



APPENDIX P

Traffic Assessment - Street 6 Justification



MEMORANDUM

August 28, 2024

Reference No.: 20009.03

TO: Manirul Islam / Planner, Infrastructure Planning and Permits / TRCA

FROM: Christopher Sidlar / Vice President, Transportation / LEA
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CC: Mustafa Ghassan / Senior Manager and Partner / Delta Urban Inc.
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RE: **Block 27 Collector Road Municipal Class Environmental Assessment (MCEA)**
Traffic Memo - Street 6 Connection Between Street 1 and Street 2

1 INTRODUCTION

Based on the comments received from TRCA dated September 29, 2022, regarding the Block 27 Collector Roads Municipal Class Environmental Assessment (MCEA) alternative road alignments, it is understood that TRCA Planning Ecology and the Ministry of Natural Resources and Forestry have concerns with the segment of Street 6 through the woodlot between Street 1 and Street 2 (see **Figure 1-1**). It is further understood that TRCA Planning Ecology recommended further consideration to terminate Street 6 at Street 2 to reduce significant environmental impact.

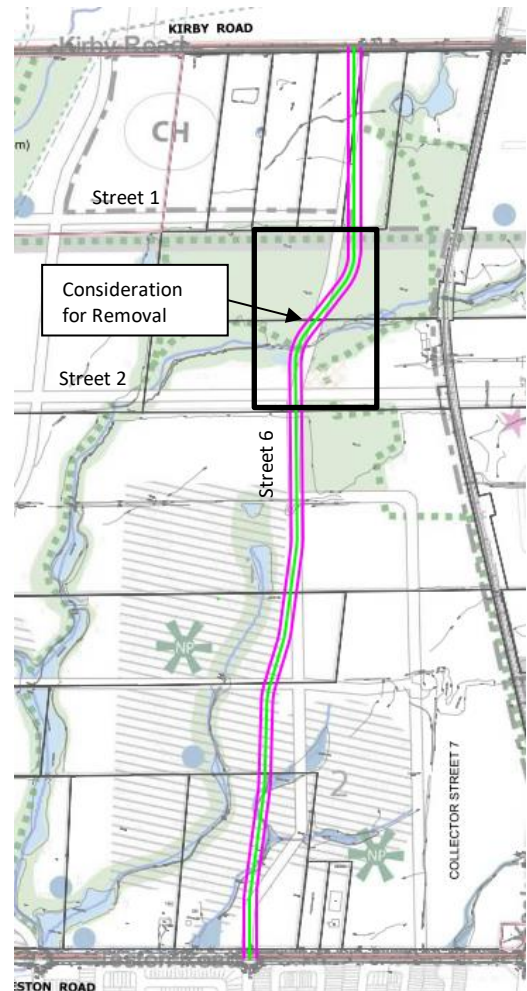
In response to concerns regarding the Street 6 connection through the woodlot, LEA has reviewed the preferred road network from a high-level traffic perspective to form additional rationale and determine the minimum road connection needed to service the Block 27 development, as described below.

2 STREET 6: CROSSING OF THE NATURAL HERITAGE NETWORK JUSTIFICATION

2.1 NVNCTMP AND BLOCK 27 SECONDARY PLAN

The North Vaughan and New Communities Transportation Master Plan (NVNCTMP) was initiated to develop a road network for the Block 27 planned community. As part of the recommended road network, the segment of Street 6 between Street 1 and Street 2 traverses the largest natural core area in Block 27 and an environmentally significant woodlot, which,

Figure 1-1: Block 27 Street 6A Alternative





based on field observations, forms part of a system of terrestrial animal habitat. The needs and justification of Street 6 through the woodlot were initially documented in the NVNCTMP and included within the recommended transportation network shown in the Block 27 Secondary Plan. The provision of a Street 6 crossing was selected as the preferred solution within the NVNCTMP as it provides better transportation connectivity for all travel modes and a stronger case for construction based on the following reasons:

- Reduces the overall vehicle kilometers travelled by providing a more direct connection;
- Supports pedestrian and cyclist movement associated with the Kirby GO station, community facilities, and intensification identified on the north side of the woodlot; and
- Better supports transit routing options as any desire to route transit services on Street 6 spanning Block 27 would not be possible without the connection unless busses divert to Street 5.

Furthermore, the City of Vaughan Official Plan requires the provision of two north-south and two east-west collector roads in all new development blocks. Due to constraints within Block 27, only one continuous east-west road was recommended within the NVNCTMP. As such, the inclusion of two continuous north-south collector roads was identified as important from a transportation perspective.

