
Internal Link Dist (m)		97.7			84.4			202.5			412.9	
Turn Bay Length (m)							30.0			30.0		
Base Capacity (vph)	755	903		668	910		255	2356		191	2363	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.17		0.14	0.04		0.99	0.59		0.35	0.50	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	67.3
Natural Cycle:	140
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	14.0
Intersection LOS:	B
Intersection Capacity Utilization:	87.3%
ICU Level of Service:	E
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	5	140	87	5	29	232	1134	147	61	1000	96
Future Volume (veh/h)	58	5	140	87	5	29	232	1134	147	61	1000	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	63	5	152	95	5	32	252	1233	160	66	1087	104
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	358	10	310	248	44	282	325	2023	262	267	2095	200
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1365	51	1540	1225	218	1398	468	3153	407	386	3265	312
Grp Volume(v), veh/h	63	0	157	95	0	37	252	690	703	66	589	602
Grp Sat Flow(s),veh/h/ln	1365	0	1591	1225	0	1616	468	1770	1791	386	1770	1808
Q Serve(g_s), s	2.6	0.0	5.8	4.9	0.0	1.2	30.7	15.2	15.4	8.1	11.9	11.9
Cycle Q Clear(g_c), s	3.9	0.0	5.8	10.7	0.0	1.2	42.6	15.2	15.4	23.4	11.9	11.9
Prop In Lane	1.00		0.97	1.00		0.86	1.00		0.23	1.00		0.17
Lane Grp Cap(c), veh/h	358	0	321	248	0	326	325	1136	1149	267	1136	1160
V/C Ratio(X)	0.18	0.00	0.49	0.38	0.00	0.11	0.77	0.61	0.61	0.25	0.52	0.52
Avail Cap(c_a), veh/h	844	0	887	684	0	901	325	1136	1149	267	1136	1160
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	23.5	28.2	0.0	21.7	20.0	7.0	7.0	13.9	6.4	6.4
Incr Delay (d2), s/veh	0.2	0.0	1.2	1.0	0.0	0.2	16.4	2.4	2.4	2.2	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.6	1.7	0.0	0.6	6.0	8.0	8.2	1.0	6.3	6.4
LnGrp Delay(d),s/veh	23.5	0.0	24.6	29.2	0.0	21.8	36.4	9.4	9.4	16.1	8.1	8.0
LnGrp LOS	C		C	C		C	D	A	A	B	A	A
Approach Vol, veh/h		220			132			1645			1257	
Approach Delay, s/veh		24.3			27.1			13.6			8.5	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.8		18.6		47.8		18.6				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 43		* 37		* 43		* 37				
Max Q Clear Time (g_c+l1), s		44.6		7.8		25.4		12.7				
Green Ext Time (p_c), s		0.0		1.5		9.8		0.7				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				12.9								
HCM 2010 LOS				B								
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												



Lanes, Volumes, Timings  
 21: Preserve Drive & Access #6 / Marvin Avenue

2024 Future Total PM  
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	57	5	95	97	8	5	11	57	5	7	29
Future Volume (vph)	17	57	5	95	97	8	5	11	57	5	7	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.992			0.994			0.894			0.904	
Fl <sub>t</sub> Protected		0.990			0.977			0.997			0.994	
Satd. Flow (prot)	0	1829	0	0	1809	0	0	1660	0	0	1674	0
Fl <sub>t</sub> Permitted		0.990			0.977			0.997			0.994	
Satd. Flow (perm)	0	1829	0	0	1809	0	0	1660	0	0	1674	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		58.8			148.3			256.7			383.9	
Travel Time (s)		4.2			10.7			18.5			27.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	62	5	103	105	9	5	12	62	5	8	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	217	0	0	79	0	0	45	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.3%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	57	5	95	97	8	5	11	57	5	7	29
Future Vol, veh/h	17	57	5	95	97	8	5	11	57	5	7	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	62	5	103	105	9	5	12	62	5	8	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.9	7.7	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	22%	47%	12%
Vol Thru, %	15%	72%	48%	17%
Vol Right, %	78%	6%	4%	71%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	79	200	41
LT Vol	5	17	95	5
Through Vol	11	57	97	7
RT Vol	57	5	8	29
Lane Flow Rate	79	86	217	45
Geometry Grp	1	1	1	1
Degree of Util (X)	0.093	0.106	0.259	0.053
Departure Headway (Hd)	4.219	4.443	4.288	4.313
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	853	810	824	834
Service Time	2.227	2.455	2.384	2.322
HCM Lane V/C Ratio	0.093	0.106	0.263	0.054
HCM Control Delay	7.7	8	8.9	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	1	0.2

# Attachment 5

Proxy Parking Survey Results

## ONTARIO TRAFFIC INC - PARKING SURVEY

**Location:** 5220 Lakeshore Rd, Burlington (The Lakeshore Club - VLC Group)

**Date:** Tuesday, May 28, 2019

Time			Surface				Underground	
			Visitor		Tenant			
			12		72		94	
			Parked	Available	Parked	Available	Parked	Available
08:00	to	08:30	3	9	43	29	74	20
08:30	to	09:00	4	8	37	35	69	25
09:00	to	09:30	5	7	34	38	61	33
09:30	to	10:00	5	7	32	40	60	34
10:00	to	10:30	6	6	33	39	56	38
10:30	to	11:00	5	7	33	39	54	40
11:00	to	11:30	6	6	34	38	51	43
11:30	to	12:00	5	7	34	38	53	41
12:00	to	12:30	8	4	31	41	54	40
12:30	to	13:00	9	3	30	42	52	42
13:00	to	13:30	8	4	27	45	49	45
13:30	to	14:00	9	3	28	44	50	44
14:00	to	14:30	10	2	29	43	51	43
14:30	to	15:00	9	3	31	41	53	41
15:00	to	15:30	11	1	33	39	51	43
15:30	to	16:00	6	6	28	44	52	42
16:00	to	16:30	7	5	30	42	61	33
16:30	to	17:00	6	6	34	38	61	33
17:00	to	17:30	5	7	37	35	60	34
17:30	to	18:00	5	7	35	37	59	35