3 TRAFFIC ANALYSIS

Given environmental concerns with the Street 6 connection through the woodlot, additional traffic modeling was undertaken to compare the high-level traffic projections of the internal road network with and without the Street 6 connection under the following 2 scenarios:

- ▶ **Scenario 1 (Full Network - Ultimate Conditions):** This scenario analyzes the traffic projections for the block in accordance with the recommended full road network from the NVNCTMP.
- ▶ **Scenario 2 (Removal of the Street 6 Connection - Ultimate Conditions):** This scenario analyzes the traffic projections for the block without the Street 6 connection through the woodlot. North-south traffic on Street 6 was redirected to Street 5.

3.1 TRAFFIC PROJECTION METHODOLOGY

The following traffic projections assess both scenarios under future total conditions for the 2031 horizon year upon full buildout of the block. Future 2031 traffic within Block 27 was estimated based on preliminary Block 27 development statistics which have been broken down into six (6) traffic analysis zones (TAZs) that align with the location of collector roadways and major environmental features (see **Table 3-2**). The 6 TAZs are illustrated in **Figure 3-1** for reference.



Table 3-1: Development Statistics

TAZ	Residential (units)				Non-Residential (GFA m ²)		Schools (Students)
	Mid-Rise	Low-Rise	Attached	Detached	Retail	Office	
1	1,081	442	526	231	16,070	1618	1,000
2	928	0	0	0	5,798	5798	0
3	0	379	577	324	12,378	0	500
4	0	59	273	233	1,943	0	500
5	0	348	549	317	11,380	0	2,000
6	800	0	0	0	0	0	0
Total	2,809	1,228	1,925	1,105	47,568	7,417	4000
	7,067				54,985		

Figure 3-1: Traffic Analysis Zones (TAZs)

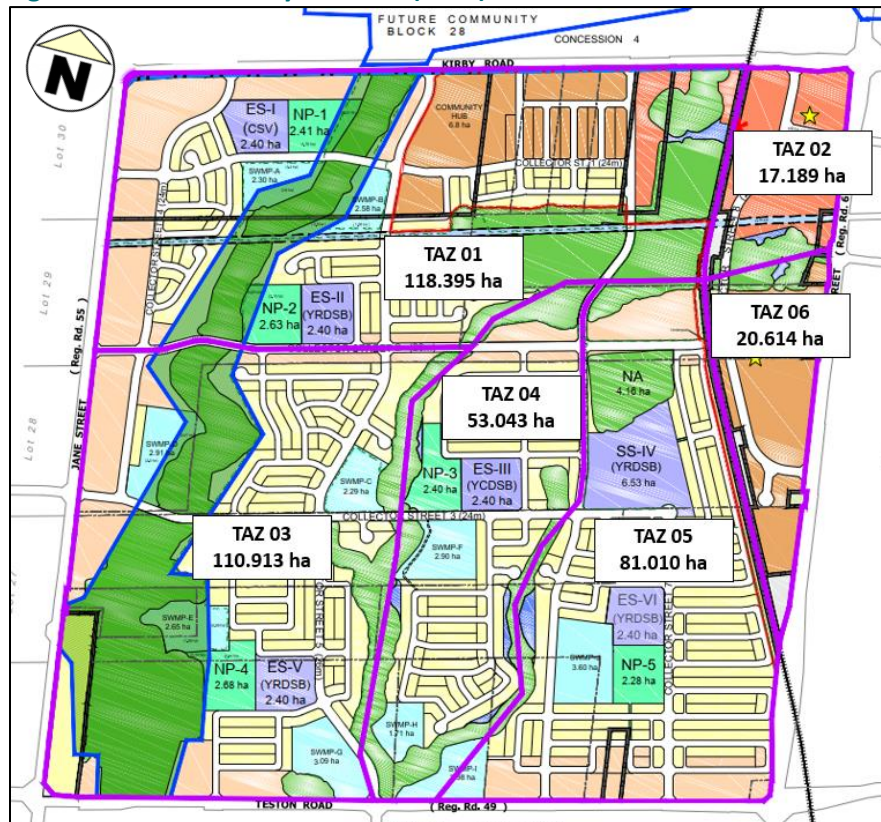




Table 3-2 summarizes the trip generation results under full development of the block.