*Table 1: Calculated Parking Demand Rates*

Parking Type	Demand Rate
Tenant (Surface +Underground)	$(43+74)/126$ units = 0.93 spaces per unit
Visitor	$11/126$ units = 0.09 spaces per unit

# Attachment 6

Korsiak Planning – Parking Concept Plan

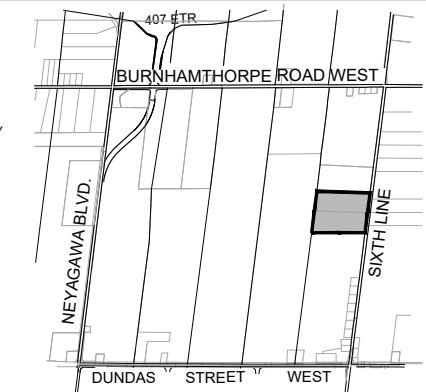
E:\West Morrison\Parking Plan\Apr 20\Argo West Morrison - Parking Plan - Apr 6 20 - se.dwg

# PRELIMINARY ON-STREET PARKING ANALYSIS

Argo (West Morrison Creek) Limited  
 PART OF LOT 16  
 CONCESSION 1, NORTH OF DUNDAS STREET

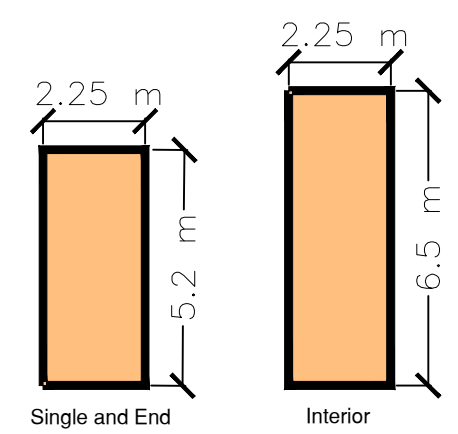
GEOGRAPHIC TOWNSHIP OF TRAFALGAR  
 NOW IN THE  
 TOWN OF OAKVILLE  
 REGIONAL MUNICIPALITY OF HALTON

KEY MAP  
 N.T.S.  
 SUBJECT PROPERTY



- ± 87 On-street parking spaces
- ± 210 Residential units
- ± 0.41 Visitor parking space/ unit
- ± 53 Sixth Line on street parking spaces

TYPICAL ON-STREET PARKING SPACE\*



\* Subject to adjustment during detailed engineering design  
 \*\* Per North Oakville Parking Strategy



SCALE 1:2000  
 April 6, 2020



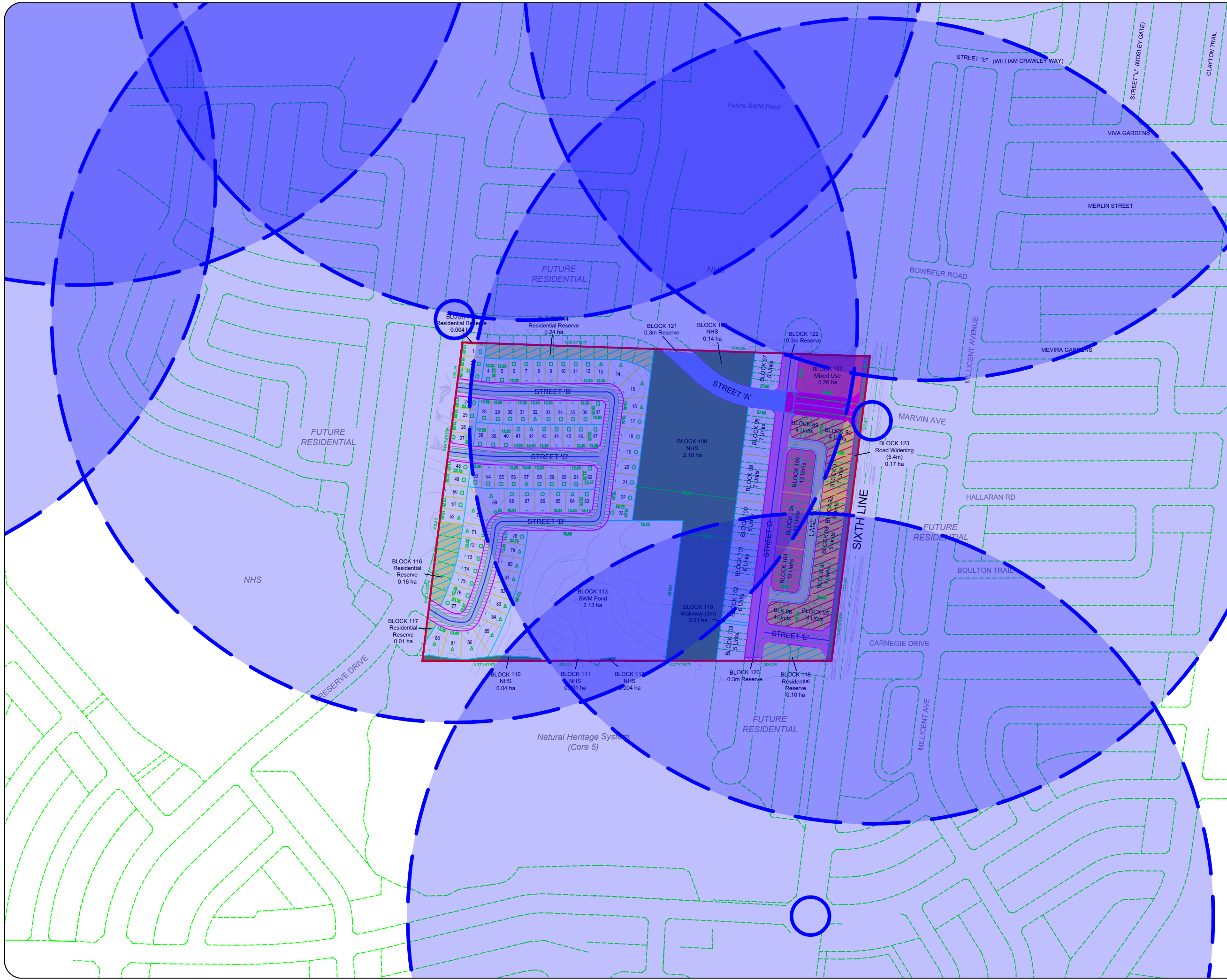
# Attachment 7

Transit Facilities Plan


Road Cross-Section Plan

Pedestrian Concept Plan

Cycling Facilities Plan



Notes:

**LEGEND:**  
 400m Transit Walking Distance

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:		status	



**CGH Transportation**  
 628 Haines Road  
 Newmarket, ON  
 L3Y 6V5  
 (905) 251-4070

**CLIENT:** Argo Development Corporation  
 West Morrison Creek

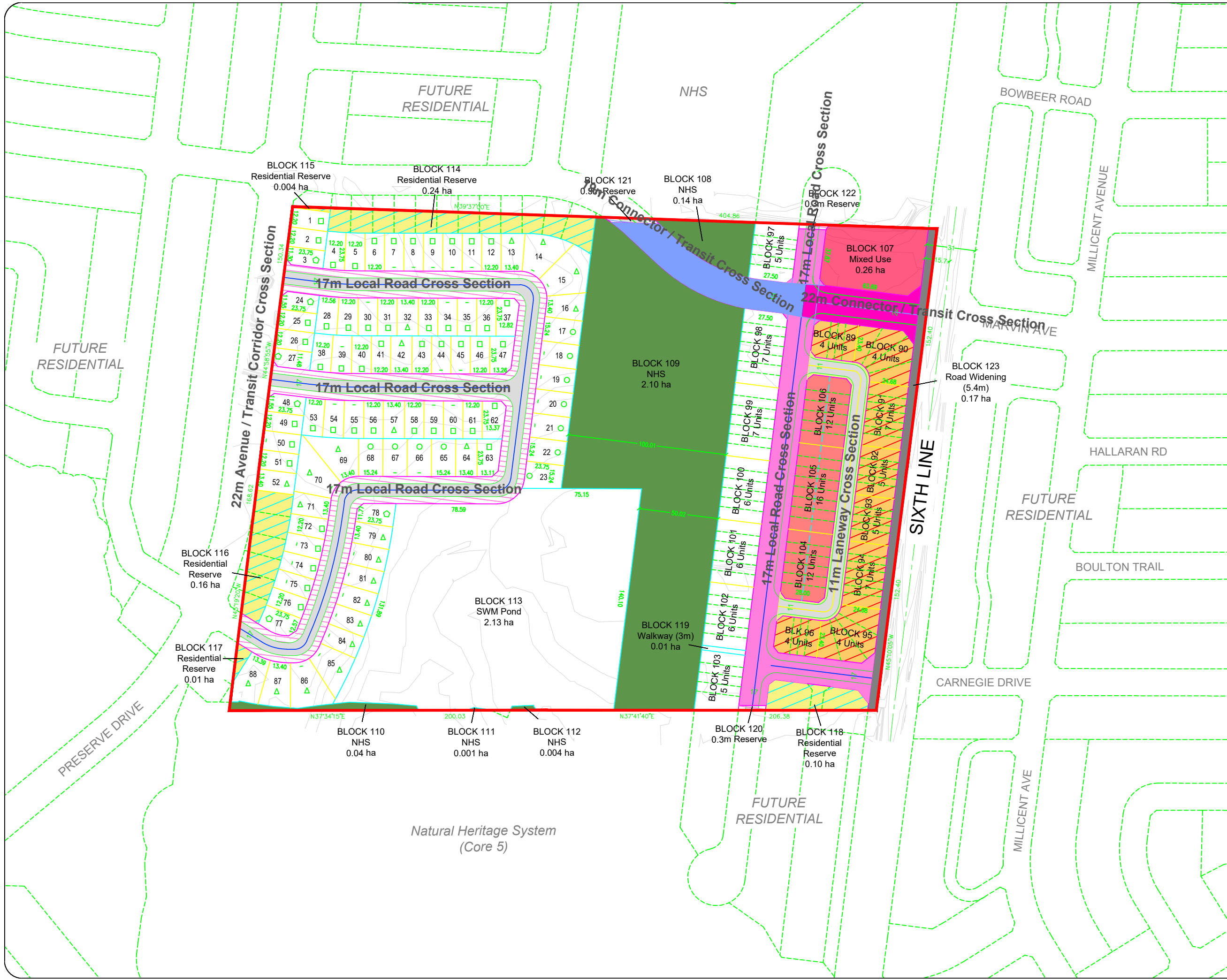
**ARCHITECT:**

**SITE:** Neighbourhood 9/10

**TITLE:** Transit Facilities  
 Concept Plan

<b>SCALE AT A3:</b> NTS	<b>DATE:</b> 2020-05-13	<b>DRAWN:</b> MC	<b>CHECKED:</b>
<b>PROJECT NO:</b> 2019-78	<b>DRAWING NO:</b> 001	<b>REVISION:</b>	