Table 3-2: Block 27 Trip Generation

Zone	Full Block Development					
	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
1	453	929	1,382	693	798	1,491
2	133	341	474	228	300	528
3	273	600	873	390	523	913
4	131	194	325	201	165	366
5	470	643	1,113	569	592	1,161
6	61	169	230	182	119	301
Total	1,521	2,876	4,397	2,263	2,497	4,760

Full development of Block 27 is anticipated to generate a total of 4,397 two-way trips during the AM peak hour (1,521 inbound and 2,876 outbound) and 4,760 two-way trips during the PM peak hour (2,263 inbound and 2,497 outbound).

The generated trips for each zone were then distributed using Transportation Tomorrow Survey (TTS) data and external nodes in an Aimsun model in order to carry out specific assignment of traffic onto the road network.

3.2 DISCUSSION/ANALYSIS

Table 3-3 and **Table 3-4** summarizes the southbound and northbound vehicular flows from Street 5 and Street 6 to determine the traffic implications of removing Street 6 through the woodlot under ultimate full buildout conditions. Detailed modelling figures to support the analysis are provided in **Appendix A**.

Of note, as part of the NVNCTMP, the preferred alternative solution recommended a 2-lane roadway configuration for all collector streets and recommended that all three (3) major collectors (i.e., Street 2, Street 5, and Street 8) be protected for 4 travel lanes. As such, the analysis considered a 4-lane roadway configuration for all major collector roads.

Table 3-3: Traffic Implications of Removing Street 6 Through the Woodlot (Ultimate Conditions - AM)

#	Scenario Description	Street 6 Volumes				Street 5 Volumes			
		Through Woodlot		North of Street 1		North of Street 2		North of Street 1	
		SB	NB	SB	NB	SB	NB	SB	NB
1	Ultimate development; with Street 5 through to Kirby; and with Street 6 connection though the woodlot	175	92	35	31	320	251	49	54
2	Ultimate development; with Street 5 through to Kirby; and without Street 6 connection though the woodlot	n/a	n/a	40	88	387	317	65	45
Difference		-	-	+5	+57	+67	+66	+16	-9



Table 3-4: Traffic Implications of Removing Street 6 Through the Woodlot (Ultimate Condition - PM)

#	Scenario Description	Street 6 Volumes				Street 5 Volumes			
		Through Woodlot		North of Street 1		North of Street 2		North of Street 1	
		SB	NB	SB	NB	SB	NB	SB	NB
1	Ultimate development; with Street 5 through to Kirby; and with Street 6 connection through the woodlot	175	123	120	61	429	386	133	118
2	Ultimate development; with Street 5 through to Kirby; and without Street 6 connection through the woodlot	n/a	n/a	151	144	482	477	131	142
Difference		-	-	+31	+83	+53	+91	-2	+24

Based on the analysis above, while higher traffic pressure is anticipated on adjacent roadways (i.e., Street 5), future ultimate traffic conditions are comparable with and without the inclusion of Street 6 through the woodlot. Removal of a Street 6 connection results in at most, 67 and 91 trips redistributed to Street 5 and the remaining link of Street 6 to Kirby Road during the AM and PM peak hours, respectively. Despite traffic redistribution, there is residual capacity on Street 5 to accommodate volumes without a Street 6 connection and the network is anticipated to operate well under ultimate full buildout conditions.

The removal of a Street 6 connection through the woodlot is acceptable from a traffic operations perspective provided that Street 5 to Kirby Road develops as a 4-lane roadway at the onset of the project.

4 CONCLUSION

The needs and justification of the Street 6 connection through the woodlot were initially documented in the NVNCTMP and included within the recommended transportation network shown in the Block 27 Secondary Plan. The provision of a Street 6 crossing was selected as the preferred solution within the NVNCTMP as it provides better transportation connectivity for all travel modes.

Additional traffic modelling was conducted to determine the implications of removing the Street 6 connection to mitigate fragmenting a significant woodlot. While higher traffic pressure is anticipated on the adjacent roadways (i.e., Street 5), a connection of Street 6 through the woodlot is not required from a traffic perspective provided that Street 5 develops as a 4-lane roadway at the onset of development. The minimum north-south road connection needed to service the Block 27 development and accommodate the anticipated traffic volumes includes Street 5 as a 4-lane cross-section.