Notes:

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	status		

**CGH Transportation**  
 628 Haines Road  
 Newmarket, ON  
 L3Y 6V5  
 (905) 251-4070

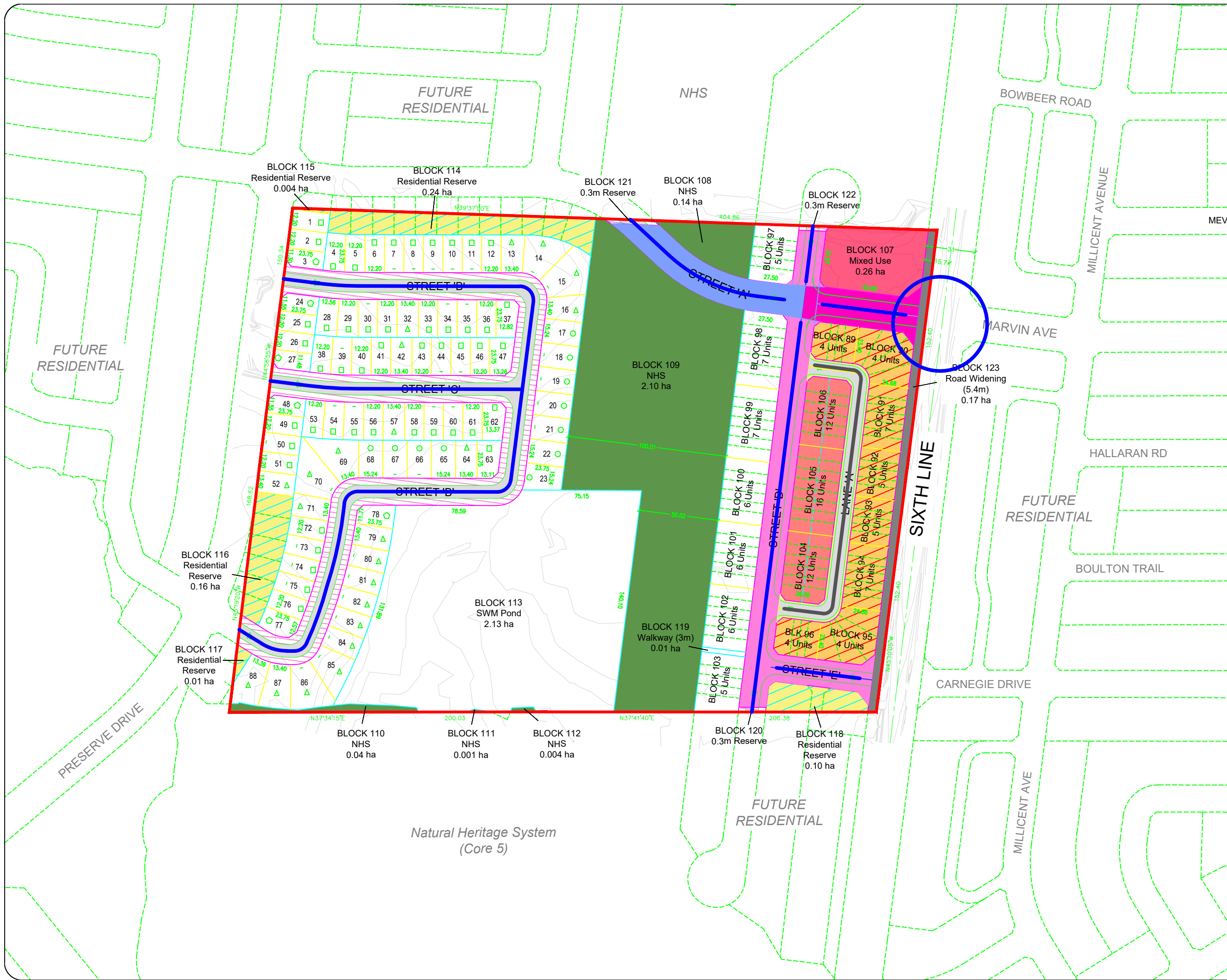
CLIENT: Argo Development Corporation  
 Argo West Morrison Creek

ARCHITECT:

SITE: Neighbourhood 9/10

TITLE: Road Cross-Section Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2020-05-13	MC	
PROJECT NO:	DRAWING NO:	REVISION:	
2019-78	002		



Notes:

**LEGEND:**

- Single Side Sidewalk
- Both Side Sidewalk
- Pedestrian Crossing

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	status		

**CGH Transportation**  
 628 Haines Road  
 Newmarket, ON  
 L3Y 6V5  
 (905) 251-4070

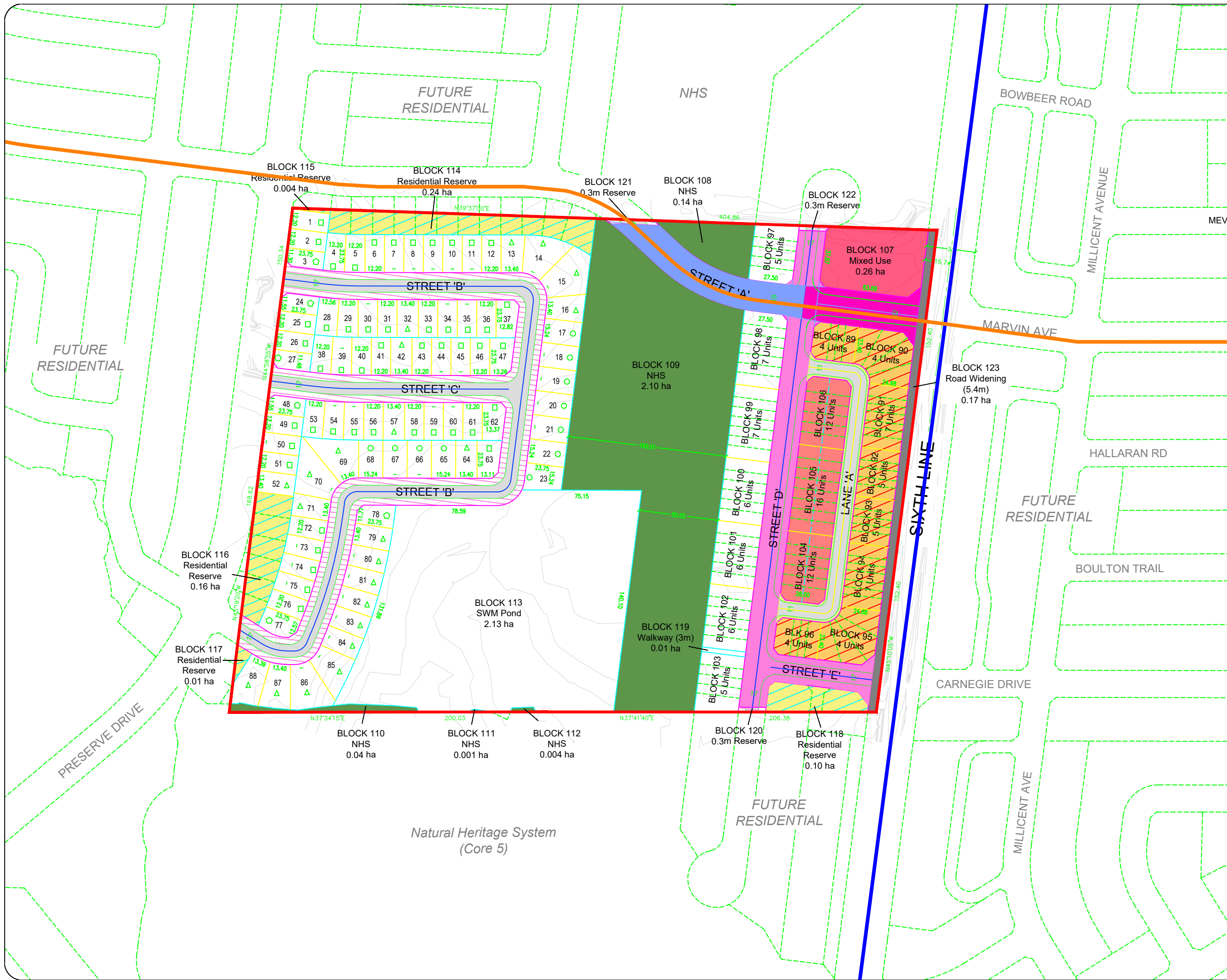
CLIENT: Argo Development Corporation  
 Argo West Morrison Creek

ARCHITECT:

SITE: Neighbourhood 9/10

TITLE: Cycling Facilities  
 Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2020-05-13	MC	
PROJECT NO:	DRAWING NO:	REVISION:	
2019-78	003		



Notes:

**LEGEND:**  
 — Signed Route  
 — Bicycle Lane

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:		status	



**CGH Transportation**  
 628 Haines Road  
 Newmarket, ON  
 L3Y 6V5  
 (905) 251-4070

**CLIENT:** Argo Development Corporation  
 Argo West Morrison Creek

**ARCHITECT:**

**SITE:** Neighbourhood 9/10

**TITLE:** Cycling Facilities  
 Concept Plan

<b>SCALE AT A3:</b> NTS	<b>DATE:</b> 2020-05-13	<b>DRAWN:</b> MC	<b>CHECKED:</b>
<b>PROJECT NO:</b> 2019-78	<b>DRAWING NO:</b> 004	<b>REVISION:</b>	

# Attachment 8

Proposed Cross-Sections – North Oakville Urban Design and Open Space Guidelines

### 5.2.2. Avenue/Transit Corridor

Between the Arterial/Transit Corridors, the Avenue/Transit Corridors provide a finer grid of connection within and between neighbourhoods. These connections provide alternative routes for access to Neighbourhood Centres and serve to disperse traffic on a smaller street section.

Avenue/Transit Corridors serve mainly intermediate volumes of intra-neighbourhood/district travel, accommodate local transit, connect Urban Centres Areas and serve as a major internal connector for Urban Core Areas.

The treatment of the boulevard will reflect adjacent land use and whether on-street parking is provided.

Specific technical details of the cross-section (i.e. plant material, soil type, engineering standards) will be determined through the appropriate design review process.

#### Transit Supportive Uses

Transit supportive land uses are to be encouraged along the right-of-way, such as:

- Walk-up apartments;
- Townhouses; and,
- Small-lot detached homes.



Figure 5.4: Typical Avenue/Transit Corridor section through the General Urban and Sub Urban Design. Street tree height at maturity will vary according to species and the availability of optimum growing conditions (i.e. adequate water, sunlight, soil volume), the protection from compacted soils, salt spray, mechanical damage, pests, and maintenance programs. Please refer to tree habitat design guidelines found in Table 9 of Oakville's Urban Forest: Our Solution to Our Pollution (2006).

### 5.2.3. Connector/Transit Corridor

Connector/Transit Corridors should be designed to serve relatively low volumes of intra-neighbourhood travel, accommodate local transit service and distribute traffic to and from Major and Minor Arterial/Transit Corridors and Avenue/Transit Corridors.