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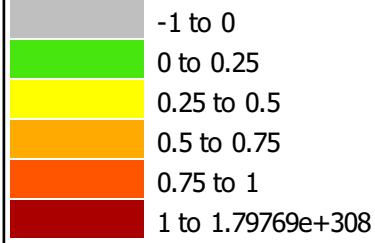
enclosed: Appendix A: Detailed Traffic Modelling Figures



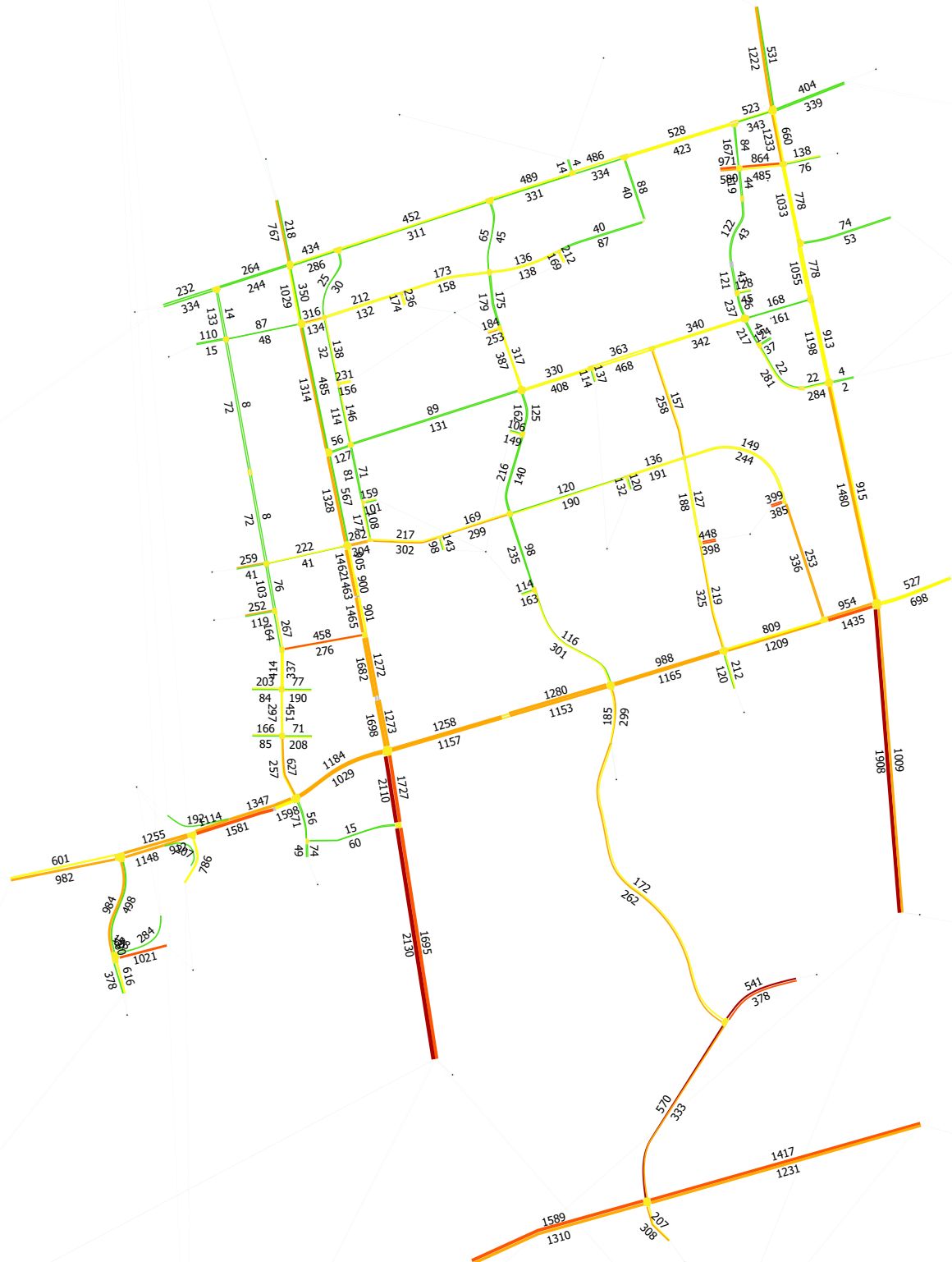
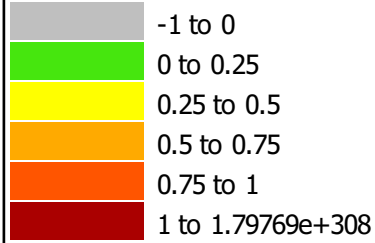
APPENDIX A

Detailed Traffic Modelling Figures

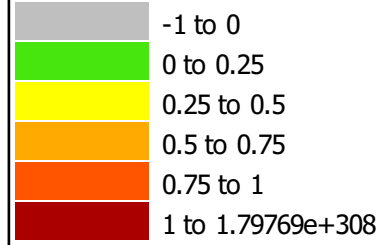
Simulated V/C (Colour)



Simulated V/C (Colour)



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