The treatment of the boulevard will reflect adjacent land use and whether on-street parking is provided.

Specific technical details of the cross-section (i.e. plant material, soil type, engineering standards) will be determined through the appropriate design review process.

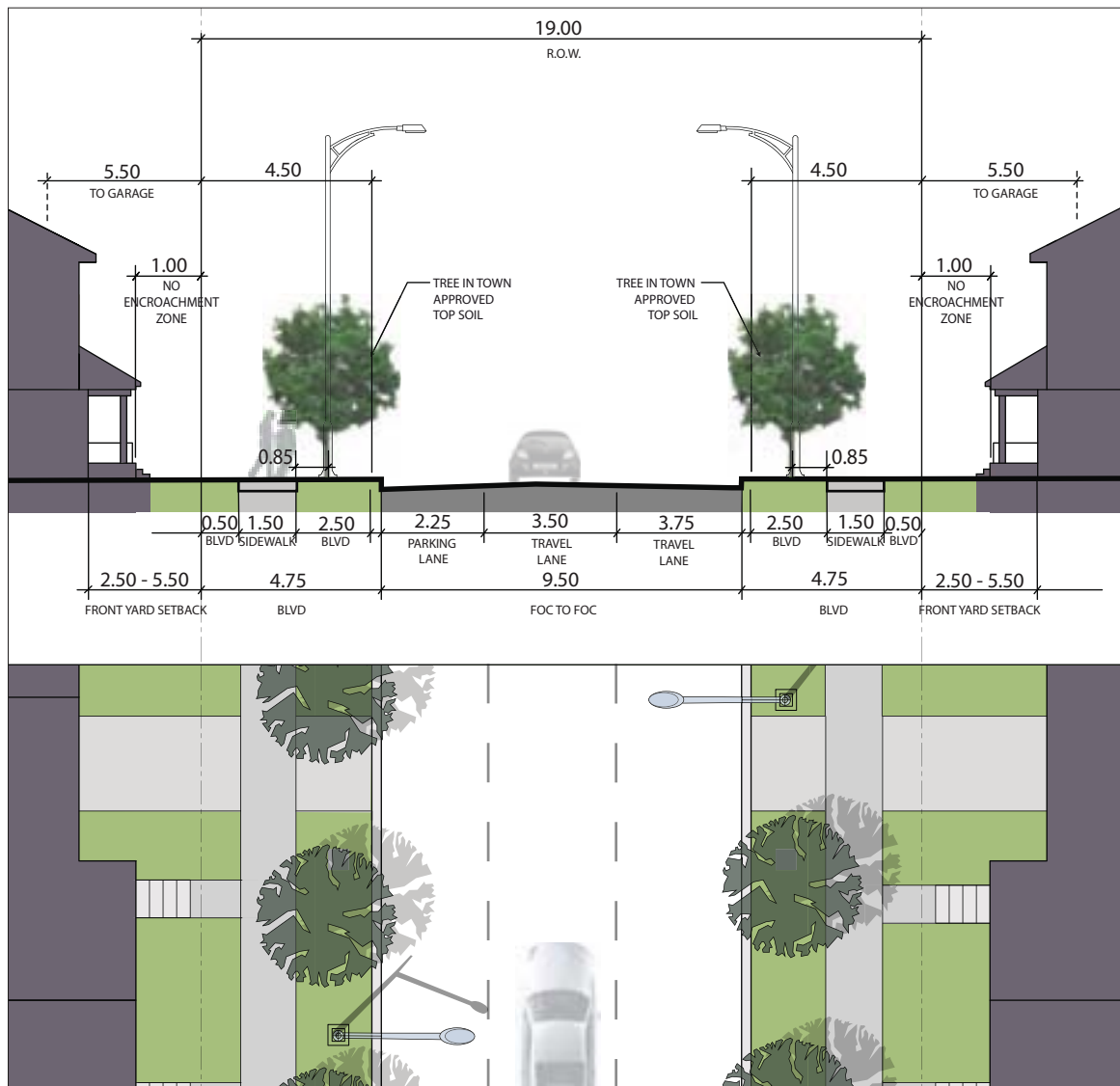


Figure 5.5: Typical Connector/Transit Corridor section through the General Urban and Sub Urban Designation. Street tree height at maturity will vary according to species and the availability of optimum growing conditions (i.e. adequate water, sunlight, soil volume), the protection from compacted soils, salt spray, mechanical damage, pests, and maintenance programs. Please refer to tree habitat design guidelines found in Table 9 of Oakville's Urban Forest: Our Solution to Our Pollution (2006).

### 5.2.4. Local Road

Local Roads will be designed to provide access to individual properties and serve internal residential neighbourhood, Core Area or Employment District travel demands. Local Roads will also connect individual properties to other Local Roads, Avenue/ Transit Corridors or Connector/Transit Corridors.

Specific technical details of the cross-section (i.e. plant material, soil type, engineering standards) will be determined through the appropriate design review process.

The treatment of the boulevard will reflect adjacent land use and whether on-street parking is provided.

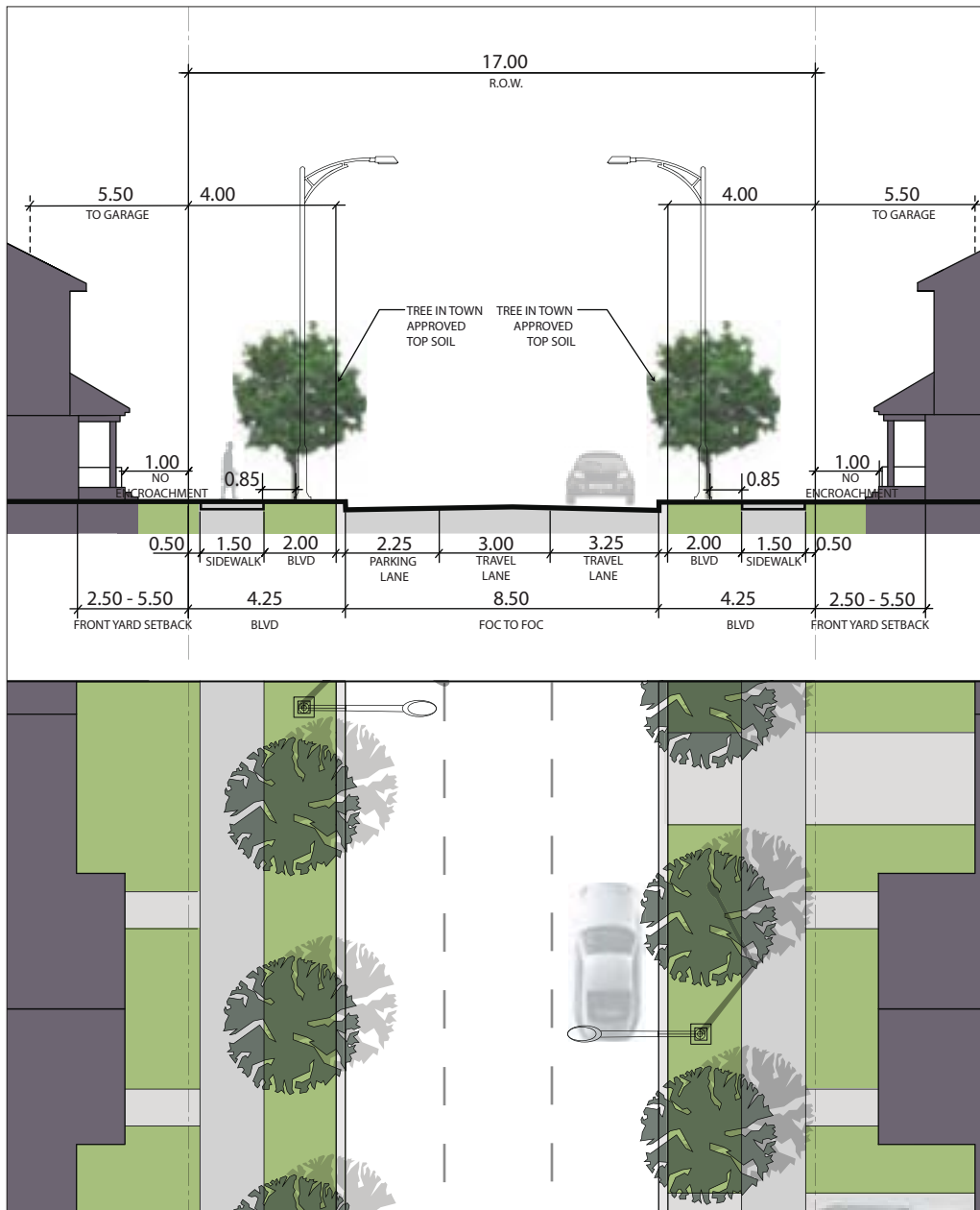


Figure 5.6: Typical Local Road section through the General Urban and Sub Urban Designation. Street tree height at maturity will vary according to species and the availability of optimum growing conditions (i.e. adequate water, sunlight, soil volume), the protection from compacted soils, salt spray, mechanical damage, pests, and maintenance programs. Please refer to tree habitat design guidelines found in Table 9 of Oakville's Urban Forest: Our Solution to Our Pollution (2006).

# Attachment 9

Proposed 11.0 metre Cross-section



## Laneway

Typical roadway cross-sections for the 11.0m laneway right-of way includes:

- Sidewalks on one side of the laneway;
- One lane in each direction;
- Buffer setback on both sides - may include small stature/narrow crown street tree and foundation planting;
- Street tree species shall adhere to approved Town of Oakville specifications;
- All planting shall be in accordance with the North Oakville Urban Forestry Strategic Management Plan.
- Street light poles and luminaires shall reflect approved Town standards, complementary to the surrounding communities.

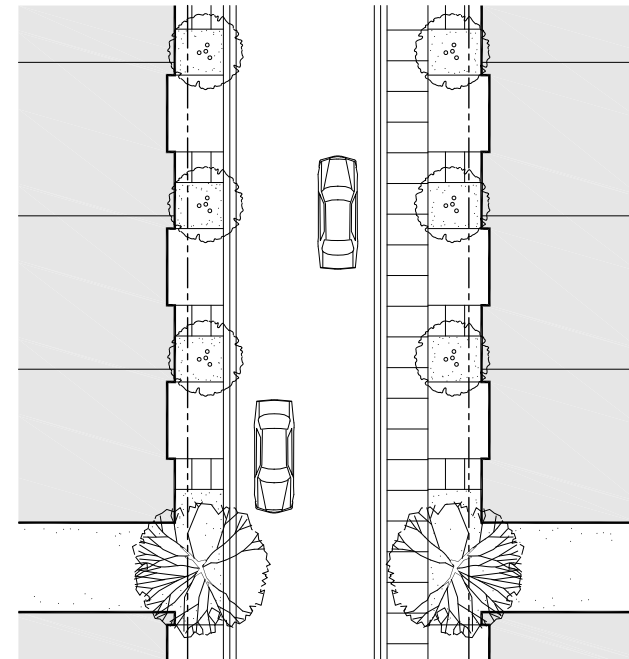
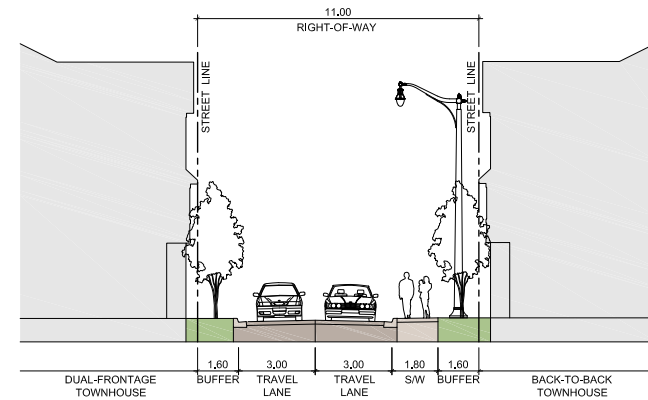
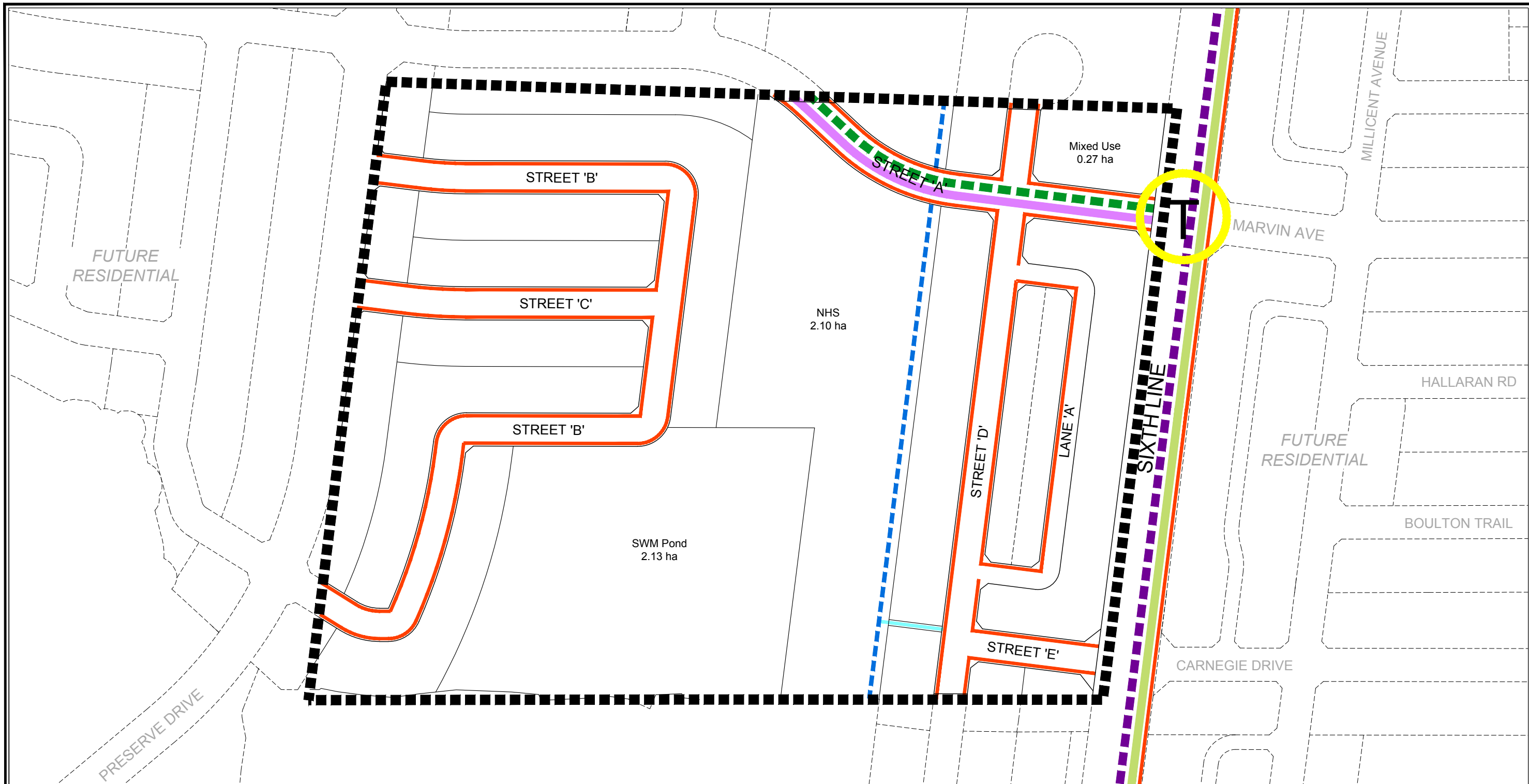


Figure 6.3.1d - Laneway - 11.0m R.O.W. / 2 travel lanes / sidewalk on one side / buffer on both sides




# Attachment 10

Korsiak Planning – Pedestrian Circulation Plan



**Legend**

-  Sidewalks
-  Walkways
-  Bicycle Lane\*\*
-  Signed Bike Route\*\*
-  Major Trail System\*\*

-  Secondary Transit Corridor Service\*
-  Community Service\*
-  Potential Transit Stop Location

\* From Figure NOE4 - Transportation Plan - NOESP  
 \*\* From Figure 1 - North Oakville Trails Plan

# Argo West Morrison Creek

## PEDESTRIAN CIRCULATION / TRANSIT FACILITY PLAN

SCALE 1:2000

December 19, 2019

S:\Korsiak & Company\ARGO West Morrison\Pedestrian Circulation\Dec 19\Argo West Morrison - Pedestrian Circulation - Dec 19\_se.dwg



206-277 Lakeshore Road East  
 Oakville, Ontario L6J 1H9  
 T: 905-257-0227  
 info@korsiak.com